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First published 1999
The Printing and Graphic Arts Industry Training Package describes the competencies needed to achieve qualifications in the industry, and also provides information about courses and materials that may be used to achieve these competencies.

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About the Training Package

This package has been developed by the National Printing Industry Training Council which is part of InfoComP Training. It contains the endorsed component of the printing industry training package.

NPITC has been the competency standards body for the printing industry for a number of years and has previously produced sets of standards for screen printing, pre-press and press and post-press. These standards have been revised and incorporated into an overall structure that covers the whole printing industry in this package.

The endorsed part of the training package consists of the following sections:
- competency standards, complete with evidence of competency
- assessment guidelines
- qualifications and titles at different levels.

A non-endorsed component of the training package is also being developed.

Under the new training framework competency standards represent the measurable outcomes on which qualifications and certification will be based. Traditional training curriculum and modules become simply one means to the end of achieving competency. These are still considered by the industry to be important and will be identified as part of the non-endorsed component of the package.

The industry's approach to qualifications is that criteria for the award of certification at any level should be as flexible as possible and based on the achievement of groupings of competency standards at defined levels. Suggested pathways and groupings for individual industry sectors have however been developed.

The endorsed parts of this training package should be subject to continued review and revision to ensure that their currency in a rapidly changing environment is maintained.

Industry Coverage

The Printing and Graphic Arts Industry competency standards cover all aspects of the industry from paper merchanting and ink manufacture through to the production of all kinds of printed or paper products. In addition they recognise the development and convergence of new technologies and so competencies relating to the compiling of multimedia products are also included. Competencies cover all job functions from basic production functions (AQF I/II) through trade level work (AQF III/IV) to technician and supervisory functions (AQF V/VI).

This training package covers the following training and certification pathways in the printing industry:

**Graphics sector**
- Desktop Publishing (Certificate II only)
- Print Design (Certificate II only)
- Graphic Pre-press (Certificate III/IV, Diploma, Advanced Diploma)
- Multimedia (Certificate III/IV, Diploma, Advanced Diploma)

**Printing and finishing sector**
- Small Offset (Certificate II only)
- Print Production Support (Certificate II only)
- Printing (Certificate III/IV, Diploma, Advanced Diploma)
- Print Finishing (Certificate III/IV, Diploma, Advanced Diploma)

**Screen Printing sector**
- Screen Printing (Certificate II/III/IV, Diploma, Advanced Diploma)

**Carton sector**
- Cardboard box, Container and Carton (Certificate II/III/IV, Diploma, Advanced Diploma)

**Corrugating – solid fibreboard sector**
- under consideration (Certificate II/III/IV, Diploma, Advanced Diploma)
Services/merchants sector
Graphic Arts Services (Certificate II only)
Certificate III in Engineering (Mechanical – Graphic Arts Service Technician)
Graphic Arts Services Technician (Certificate IV, Diploma, Advanced Diploma)

Other sectors
Ink Manufacture (Certificate II/III/IV, Diploma, Advanced Diploma)
Mail house (Certificate II/III/IV, Diploma, Advanced Diploma)

General Pathways
Pre–vocational pathway
Management/Sales (Certificate IV, Diploma, Advanced Diploma)
General (Certificate II/III/IV, Diploma, Advanced Diploma)

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COMPETENCY STANDARDS SECTION

Contents of Competency Standards Section:

Introduction
Assessment Guidelines

Support Units
Pre-press Units
Multimedia Units
Printing Units
Screen Printing Units
Converting Binding and Finishing Units
Printing Engineering
Ink Manufacture
Holistic Knowledge Components
National Generic Standards

Training Pathways in the Printing and Graphic Arts Industry
Introduction

Competency standards are skills that you may use in the workforce. They have been identified and endorsed by the industry across Australia.

Structure of competency standards

Each unit of competency has a number of parts.

Unit number and title.
The unit number identifies the general sector of the unit and gives it a number and level (see below for details). The title gives a general description of the content of the unit.

Elements and performance criteria.
These break each unit down into smaller parts and say what has to be done and how it should be done.

Range of variables.
This describes the context in which the competency is carried out.

Evidence guide.
This says what must be demonstrated in order to be assessed as competent. In most cases the required evidence has two parts: a description of a job that must be done a certain number of times and a list of areas of underpinning knowledge that will show that the workers being assessed know why they are doing what they are doing. In some cases further guidance to assessors is given in brief descriptions of context and critical aspects of assessment. This has not been considered necessary in all cases.

Sample questions for underpinning knowledge.
This is a set of questions related to the areas of underpinning knowledge in the evidence guide. They were developed to assist workplace assessors and are designed to test whether workers being assessed know why they do things in a particular way and if they can cope with problems. They are indicative only and not intended to define the full scope of required knowledge. It is expected that other questions would also be asked. Assessors may need to seek alternative assessment methods if language and literacy difficulties prevent candidates from demonstrating underpinning knowledge by answering questions.

The standards are divided into several different groupings or sectors.

Support units
(indicated by SU). These are generic skills that support production processes found in all sectors of the industry.

Pre-press
(indicated by PP) These cover all pre-press functions.

Multimedia
(indicated by MM) These cover multimedia applications relevant to the printing industry.

Printing
(indicated by PR) These cover all printing functions.

Screen printing
(indicated by SP) These cover all screen printing functions.

Converting binding and finishing
(indicated by CF) These cover all finishing functions including paper converting, etc.
Printing engineering
(indicated by PE) These cover the installation, servicing and decommissioning of equipment.

Ink manufacture
(indicated by IM) These cover the manufacture of inks and varnishes.

Holistic knowledge components
(indicated by KN) These cover knowledge required to work in particular industry sectors. They do not have an "a" to "e" rating and do not count as units towards certification. They are designed as a quality assurance tool to ensure that workers gaining Certificate III or above have a broad knowledge of their industry and related industry sectors. They also define a knowledge base about the industry for people entering the industry without a technical background.

For people in technical areas most of the knowledge would be acquired through technical units, however because of the flexibility of electives it is possible that some parts of the required broad overview may be missed and these components ensure that coverage. Because of this overlap however, it is not appropriate for them to be counted like production related units towards certification.

National generic standards
(indicated by BSX) These include Frontline Management Standards and Workplace Training and Assessment Standards.

Most jobs would involve competencies from the support units and at least one other group. Screen printers for instance would use competencies from pre–press and converting, binding and finishing as well as screen printing and the support units, and printers may well acquire some pre–press and finishing units.

It should be noted that at the basic level some standards are embedded in others. For instance ICPSU07bA Prepare machine for operation (basic) contains skills that are included in all basic set up units, and would be achieved and counted towards qualifications if those units were also achieved. The assessment for both units could take place at the same time.

The position of the printing industry is that relevant standards developed by other standards bodies can also be imported and used towards printing industry qualifications. In such cases the assessment criteria defined by those bodies would be accepted.

Each unit of competency has a number. The first two letters indicate the sector. The next two numbers identify the competency. The final letter (a–e) indicates the level of difficulty or complexity. Closely related competencies (for instance producing basic and complex products) will tend to have the same middle number but a different level of difficulty.

A rough guide to the levels is:
- a skills needed to function in the workplace
- b basic production skills (achieved after up to a year's experience perhaps)
- c basic trade level or equivalent.
- d advanced trade level
- e post trade, technician, supervisor.

When standards developed by other standards bodies are imported the general rule to be applied is that standards written at AQF II are "b"; those written at AQF III are "c"; those written at AQF IV are "d" and those written at AQF V or VI are "e".

Customising Competency Standards
The Printing and Graphic Arts Industry Competency Standards have been written in terms of generic skills. They do not reflect specific machine types, and, particularly in the finishing area, many machines may incorporate several different standards. The standards also do not specify times and tolerances. The reason for both these features is the diversity of the industry and the need to have standards that are relevant across the whole industry.

Enterprises may however wish to customise the standards for their own workplace. This can be done by specifying tolerances and constraints or by adapting standards to a particular machine type in order to facilitate assessment. An example would be to develop a standard for a gatherer / stitcher / trimmer in which the common elements of loading and delivering substrate occurs once and the operation specific elements for each process are included within the one standard.
The industry supports both types of customisation. When tolerances and constraints are included, so long as they are not incompatible with the written evidence guides, this simply provides an enterprise benchmark for assessment. When several standards are combined, or a standard is split into two because of specific work practices, the new enterprise standard(s) should be mapped against the industry standards for certification purposes. For example:

- Completion of enterprise standard "Operate a gatherer/stitcher/trimmer" is equivalent of the three national standards
  - ICPCF24bA Produce cut (trimmed) product
  - ICPCF44bA Produce basic collated (sheet / section) product
  - ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product

Care will need to be taken to ensure that all requirements of the national standards are met.

Certification will still be based on the achievement of the national standards.

**Literacy and Numeracy**

The standards have been written and checked to ensure that any requirements for literacy and numeracy are clear and appropriate. NPITC consulted about these issues, and how they could be incorporated in the standards, with a representative from Language Australia (The National Language and Literacy Institute of Australia).
Assessment Guidelines

Assessments against the competencies in the Training Package will be carried out in accordance with these endorsed guidelines. The guidelines include the necessary qualifications for those conducting assessments and provide for those situations where more than one person may contribute to the assessment and where the required technical and assessment competencies may not all be held by one person.

What is assessed?
Printing and Graphic Arts Industry competencies (1999 revision) cover a full range of competencies used in the printing industry in Australia. Some parts of the industry also use competencies that have been developed by other competency standards bodies and provision has been made to access these standards as required.

Printing and Graphic Arts Industry competencies are based on performance to production standards and under production conditions and therefore need to be assessed in the workplace to maintain validity.

In certain circumstances part of an assessment may be done off the job in an environment that closely replicates a real production situation. This environment will vary according to the Unit of Competence and the area from which the Unit is selected. For example, demonstrating skills in Units addressed at high speed, high volume large scale print production will require a different setting from those in the multimedia area.

The training provider must replicate a production environment: that is, equipment and materials match industry standards, time and wastage constraints meet industry norms and job specifications match an actual industry job consistent with the Unit of Competence being assessed. Such assessments must be supplemented with evidence of on-the-job performance before Units are achieved and qualifications awarded. Suitable evidence need not necessarily involve re-assessment on the job and could include simply a letter from an employer stating that the competency or relevant work is being satisfactorily performed.

Training organisations are free to issue interim Statements of Attainment that can be confirmed (and used for AQF qualifications) once the skills have been used in the workplace.

To be assessed as competent, a worker must demonstrate a specified operation a certain number of times (details and contexts are included in evidence guides) and also demonstrate that they have certain specified underpinning knowledge. To assist in the assessment of underpinning knowledge lists of indicative questions have been prepared. These lists are intended to provide examples of the type of questions that could be asked; they are not obligatory or exhaustive.

Role of Registered Training Organisations
In accordance with the Australian Recognition Framework (ARF) Registered Training Organisations (RTOs) must be responsible the issuing of qualifications under the Australian Qualifications Framework (AQF). In carrying out this role RTOs will also be involved in validating workplace assessments in partnership with enterprises. The industry will seek an assessment only service from RTOs since about half the production workforce does not access off the job training. Further details of the role of RTOs are incorporated in the following sections.

Who assesses? (Assessor qualifications)
All assessment for national recognition must be conducted by or auspiced through a Registered Training Organisation (RTO) which will be responsible for issuing each qualification and Statements of Attainment.

Assessment must involve a person or persons with the following skills:
1. Technical competence within the area at least to the level being assessed;
2. Knowledge of current practices within the industry;
3. Workplace assessor competencies from the Training Package for Assessment and Workplace Training:
   BSZ401A Plan Assessment; BSZ402A Conduct Assessment, and BSZ403A Review Assessment, which are deemed equivalent to: "Conduct assessment in accordance with established assessment procedure" and the extension unit "Plan and review assessment" from the former Assessor and Workplace Trainer.
competency standards endorsed by the National Training Board, but now superseded by Training Package for Assessment and Workplace Training.

These skills may be held by a single person or a partnership or team. Most assessment will involve a supervisor or other skilled worker from the workplace who is competent in the units being assessed. If they do not hold assessor qualifications their assessments and processes will be subject to validation by the RTO. It is not intended that a representative of the RTO (or indeed anyone with formal assessment qualifications) need necessarily be present at all assessment events.

**How is assessment done?**

Assessment involves two stages. Firstly workers must assess themselves as competent against the criteria stated in the evidence guides. A workplace assessment is then carried out. This assessment must take place over at least two separate occasions or jobs, as specified in the evidence guides, to ensure validity, reliability and the transferability of the competency between contexts. This is particularly important in a manufacturing environment where materials and processes can vary considerably on a single machine. Generally these assessments will involve the worker carrying out a particular operation while the assessor asks questions about why particular operations are done in particular ways, to confirm that the worker has sufficient underpinning knowledge to be able to transfer the skill to another context. In some cases the competency standards specify a portfolio approach in which case the assessor would look at the collected evidence (these assessments need only take place once since a number of events would be included in the portfolio).

Assessments need not necessarily take place on a single occasion: they could be done over time as a supervisor monitors a number of jobs. The worker being assessed should be told that this is happening.

In many cases several competency standards can be assessed at the same time. Workers need to be aware that this is happening. For instance a lithographic printing job could include six units if the basic embedded units have not previously been assessed.

ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare ink and additives
ICPPR31bA Set up for basic lithographic printing
ICPPR32cA Produce basic lithographic printed product

If the assessor is satisfied that the worker has the required skills and underpinning knowledge they will complete and sign off the assessment. If they are not satisfied that the worker is technically competent or if the worker has insufficient underpinning knowledge the assessor should give immediate feedback to the worker and explain where they need to do more work or study before being reassessed at a later date.

This assessment process is designed to be as inexpensive and non–intrusive as possible, consistent with valid and reliable outcomes.

Assessment of Holistic knowledge components can be done either on or off the job.

Assessment of National Generic Competencies (Frontline Management, Training and Assessment) and of imported competencies developed by other competency standards bodies or ITABs (e.g. Retail, Metals or Clerical Standards) will be done according to the criteria determined by those bodies.

**Guidelines for designing and conducting assessment**

NPITC believes that sufficient tools for assessing both skills and knowledge have been incorporated into the competency standards. Since the standards are assessed on live jobs in the workplace, there is no need for designing particular tasks but only for identifying appropriate jobs that meet specified criteria. Further advice to assessors and workers being assessed has been prepared in the Printing and Graphic Arts Industry Skills Passport.

**How is assessment recorded?**

Results of assessment will need to be recorded by the assessor in the workplace when they are completed, to be made available to the RTO for validation. When an RTO is not directly involved in an assessment event the industry recommends using the Printing and Graphic Arts Industry Skills Passport as provided in the non–endorsed part of this Training Package. The Skills Passport includes provision for self assessment, assessment on the job on two occasions with provision to record what equipment has been used, and space
to record the completion of any relevant training modules. The industry strongly believes that all the above information should be recorded.

Keeping the record of assessment is the responsibility of the individual worker until it is validated by the RTO.

The Skills Passport provides a simple means of recording achievement of competencies that can be easily verified by the RTO when certification is required. Once assessments have been verified and/or validated by the RTO or a certificate has been issued, records of the competencies involved will be kept by the RTO.

**Recognition of Prior Learning**

Since the new assessment process is simple and cost effective it will replace any other RPL process. It is likely that any alternative process would be more costly and less efficient.

**Certification**

Certificates will be issued by Registered Training Organisations (RTOs) in each state and territory. The requirements for certification at each level are:

**AQF I**

All 3 "a" level standards and 4 standards at "b" or above.

**AQF II**

All 3 "a" level standards and 9 standards at "b" or above. OR

All 3 "a" level standards and 5 "b" standards and 2 "c" standards from the production competencies (PP, MM, SP, PR, CF, IM)

**AQF III**

18 competency standards including at least 5 at "c" level or above. OR

16 competency standards including at least 1 at "c" and 2 at "d" level.

PLUS ONE appropriate holistic knowledge component

**AQF IV**

Requirement for AQF III plus 6 standards at "d" or "e" level

Requirement for AQF III plus 4 at "c" level and 4 at "d" or "e" level

**AQF V**

Requirement for AQF IV plus 6 standards at "d" or "e" level.

**AQF VI**

Requirement for AQF V plus 6 standards at "d" or "e" level.

Note: if standards are taken from the support units, equivalent standards in the Frontline Management units cannot also be counted. Equivalences are noted at the beginning of the relevant support units. At AQF II the alternative formula including "c" units only applies to production units: "c" level support units and national generic units may only substitute for "b" units. For alternatives at AQF II, III and IV intermediate formulas between those given are also acceptable. That is AQF II (7 "b"s and one "c"); AQF III (3 "c"s and one "d"); AQF IV (2 "c"s and 5 "d"s or "e"s). Holistic knowledge components are not counted in the above formula.

Note that the above requirements are minimum requirements. In some pathways, in order to qualify for certification, it will in practice be necessary to exceed the minimum number of "b" competencies specified in the formula.

**NOTE:** The above formula does not apply to the Certificate III in Engineering (Mechanical – Graphic Arts Service Technician) which is an engineering qualification customised for the printing industry.

The above formulas have been adopted in order to have a simple generic principle for certification within the industry. They have been validated as consistent with all current national curriculums and traineeships.

Certificates issued at any level will include a listing of the competency standards that have been achieved.

The State Training Authority (STA) will be responsible for auditing RTOs. The RTO, in partnership with industry, must ensure that quality is maintained and that assessment processes are valid and reliable. In cases where the RTO has been involved in off the job training auditing should be fairly straightforward and could, in part, be based on off the job evaluations. In cases where there is no off the job training component the RTO may need to extend the frequency and/or scope of the audit/verification process to ensure consistent quality.

The cost of the auditing/validation role for RTOs will be kept to a minimum. When off the job training is being provided the auditing can be part of the normal liaison between RTO and employer and there would be no
additional costs. Where there is no off the job provision (currently covering about half the industry) an
assessment only role will need to be adopted. It should be noted that many of the applicants for certification
will come from companies who are also providing trainees for off the job programs and it would seem
reasonable to provide similar certification facilities to all workers from such companies.

**Titles of Qualifications**
Certificates will be issued with titles in the following form:
Certificate (level) in Printing and Graphic Arts (pathway).

The pathways are those identified in this training package (qualification identification numbers are given in
[square brackets]):

*Graphics sector*
Desktop Publishing (Certificate II only) [01]
Print Design (Certificate II only) [02]
Graphic Pre–press (Certificate III/IV, Diploma, Advanced Diploma) [03]
Multimedia (Certificate III/IV, Diploma, Advanced Diploma) [04]

*Printing and finishing sector*
Small Offset (Certificate II only) [11]
Print Production Support (Certificate II only) [12]
Printing (Certificate III/IV, Diploma, Advanced Diploma) [13]
Print Finishing (Certificate III/IV, Diploma, Advanced Diploma) [14]

*Screen Printing sector*
Screen Printing (Certificate II/III/IV, Diploma, Advanced Diploma) [21]

*Carton sector*
Cardboard Box Container and Carton (Certificate II/III/IV, Diploma, Advanced Diploma) [31]

*Corrugating and solid fibreboard sector*
A pathway is under consideration for Certificate II/III/IV, Diploma, Advanced Diploma [35]

*Services/merchants sector*
Graphic Arts Services (Certificate II only) [41]
Certificate III in Engineering (Mechanical – Graphic Arts Service Technician) [MEM 302 98]
Graphic Arts Services Technician (Certificate IV, Diploma, Advanced Diploma) [42]

*Other sectors*
Ink Manufacture (Certificate II/III/IV, Diploma, Advanced Diploma) [51]
Mail house (Certificate II/III/IV, Diploma, Advanced Diploma) [52]

*General Pathways*
Pre–vocational Pathway
Management/Sales (Certificate IV, Diploma, Advanced Diploma) [62]
General (pathway not defined but available for any bundling of units that does not fit any other pathway) [61]

Pathways are determined by the competency standards listed later in this document. It is recommended that
people receiving the identified AQF qualifications must include those competency units identified as core.
For the purpose of assessment it is possible that some core competency standards may not be available in a
given workplace. In these circumstances up to TWO units ("b" level or above) may be dropped from the core.
This does not affect the formula for achieving qualifications. Also note that in some pathways, in order to
qualify for certification, it will in practice be necessary to exceed the minimum number of "b" competencies
specified in the formula. If the bundling of competency standards does not fit any of the defined pathways a
Certificate in Printing and Graphic Arts (general) can be issued.

To give even more flexibility up to TWO standards from outside the defined pathway can be included at each
level of certification.
Examples of Qualifications
Certificate II in Printing and Graphic Arts (Print Production Support) [ICP 2 12 99]
Certificate III in Printing and Graphic Arts (Screen Printing) [ICP 3 21 99]
Diploma in Printing and Graphic Arts (Management/Sales) [ICP 5 62 99]
Support Units

These units cover production support skills which are common across the industry.
They are intended to be used in conjunction with units from all other sections.

Support Units:ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine
SU02b Prepare, load and unload sheets / sections on and off machine
SU03b Prepare and maintain the work area
SU05b Store and retrieve images manually
SU07b Prepare machine for operation (basic)
SU08b Operate and monitor machines (basic)
SU10b Cut and finish offset blanket
SU11b Prepare ink and additives
SU11c Prepare ink and additives (advanced)
SU12b Prepare coatings, adhesives
SU16a Inspect quality against required standards
SU16e Set and apply quality standards
SU17e Perform laboratory quality tests of materials and finished product
SU21b Pack and dispatch product
SU21c Pack and dispatch (advanced)
SU22b Pack and dispatch solid waste
SU23b Treat and dispose of liquid waste
SU24b Perform basic machine maintenance
SU35b Lift loads mechanically
SU36b Shift loads mechanically
SU41b Undertake warehouse / stores materials processing
SU42c Undertake inventory procedures
SU45c Purchase materials and schedule deliveries
SU51c Undertake basic production scheduling
SU52e Plan operational processes
SU53e Prepare production costing estimates
SU54c Coordinate work of others
SU55e Supervise and schedule work of others
SU56e Control production
SU61a Follow OH&S practices and identify environmental hazards
SU61e Implement and monitor OH&S (OHS2)
SU62a Communicate in the workplace
SU62c Workteam communication
SU63b Perform basic industry calculations
SU64d Customer service / customer education
SU71b Provide basic instruction for a task
SU81b Use computer systems
SU81c Operate and maintain computer resources
SU81d Manage systems
SU81e System research development and diagnosis

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
ICPSU01bA  Prepare, load and unload reel(s) and cores on and off machine

Elements and Performance Criteria

ICPSU01bA–1  Prepare reel(s) and cores
   ICPSU01bA–1.1  Substrate is identified and located
   ICPSU01bA–1.2  Substrate is prepared to meet OH&S requirements and job specifications
   ICPSU01bA–1.3  Faulty material is visually identified and removed in accordance with company procedures
   ICPSU01bA–1.4  Substrate is positioned in correct unwind direction
   ICPSU01bA–1.5  Substrate is spliced / joined
   ICPSU01bA–1.6  Reel cores are selected or prepared to meet OH&S requirements and job specifications

ICPSU01bA–2  Load reel(s) and cores onto machine
   ICPSU01bA–2.1  Reels are loaded according to OH&S requirements and manufacturer's and enterprise procedures and specifications
   ICPSU01bA–2.2  Reel cores are loaded to meet job specifications
   ICPSU01bA–2.3  Area around machine is cleaned during and on completion of loading

ICPSU01bA–3  Unload reel(s) off machine
   ICPSU01bA–3.1  Reels are unloaded according to OH&S requirements and manufacturer's and enterprise procedures and specifications
   ICPSU01bA–3.2  Reels are prepared (stripped, stacked, wrapped, labelled) for next process according to manufacturer's and enterprise procedures and specifications
   ICPSU01bA–3.3  Reels are stored according to manufacturer's and enterprise procedures and specifications

Range of Variables

Range of machines  Range of printing, converting, binding and finishing, corrugating and laminating machines
Substrate types  Range of substrates within the major categories or paper, pressure sensitive material, board, plastics and related films, or metal
Substrate delivery  Wide and narrow reel delivery systems
Splicing medium  Splicing tapes and adhesives
Substrate preparation  Manual, semi-automatic and automatic zero speed or flying splicing mechanisms and a range of splicing patterns
Degree of autonomy  Working under supervision to defined procedures

Evidence Guide

Context
Competence is demonstrated by performance in ONE of
- printing
- converting
binding and finishing
- corrugating
- laminating machines

Competence is demonstrated with ONE of the major categories of substrate

**Required evidence**

Identify all stop and safety controls on the machine.

Prepare, load and unload at least TWO wide OR narrow reels and cores demonstrating BOTH manual and EITHER semi-automatic OR automatic splicing, in accordance with job specifications and listed performance criteria. BOTH tapes AND adhesive splicing mechanisms must be demonstrated.

Demonstrate Detailed knowledge of:

- OH&S
- identifying characteristics of reels
- identification of faulty reels and cores
- manual handling of reels
- preparation and loading of selected reels
- unloading reels off the machine for further processing
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances

**OH&S**

Identify all nip points, guards and safety devices on the machine.

What potential dangers are there at these points?

**Identifying characteristics of reels**

What necessary information can be obtained from the reel label?

What methods could be used to identify reel grain direction

**Identification of faulty reels and cores**

What features would indicate that a reel is faulty?

What techniques could be used to combat distorted reels?

What techniques could be used to combat distorted cores?

**Manual handling of reels**

What are the OH&S concerns related to the manual handling of reels?

**Preparation and loading of selected reels**

How would you determine the position of the reels on the unwind unit?

What techniques would be used to join reels to the web?

**Unloading reels off the machine for further processing**

What are the OH&S concerns related to the unloading reels off the machine?

What faults could be created by reels being unloaded incorrectly?

What preparations need to be considered for the next operation?

**Information sources**

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?

What information is included in these documents?
ICPSU02bA  Prepare, load and unload sheets / sections on and off machine

Elements and Performance Criteria

ICPSU02bA–1  Prepare sheet(s)
- ICPSU02bA–1.1  Substrate is identified and located
- ICPSU02bA–1.2  Substrate is prepared to meet job specifications
- ICPSU02bA–1.3  Substrate is positioned correctly to the machine
- ICPSU02bA–1.4  Faulty material is visually identified and removed in accordance with OH&S requirements and company procedures

ICPSU02bA–2  Load sheet(s) onto machine
- ICPSU02bA–2.1  Sheets are loaded according to OH&S requirements and manufacturer's and enterprise procedures and specifications
- ICPSU02bA–2.2  Area around machine is cleaned during and on completion of loading

ICPSU02bA–3  Unload sheet(s) off machine
- ICPSU02bA–3.1  Sheets are unloaded according to OH&S requirements and manufacturer's and enterprise procedures and specifications
- ICPSU02bA–3.2  Sheets are prepared (hand–stripped, stacked, wrapped, labelled) for next process according to manufacturer's and enterprise procedures and specifications
- ICPSU02bA–3.3  Sheets are stored according to manufacturer's and enterprise procedures and specifications

Range of Variables

Range of equipment
- Range of printing, converting, binding and finishing, corrugating, coating and laminating machines

Substrate types
- Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, metal, fabrics or textiles

Substrate delivery
- Large and small sheet / section delivery systems

Substrate preparation
- Manual and machine based fanning, turning and jogging

Feeding unit(s)
- Manual and automatic single sheet and stream fed pre–feeders and feeders

Stacking unit(s)
- Manual and automatic stackers

Degree of autonomy
- Working under supervision to defined procedures

Evidence Guide

Required evidence
Prepare, load and unload sheets / sections on and off any ONE appropriate machine incorporating specific enterprise requirements; manual techniques; fanning, turning, jogging (where appropriate) and stacking; to job and workplace specifications in accordance with the listed performance criteria.
Demonstrate detailed knowledge of:

* identifying characteristics of substrates (grain direction, gsm, watermarks)
* manual handling of the substrate
* preparation and loading of selected substrate
* unloading sheets off the machine
* identification of faulty substrates
* information sources

### Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

#### Identifying characteristics of substrates (grain direction, gsm, watermarks)
- What necessary information can be obtained from the package label?
- What methods could be used to identify substrate grain direction?
- How are watermarks identified in substrates?
- What are the different characteristics of coated and uncoated stocks?

#### Manual handling of the substrate
- What are the OH&S concerns related to the manual handling of substrates?
- What are the elements of a correctly knocked up stack?
- What are the benefits of fanning sheets prior to stacking or loading?
- When would sheets be turned?
- What are the procedures in turning substrates?

#### Preparation and loading of selected substrate
- What techniques are used to ensure that the stack is knocked up correctly?
- How would you determine which side guide the stack is positioned to?
- What methods are used to ensure correct positioning of watermarked substrates?
- Identify the printing side of any given substrate.
- How can distorted stacks be made even during loading?

#### Unloading sheets off the machine
- What are the OH&S concerns related to the unloading sheets off the machine?
- What faults could be created by substrate being unloaded incorrectly?
- What preparations need to be considered for following operations?

#### Identification of faulty substrates
- What conditions could cause a stack to be become uneven?
- What techniques could be employed to combat distorted stacks?

#### Information sources
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SU03b  Prepare and maintain the work area

Elements and Performance Criteria

SU03b–1  Perform general cleaning duties

SU03b–1.1  Requirements for cleaning duties are identified

SU03b–1.2  Personal safety equipment, where needed is selected and used according to OH&S and enterprise procedures

SU03b–1.3  Appropriate cleaning equipment and chemicals/detergents for specific tasks are determined, prepared and mixed to manufacturers’ specifications and OH&S procedures

SU03b–1.4  Procedures for handling, storage and correct disposal of cleaning liquids are carried out in accordance with enterprise, OH&S and EPA specifications

SU03b–1.5  Cleaning is carried out within OH&S requirements to meet enterprise requirements

SU03b–2  Transfer, remove or supply operating supplies, machine parts, tools, equipment, waste or finished products

SU03b–2.1  Requests are received, where relevant, and tasks are confirmed and organised according to specific procedures

SU03b–2.2  Tools and equipment are identified, stored and maintained in accordance with manufacturers’ recommendations to ensure ease of access and operator safety

SU03b–2.3  Appropriate equipment for transferring material or equipment is identified and organised, where relevant

SU03b–2.4  Material or equipment is loaded and unloaded using suitable equipment (other than forklift) in accordance with materials handling requirements, safe work practices and correct manual handling techniques

SU03b–2.5  Material is transferred to correct destination in a safe manner

SU03b–3  Handle chemicals

SU03b–3.1  Material data sheets are used to identify safe chemical handling procedures

SU03b–3.2  Chemicals are handled in accordance with manufacturers’ specifications and enterprise OH&S requirements

SU03b–3.3  The correct procedure for dealing with spilt chemicals is demonstrated in accordance with OH&S requirements,

Range of Variables

Sector  All sectors of pre-press, printing, screen printing, corrugating, converting and finishing

Tools and equipment  Manual, mechanical and electronic equipment used in the production process

Chemicals  Wet and dry chemicals

Workplace standards procedures  Defined standards and procedures for each workplace

Degree of autonomy  Working under supervision to defined procedures
Evidence Guide

Required evidence
Demonstrate cleaning, materials and equipment delivery and chemical handling according to performance criteria.

Demonstrate knowledge of:
- performing general cleaning duties
- handling of supplies, parts and finished products
- safe handling, storage and disposal of potentially dangerous equipment and materials
- safety requirements
- quality requirements

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Performing general cleaning duties
- What personal safety equipment may be required to perform cleaning duties?
- What are the OH&S concerns related to the use of cleaning chemicals?

Handling of supplies, parts and finished product
- What potential dangers are there when handling supplies or parts?
- What are the safety requirements for transporting finished products?
- What recording details are necessary in the transfer of the finished product?
- What safety requirements and procedures are necessary for the disposal of liquid waste?

Safety requirements
- What are the safety requirements for storing and disposing chemicals?
- What potential accidents can occur when cleaning or handling supplies?
- What are the weight limitations when lifting manually?
- What injuries may occur if correct lifting techniques are not followed?
- What is the general rule to follow when placing loads so as to avoid back injury?

Quality requirements
- How can incorrect handling affect quality?
SU05b  Store and retrieve images manually

Elements and Performance Criteria

SU05b–1  Store artwork, information, used plates and film
  SU05b–1.1  Inventory control procedures are followed to ensure correct filing of artwork, information, used plates and film
  SU05b–1.2  Artwork and other materials are stored in accordance with enterprise procedures to ensure preservation

SU05b–2  Retrieve artwork, information, used plates and film
  SU05b–2.1  An inventory control index is used correctly to retrieve artwork and other materials
  SU05b–2.2  Artwork and other materials are retrieved in accordance with enterprise procedures

Range of Variables

- Materials: Information relevant to clients and a range of artwork and/or photographic images and plates
- Degree of autonomy: Under limited supervision to defined procedures

Evidence Guide

Context
Competency should be assessed in the work environment using manual recording and inventory control systems where appropriate.

Critical aspects
The underlying skills associated with inventory control should be transferable across different work environments. It is important that substrate for storage be identified along with nature of storage environment.

Required evidence
Use an appropriate inventory control index to ensure correct storage and efficient retrieval of films AND plates AND artwork in accordance with listed performance criteria

Demonstrate a detailed knowledge of:
- operation of inventory control systems
- the nature of various materials and substrates

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

Operation of inventory control systems
What key information is required for accurate storage and ensuring retrieval?
What filing inventory procedures are utilised in your work environment?

The nature of various materials and substrates
What OH&S considerations are associated with materials and substrates used in the workplace? What are the main environmental considerations associated with storage of artwork, photographic materials and plates?
SU07b  Prepare machine for operation (basic)

Elements and Performance Criteria

SU07b–1  Obtain job instructions
SU07b–1.1  Job sheets or equivalent instructions are interpreted correctly

SU07b–2  Prepare or set up substrates
SU07b–2.1  Substrate is located, checked and prepared to meet job specifications in accordance with established workplace procedures and OH&S procedures
SU07b–2.2  Faulty material is visually identified and removed in accordance with established workplace procedures and OH&S procedures

SU07b–3  Set up reel transportation system and delivery systems on web–fed machine (OR SU07b–4)
SU07b–3.1  Unwind reel is set up and adjusted to suit job requirements
SU07b–3.2  Webbing procedures are carried out
SU07b–3.3  Web–control system is set up and adjusted to suit job requirements
SU07b–3.4  Reels are spliced / joined to suit job requirements
SU07b–3.5  Rewind reel is set up and adjusted to suit job requirements
SU07b–3.6  Folder is set up and adjusted to suit job requirements
SU07b–3.7  Sheeter is set up and adjusted to suit job requirements
SU07b–3.8  Readiness of transport and delivery systems is reported in accordance with company operating procedures for final adjustments by designated person

SU07b–4  Set up sheet transportation and delivery systems on sheet–fed machine (OR SU07b–3)
SU07b–4.1  Feeder is set up and adjusted to suit job requirements
SU07b–4.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
SU07b–4.3  Transfer systems are set up and adjusted to suit job requirements
SU07b–4.4  Delivery is set up and adjusted to suit job requirements
SU07b–4.5  Substrate is removed from process according to job instructions
SU07b–4.6  Sheet transfer and control system is set up and adjusted to suit job requirements
SU07b–4.7  Readiness of transport and delivery systems is reported in accordance with company operating procedures for final adjustments by designated person

SU07b–5  Prepare machine
SU07b–5.1  Machine is set up in accordance with job instructions
SU07b–5.2  Inks, glues and other liquid materials are loaded as required in accordance with manufacturer's instructions and company operating procedures
SU07b–5.3  Plates or cutting devices are installed as required in accordance with manufacturer's instructions and company operating procedures
SU07b–5.4  Registration, alignment or centring is confirmed in accordance with machine manufacturer's / supplier's instructions and company operating procedures
SU07b–5.5  Machine is run through cycle at the same time ensuring that the substrate is positioned properly and that process is being performed in accordance with established workplace and OH&S procedures
SU07b–5.6 Readiness of machine is reported in accordance with company operating procedures for final adjustments and proofing by designated person

**SU07b–6 Conduct shut down of production process**

SU07b–6.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

SU07b–6.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

SU07b–6.3 Unused ink / coating, if used in process, is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

SU07b–6.4 Used plates and cutting devices are removed and stored in accordance with manufacturer specifications and company operating procedures

SU07b–6.5 All product is removed from operating area

SU07b–6.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

SU07b–6.7 Repair / adjustment is verified prior to resumption of operations

**SU07b–7 Clean and wash up machine at end of run**

SU07b–7.1 Cylinder / screen / plate and roller surfaces, as relevant to process, are cleaned ready for next run

SU07b–7.2 Inking / gluing / coating system, if used in process, is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

SU07b–7.3 In-line printing / converting / binding / finishing / coating units are cleaned ready for next run

SU07b–7.4 Feed, transportation and delivery systems are disengaged and cleaned ready for next run

**Range of Variables**

<table>
<thead>
<tr>
<th>Machines</th>
<th>Range of printing, converting, binding, corrugating, laminating, coating processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substrates</td>
<td>All substrates</td>
</tr>
<tr>
<td>Workplace standards procedures</td>
<td>Defined standards and procedures for each workplace</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working under supervision or in teams to defined procedures. This unit is applicable to workers who assist in machine set up or prepare machines up to the stage of final adjustment and proofing.</td>
</tr>
</tbody>
</table>

**Evidence Guide**

**Required evidence**

Demonstrate all safety devices on the machine.

Prepare and set up to the stage of final adjustment and proofing any ONE machine according to manufacturer’s specifications and the listed performance criteria.

Demonstrate knowledge of:

- handling of supplies, parts and finished product
- substrate preparation and machine set up procedures
- shut down procedures
- cleaning and washing machine
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Handling of supplies, parts and finished product
- How do you avoid back strain when lifting heavy objects?
- How do you avoid damaging finished product?
- What supplies require special handling?

Substrate preparation and machine set up procedures
- What are the OH&S considerations when preparing substrates and setting up a machine?
- What are the procedures for the disposal of faulty materials?
- What are the possible danger areas of the machine?
- Where is the registration section of the machine?
- What is the function of the registration section of the machine?
- What problems could interrupt the running cycle of the machine?

Shut down procedures
- Which areas of the Machine are modified during shutdown?
- What areas of the machine should be checked for possible repair?
- What details should be included when labelling unused ink?

Cleaning and washing machine
- What are the OH&S considerations when washing up a machine?
- How could an ineffective wash-up affect the following production run?
SU08b Operate and monitor machines (basic)

Elements and Performance Criteria

SU08b–1 Obtain job instructions
  SU08b–1.1 Job sheets or equivalent instructions are interpreted correctly

SU08b–2 Operate and monitor reel transportation and delivery systems on web–fed machine (OR SU08b–3)
  SU08b–2.1 Reel stand is monitored and adjusted to ensure efficient continuous operation in accordance with job instructions
  SU08b–2.2 Web control system is monitored and minor adjustments made to ensure correct tension and accurate continuous positioning of the web for efficient operation
  SU08b–2.3 Substrate is added to process according to job instructions
  SU08b–2.4 Reel rewind section is monitored and minor adjustments made to maintain correct tension and to ensure no marks, blemishes or damage to finished product
  SU08b–2.5 Substrate is removed from process according to job instructions
  SU08b–2.6 Sheeting section is monitored and minor adjustments made to ensure quality and efficient product delivery
  SU08b–2.7 Need for major adjustments to process are identified and reported according to company operating procedure to designated person

SU08b–3 Operate and monitor sheet transportation and delivery systems on sheet–fed machine (OR SU08b–2)
  SU08b–3.1 Feeder is monitored and minor adjustments made to ensure continuous and efficient feeding to machine
  SU08b–3.2 Sheet pick up and transport system is monitored and minor adjustments made to ensure accurate and continuous sheet handling and efficient operation
  SU08b–3.3 Transfer systems are monitored and minor adjustments made to ensure correct and continuous sheet handling and efficient operation
  SU08b–3.4 Substrate is added to process according to job instructions
  SU08b–3.5 Delivery is monitored and minor adjustments made to ensure quality and efficient product delivery
  SU08b–3.6 Need for major adjustments to process are identified and reported according to company operating procedures to designated person

SU08b–4 Maintain and monitor production process
  SU08b–4.1 Production process is operated and monitored in association with fellow workers and in accordance with company specifications and planned daily schedule
  SU08b–4.2 Product is monitored and minor adjustments are made to ensure quality of output is maintained
  SU08b–4.3 Need for major adjustments to process are identified and reported according to operating procedure to other appropriate worker
  SU08b–4.4 Faulty performance of equipment is identified and reported in accordance with company procedures
  SU08b–4.5 Waste is sorted according to enterprise procedures

SU08b–5 Conduct shut down of production process
SU08b–5.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

SU08b–5.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

SU08b–5.3 Unused ink / coating, if used in process, is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

SU08b–5.4 Used plates and cutting devices are removed and stored in accordance with manufacturer / supplier specifications and company operating procedures

SU08b–5.5 All product is removed from operating area

SU08b–5.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

SU08b–5.7 Repair / adjustment is verified prior to resumption of operations

SU08b–6 Clean and wash up machine at end of run

SU08b–6.1 Cylinder / screen / plate and roller surfaces, as relevant to process, are cleaned ready for next run

SU08b–6.2 Inking / gluing / coating system, if used in process, is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

SU08b–6.3 In–line printing / converting / binding / finishing / coating units are cleaned ready for next run

SU08b–6.4 Feed, transportation and delivery systems are disengaged and cleaned ready for next run

Range of Variables

Machines
Range of printing, converting, binding, corrugating, laminating, coating processes

Substrates
All substrates

Workplace standards procedures
Defined standards and procedures for each workplace

Degree of autonomy
Working under supervision to defined procedures. This unit is applicable to workers who operate and monitor machines but who would require assistance for any major adjustments or problems.

Evidence Guide

Required evidence
Demonstrate all safety devices on the machine.

Under the supervision of, or in conjunction with a worker with the appropriate skills, operate, monitor and shut down and clean any ONE machine according to manufacturer’s specifications and the listed performance criteria.

Demonstrate knowledge of:
- handling of supplies, parts and finished product
- reel or sheet transport and delivery systems
- maintenance of production processes
- shut down procedures
- cleaning and washing machine
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Handling of supplies, parts and finished product
- How do you avoid back strain when lifting heavy objects?
- How do you avoid damaging finished product?
- What supplies require special handling?

Reel or sheet transportation and delivery systems
- What OH&S factors must be considered when setting and/or operating machine transport and delivery systems?
- What areas of the transport and delivery systems should be monitored to ensure trouble-free operation?
- What area of the web control system should be adjusted to maintain correct web tension?
- What needs to be checked when substrate is removed from the machine?

Maintenance of production processes
- What OH&S factors must be considered when operating and monitoring the production process?
- What are the basic criteria for assessing finished product?
- What adjustments can be made to the machine to correct TWO different production or quality problems?

Shut down procedures
- Which areas of the Machine are modified during shutdown?
- What areas of the machine should be checked for possible repair?
- What details should be included when labelling unused ink?

Cleaning and washing machine
- What are the OH&S considerations when washing up a machine?
- How could an ineffective wash–up affect the following production run?
SU10b  Cut and finish offset blanket

Elements and Performance Criteria

SU10b–1  Read and interpret job requirements
   SU10b–1.1  Blanket type and finishing materials required by job specifications are correctly identified from documentation
   SU10b–1.2  Required quantities of material are confirmed and shortages and/or defective materials reported / recorded

SU10b–2  Prepare materials
   SU10b–2.1  Cutting surface is cleaned in preparation for laying up
   SU10b–2.2  Blanket material is laid up and checked for imperfections according to workplace procedures
   SU10b–2.3  Material is measured and marked out according to job requirements
   SU10b–2.4  Bars are measured to meet job requirements

SU10b–3  Cut and finish blanket
   SU10b–3.1  Blanket, and bars if required, are cut in accordance with standard operating procedures and occupational health and safety requirements
   SU10b–3.2  Product is finished to job specifications

SU10b–4  Pack and dispatch product
   SU10b–4.1  Packaging is prepared in accordance with workplace procedures
   SU10b–4.2  Product is packaged, labelled, stored and delivered according to workplace procedures
   SU10b–4.3  Documentation is accurately completed according to workplace procedures

Range of Variables

Application  Blanket cutting and finishing is typically performed to defined procedures under supervision to ensure production requirements have been met

Documentation  Range of work instructions including job dockets, work sheets, specifications, labels, material safety data sheets etc

Workplace procedures  Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

OH&S  Includes relevant legislation, regulations and enterprise policies / guidelines

Materials  Range of rubber blankets of various thickness and compressibility, aluminium bars, glues, sealing paint, packaging materials

Machines / equipment  Includes guillotine, knife, straight edge, heat sealer, hole punchers, square, measuring devices, trolley, forklift

Evidence Guide

Required evidence
Cut and finish TWO blankets according to job specifications, workplace procedures, occupational health and safety requirements and the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:

- OH&S requirements
- blanket materials and their characteristics
- methods for minimising waste from blanket rolls
- use of hand tools and appropriate machinery
- accurate measurement
- handling, labelling and storage
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

**Answers need to show knowledge required when working in a limited range of circumstances.**

**OH&S requirements**
What health and safety aspects need to be considered your work area?

**Blanket materials and their characteristics**
What details are required for the correct selection of blanket, finish and packaging materials?
What steps need to be followed to maintain the condition of the blanket throughout the cutting / finishing process?
What factors can affect the compressibility of a blanket?

**Methods for minimising waste from blanket rolls**
Describe the methods used to minimise waste in blanket cutting.

**Use of hand tools and appropriate machinery**
What are the critical aspects of the preparation, cutting and finishing of blankets?

**Accurate measurement**
How do you ensure that blanket measurements are correct?

**Handling, labelling and storage**
What precautions need to be taken when packing blankets?
What system is in place for labelling and storage of packed product?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU11b Prepare ink and additives

This competency is largely incorporated into most printing set up competency units. It may be appropriate to assess it at the same time as these units.

Elements and Performance Criteria

SU11b–1 Select ink

SU11b–1.1 Inks, dyes and additives are selected in accordance with job specifications

SU11b–1.2 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken

SU11b–1.3 Inks and dyes are selected according to suitability of substrate, adhesion, physical and chemical resistance, and light fastness

SU11b–2 Prepare ink

SU11b–2.1 Inks, dyes and additives are prepared in accordance with occupational health and safety requirements, and manufacturers'/suppliers' instructions with suitable precautions to minimise waste

SU11b–2.2 Correct colour and weight/volume of ink is mixed and prepared to match the requirements of the job specification and the printing press to be used

SU11b–2.3 Formulation of the ink and the approved colour is appropriately recorded

SU11b–3 Store and handle ink

SU11b–3.1 Inks, dyes and additives are appropriately stored, handled and labelled in accordance with manufacturers'/suppliers' instructions to prevent damage and hazards to personnel

Range of Variables

Type of ink, substrate

Range of inks and substrates commonly used in printing industry

Colour matching systems

Commonly used matching procedures

Degree of autonomy

Autonomy required in working under supervision to defined procedures to ensure production requirements have been met

Type of equipment

Range of manual and electronic measuring equipment

Workplace procedures

Range of workplace procedures within defined work area

Quality processes and standards

Range of workplace quality processes and standards within defined work area

Evidence Guide

Required evidence

Prepare at least TWO lots of inks or additives to match a colour sample and specific end use requirements according to workplace specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

• selecting inks and additives to match process and job requirements
• preparing inks and additives
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Selecting inks and additives to match process and job requirements
- How is the suitability of the ink determined for the particular process?
- How were the characteristics of the chosen ink matched to the substrate?
- How do you determine if the ink adheres to the substrate?
- How do you determine the physical, chemical and light or colour fastness of the ink?

Preparing inks and additives
- What are the OH&S concerns related to the preparation of inks and additives?
- How are the correct handling procedures determined?
- How do you determine the correct weight / volume required?
- What methods are available to check and adjust ink colour and consistency?
- How do you determine if the quality of the ink or additive is up to the standard required?

Matching colour
- What are the OH&S concerns related to the matching of inks and additives?
- What effect do lighting conditions have on colour matching?
- How do you determine that the inks being mixed are compatible?
- How do you check inks for correct colour?

Storage, handling and labelling of inks and additives
- What MSDS for this ink system are at hand?
- What environmental conditions are relevant to the storage of inks and additives?
- What conventions should be adhered to when labelling mixed inks?
- Describe the method of disposing inks, solvent and solvent rags?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SU11c  Prepare ink and additives (advanced)

Elements and Performance Criteria

SU11c–1  Select ink
- SU11c–1.1 Inks and additives are selected in accordance with job specifications.
- SU11c–1.2 Quality and suitability of inks or additives are checked and appropriate action is taken.
- SU11c–1.3 Inks are selected according to suitability of substrate, adhesion, physical and chemical resistance, and light fastness.

SU11c–2  Maintain and calibrate equipment
- SU11c–2.1 Equipment is inspected to ensure it is functional and where necessary appropriate remedial action is taken prior to commencement.
- SU11c–2.2 Equipment is calibrated, cleaned and adjusted in accordance with manufacturers' / suppliers' instructions.

SU11c–3  Prepare ink
- SU11c–3.1 Inks and additives are prepared in accordance with occupational health and safety requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste.
- SU11c–3.2 Correct colour and weight / volume of ink is calculated, mixed and prepared to match the requirements of the job specification and the printing press to be used.
- SU11c–3.3 Formulation of the ink and the approved colour is appropriately recorded.

SU11c–4  Store and handle ink
- SU11c–4.1 Inks and additives are appropriately stored, handled and labelled in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel.

Range of Variables

- Type of ink, substrate: Ink and substrates used for screen printing or special inks used in other printing processes relative to the industry sectors.
- Colour matching systems: Colour matching systems commonly used in the industry.
- Degree of autonomy: Working in consultation with other relevant persons to defined procedures to ensure production requirements have been met.
- Type of equipment: Manual and electronic measuring equipment.
- Workplace procedures: Tasks must be performed in accordance with workplace procedures.
- Workplace quality standards: Tasks must meet workplace Quality Standards.

Evidence Guide

**Required evidence**
Prepare ink and additives and match colour sample by manual and electronic means to job specification to workplace standards and listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:

- OH&S requirements
- select ink / additives and test substrate compatibility
- calculate ink quantity and match sample by hand / computer
- mix ink and check consistency and colour
- identify ink type and record information
- storage, handling and labelling
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*

**OH&S requirements**

What safe working conditions are in place and what health hazards are considered when using inks, solvents and additives?
What pollution and environmental issues need to be considered when working with inks and additives?

**Select ink / additives and test substrate compatibility**

What are the substrate characteristics and the end use of the substrate?
What ink colour fastness is required?
How do you determine if ink adheres to the substrate?
How do you test solvents, monomers and additives compatibility with the ink?

**Calculate ink quantity and match sample by hand / computer**

Describe the formula for calculating correct quantity of ink.
What computer based package is used for calculation of ink quantity?
What details are required in order to calculate ink quantity?
How does the screen mesh, machine and squeegee affect ink coverage?

**Mix ink and check consistency and colour**

Describe the software program and the required inputs.
What are the ideal conditions for matching colours?
What effect does white mixed in colour have on finished colour light fastness?
What methods are there for checking and adjusting ink colour and consistency?
What are the machine characteristics and other parameters that affect ink deposit and consequently colour?
What are the effects of viscosity changes in the ink?

**Identify ink type and record information**

What procedures are there for recording the formulation by hand or by computer?
Who approves mixed colour prior to commencing production?
Where has the recipe for the colour been recorded?

**Storage, handling and labelling**

What system is in place for labelling mixed inks?
What environmental conditions are in place for the storage of inks?
Where are manufacturers’ specifications and MSDSs kept?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
SU12b Prepare coatings, adhesives

Elements and Performance Criteria

SU12b–1 Select coatings, adhesives and additives
   SU12b–1.1 Coatings, adhesives and additives are selected in accordance with job specifications
   SU12b–1.2 Quality and suitability of coatings, adhesives and additives are checked and appropriate action is taken
   SU12b–1.3 Coatings, adhesives and additives are selected according to suitability of substrate, physical and chemical properties and performance

SU12b–2 Prepare coatings, adhesives and additives
   SU12b–2.1 Coatings, adhesives and additives are prepared in accordance with occupational health and safety requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
   SU12b–2.2 Correct weight / volume of coatings, adhesives and additives are mixed and prepared to match the job specification and the process to be used
   SU12b–2.3 Formulation of the coatings, adhesives and additives is appropriately recorded

SU12b–3 Store and handle coatings, adhesives and additives
   SU12b–3.1 Coatings, adhesives and additives are appropriately stored, handled and labelled in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel

Range of Variables

Coating Range of coatings including wax, varnish, carbon coating, carbonless slurry; pre-mixed starch adhesives, cold and hot melt glue; appropriate additives used in the printing industry

Colour matching systems Commonly used colour matching procedures

Degree of autonomy Autonomy required in working under supervision to defined procedures to ensure production requirements have been met

Type of equipment Range of manual measuring equipment

Workplace procedures Range of workplace procedures within defined work area

Quality processes and standards Range of workplace quality processes and standards within defined work area

Substrate types Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Evidence Guide

Required evidence
Prepare TWO different coatings or adhesives for specific end use requirements to meet job and workplace specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

Selecting coatings / adhesives to match process and job requirements
  How is the suitability of the coatings / adhesives determined for the particular process?
  How were the characteristics of the coatings / adhesives matched to the job / substrate?
  How do you determine if the coatings / adhesives adheres to the substrate?

Preparation of coatings / adhesives
  What are the OH&S concerns related to the preparation of coatings / adhesives?
  How are the correct handling procedures determined?
  What details are required in order to calculate quantities of coatings / adhesives?
  What details are required to record coatings / adhesives formulation?

Storage, handling and labelling of coatings / adhesives
  What are the OH&S concerns related to the storage and handling of coatings / adhesives?
  What environmental conditions are relevant to the storage of coatings / adhesives?
  What conventions should be adhered to when labelling coatings / adhesives?

Information sources
  What manuals, safety documentation, etc are relevant to this task and where are they kept?
  What information is included in these documents?
SU16a  Inspect quality against required standards

NOTE: This is a minimum quality standard. Quality assurance also applies to performance of ALL other units.

Elements and Performance Criteria

SU16a–1  Check quality requirements before commencing job

SU16a–1.1  Job is collected / received and inspected against job specifications in accordance with enterprise standards and procedures

SU16a–2  Carry out inspection of quality during job

SU16a–2.1  Quality specifications and tolerances are understood
SU16a–2.2  Variation to standards is monitored and corrective action taken to rectify the problem according to enterprise procedures
SU16a–2.3  Inspection and testing procedures are applied at regular intervals to determine conformity with specifications and to minimise waste
SU16a–2.4  Unsatisfactory work is identified in accordance with predetermined standards and enterprise procedures

SU16a–3  Complete documentation

SU16a–3.1  Documentation is accurately completed to meet required enterprise procedures

Range of Variables

Type of inspections  Various types of inspection and testing techniques (ie 100%, random, periodic or continuous in-line inspection)
Quality processes and standards  Range of workplace quality processes and standards within defined work area
Workplace procedures  Range of workplace procedures within defined work area
Degree of autonomy  Autonomy required in working under supervision to ensure production requirements have been met
Sector  All sectors of pre-press, printing, screen printing, converting and finishing

Evidence Guide

Context
This competency must be assessed over a period of time since attitude is as important as technical skill.

Required evidence
Evidence should include a record of at least one month during which no reasonable complaints or reports of faulty goods or documentation are received from customers (internal or external) relating to work handled by worker being assessed.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Worker being assessed must also demonstrate knowledge of:

* principles of the quality system
* checking quality requirements before job commencement
* quality inspection procedures
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to demonstrate level of knowledge necessary for all workers to effectively function in the workplace.

**Principles of the quality system**
- What are three common faults that need to be recognised?
- Why is quality important?

**Checking quality requirements before job commencement**
- What quality standards have been set by the customer?
- How are enterprise procedures for quality achieved?
- What are the necessary quality areas that should be inspected?

**Quality inspection procedures**
- When should quality inspections be carried out?
- What result does unnecessary inspection have on production output?
- What control instruments are used in quality inspection?
- What should you do if you identify a fault?
- Who is responsible for the quality of the product?

**Documentation procedures**
- What specifications are recorded on the job sheet?
- What necessary information needs to be documented?
- Who should receive this information?
SU16e Set and apply quality standards

Elements and Performance Criteria

SU16e–1 Set quality standards
  SU16e–1.1 Quality of items is determined in accordance with job specifications and enterprise capacity
  SU16e–1.2 Production proofs are prepared for client approval to determine client's requirements
  SU16e–1.3 Quality standards are determined and inspection specifications set for purpose intended

SU16e–2 Determine inspection specifications
  SU16e–2.1 Inspection variables are determined in consultation with client, or are set to acceptable workplace standards, and are recorded in job specifications
  SU16e–2.2 Type of inspection is determined in accordance with job specifications

SU16e–3 Carry out inspection
  SU16e–3.1 Criteria for rejection are determined in consultation with machine operator and inspector / racker and recorded in job specifications
  SU16e–3.2 Variation to standards is monitored and action taken to rectify the problem according to workplace procedures
  SU16e–3.3 Inspector separates unsatisfactory work in accordance with pre–determined standards

SU16e–4 Rework job
  SU16e–4.1 Unacceptable items are evaluated and possible methods of reworking are determined in accordance with workplace quality standards
  SU16e–4.2 Reworking is monitored
  SU16e–4.3 Reworked material / substrates is inspected to ensure previously determined requirements as established are met

SU16e–5 Evaluate job process
  SU16e–5.1 Production processes are evaluated to determine cause of unacceptable items
  SU16e–5.2 Inspection records are maintained including number of accepted and rejected items, and cause of rejection
  SU16e–5.3 Records are maintained to ensure that faulty processes are identified, recorded and corrected

SU16e–6 Participate in quality improvement
  SU16e–6.1 Performance is monitored to ensure product or service standards are maintained or improved
  SU16e–6.2 Participation in enterprise quality improvement processes occurs, where applicable

Range of Variables

Type of inspections Various types of inspection techniques (ie 100%, random, periodic or continuous in–line inspection)
Required evidence

Produce a portfolio that demonstrates that each element has been carried out. This should include records of standards, and monitoring procedures and evidence that they are being effectively carried out.

TWO jobs are inspected during production according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- setting quality standards
- determining inspection variables
- causes of failure
- inspection procedures
- evaluating re–work methods
- determining unacceptable items and evaluating production procedures
- quality improvements

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

Setting quality standards

How are the criteria for inspection of print quality set?
Why does the quality of artwork / film have a bearing on the quality of the printed product?
What quality standards have been set by the customer?
How do these standards determine the inspection specifications?

Determining inspection variables

What quality specification have been set to make the product acceptable for the purpose for which it was intended?
Who has determined the inspection specifications?
What specifications are recorded on the job sheet?
What specific inspection standards have been set for printing and finishing?

Causes of failure

What are common causes of failure in each production area that need to be monitored?
What procedures have you implemented to minimise the effect of these?

Inspection procedures

Has the criteria for inspection been discussed with the operator (100%, random, periodic or continuous in line)?
What result does unnecessary inspection have on production output?
How do you determine the minimum number of inspections required to avoid rejects?
What information has been conveyed for the operator to rectify the problem?

Evaluating re–work methods

Who is responsible for evaluating the re–work of unacceptable items?
What method of re–work has been determined?
What criteria has been set to monitor the re–work?
What requirements have been established for the inspection of re-working material to customer’s specifications?

**Determining unacceptable items and evaluating production procedures**
- What has been determined as the cause of unacceptable items?
- What records are kept of acceptable and rejected items?
- What records are kept for the reason for the rejection?
- What have you determined as the cause for the rejection and how have you rectified the problem?

**Quality improvements**
- What information needs to be monitored so as to maintain standards?
- Who should be involved in monitoring quality standards?
- How can enterprise improvements affect quality standards?
SU17e  Perform laboratory quality tests of materials and finished product

**Elements and Performance Criteria**

**SU17e–1  Prepare laboratory equipment and test raw materials or finished goods**
- **SU17e–1.1** Appropriate equipment is selected and prepared
- **SU17e–1.2** Equipment is checked for calibration where necessary
- **SU17e–1.3** Raw material or finished goods specification is identified and test procedure established to determine test parameters
- **SU17e–1.4** Raw material or finished goods are tested against specified quality standards using appropriate / prescribed testing procedures and in accordance with OH&S requirements

**SU17e–2  Record and report test result**
- **SU17e–2.1** Recording and reporting of test results is completed in accordance with enterprise requirements

**SU17e–3  Clean laboratory equipment**
- **SU17e–3.1** Equipment is cleaned and stored in accordance with enterprise requirements

**Range of Variables**

- **Work environment**
  The competencies apply to personnel who have access to working in a laboratory situation with appropriate equipment and resources. The work environment application relates to working under minimal supervision exercising initiative and judgement with discretion
- **Degree of autonomy**
  Occasional supervision of other personnel may be required
- **Record keeping**
  Record keeping procedures may involve independent and varied keyboard operations
- **Colour matching systems**
  Use of visual and computer diagnostic systems
- **Inks / coatings**
  Range of inks / coatings used in 3–4 or more colour printing and specialty finishes such as laminates, embossing, foils, carbon
- **Range of machines**
  Range of pre-press, printing, converting, binding and finishing processes
- **Substrate types**
  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
- **Substrate handling**
  Wide and narrow reel and large and small sheet handling systems

**Evidence Guide**

*Required evidence*

Produce a portfolio showing completed paper work for a range of tests that have been carried out and at least one month's record of no complaints from customers (internal or external) about the quality of goods that have been approved.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate knowledge of:
- OH&S and other statutory requirements
- testing equipment
- printing processes
- sampling and quality control techniques
- record keeping
- equipment maintenance
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

**OH&S and other statutory requirements**
- What OH&S concerns are there in the use of this testing equipment?
- What statutory requirements must be met regarding the use of this equipment?

**Testing equipment**
- Why is it necessary to work in a controlled clean environment?
- Why was this particular equipment used?
- How is the equipment calibrated?

**Printing processes**
- What common tests are required for the various printing operations and products in this company?
- What are common causes of failure in the products that you test?
- What test was performed on this product and why?

**Sampling and quality control techniques**
- What sampling techniques are used to select products for testing?
- How do you determine the appropriate size of samples for testing?

**Record keeping**
- What records need to be kept on a particular test product?
- What is the purpose of keeping test results?
- How can test results be used in the future?

**Equipment maintenance**
- Why is it necessary to keep this equipment clean?
- How should this test equipment be stored
- What chemicals are used to clean the equipment

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SU21b Pack and dispatch product

Elements and Performance Criteria

SU21b–1 Assess final product
- SU21b–1.1 Finished job is collected / received and checked against job specifications in accordance with workplace procedures
- SU21b–1.2 Defects, irregularities and discrepancies are identified and action taken in accordance with workplace procedures

SU21b–2 Prepare stock for dispatch
- SU21b–2.1 Suitable area for wrapping / packaging is selected and prepared
- SU21b–2.2 Wrapping and packaging materials are prepared
- SU21b–2.3 Product is wrapped and packaged in pre–determined parcel sizes in accordance with workplace procedures, job specifications, storage and delivery specifications
- SU21b–2.4 Product is packaged in predetermined form as appropriate to product size, type, destination, delivery route and method of transportation; and in accordance with workplace instructions, transportation / shipping regulations, and OH&S requirements
- SU21b–2.5 Packaged goods are checked, weighed and labelled in accordance with delivery instructions, transportation / shipping regulations and workplace procedure

SU21b–3 Dispatch product
- SU21b–3.1 Packaged product is stacked on / in appropriate storage / shipping containers prior to dispatch
- SU21b–3.2 Product is dispatched via appropriate delivery mode in accordance with workplace procedures, job specifications and occupational health and safety requirements
- SU21b–3.3 Product shipping / dispatch details are recorded in accordance with workplace procedures

SU21b–4 Complete documentation
- SU21b–4.1 Documentation associated with tasks, where relevant, is accurately completed to meet required enterprise procedures

Range of Variables

Type of inspection       Various types of inspection techniques (ie 100% random, periodic or continuous in–line inspection)
Packaging techniques    Various methods and equipment used in wrapping and packing of printed and printing related products
Dispatch methods         Packaging requirements for the various methods of transportation of products
Degree of autonomy       Autonomy required in working under supervision to ensure production requirements have been met
Workplace procedures     Range of workplace procedures within defined work area
Quality processes and standards Range of workplace quality processes and standards within defined work area
Product types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal; printing plates, cylinders, disks etc

Substrate handling
Wide and narrow reel and large and small sheet dispatch configurations

**Evidence Guide**

**Required evidence**
Prepare, pack and dispatch TWO lots of printed or printing related product following correct procedures, job and workplace specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparation of stock for dispatch
- wrapping and packing materials and methods
- dispatching product
- completing documentation of dispatched product

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances

**Preparation of stock for dispatch**
- What items will be required in the process of dispatching?
- What checks are performed prior to packaging the product?
- How do you determine what is a defective print or item?
- How are these defects rectified?

**Wrapping and packing materials and methods**
- What are the OH&S regulations on packaged goods?
- How was the type of packaging determined?
- Why does the type of transport or destination have a bearing on the wrapping and packing method?
- How did you determine the number of units to be wrapped in each parcel?
- What details need to be recorded on dispatching labels and why?

**Dispatching product**
- Where are shipping details obtained?
- What weight limitations are there on dispatched products?
- What priorities are used for dispatching the product?
- How was the appropriate delivery mode determined?

**Completing documentation of dispatched product**
- What details are recorded when dispatching?
- Why is it necessary to have all shipping documentation completed?
SU21c  Pack and dispatch (advanced)

Elements and Performance Criteria

SU21c–1  Assess final product
- SU21c–1.1 Finished job is collected / received and checked against job specifications in accordance with workplace procedures
- SU21c–1.2 Defects, irregularities and discrepancies are identified and action taken in accordance with workplace procedures

SU21c–2  Assess wrapping and packaging requirements
- SU21c–2.1 Work instructions are checked to determine any specific customer wrapping and packaging requirements
- SU21c–2.2 Product is assessed to determine wrapping, parcelling and packaging requirements
- SU21c–2.3 Product destination and delivery time are confirmed to determine most appropriate delivery mode
- SU21c–2.4 Transportation / shipping requirements are determined

SU21c–3  Prepare stock for dispatch
- SU21c–3.1 Suitable area for wrapping / packaging is selected and prepared
- SU21c–3.2 Wrapping and packaging materials are prepared
- SU21c–3.3 Product is wrapped in pre-determined parcel sizes as required
- SU21c–3.4 Product is packaged as appropriate to product size, type, destination, delivery route and method of transportation, in accordance with workplace instructions, transportation / shipping regulations and occupational health and safety requirements
- SU21c–3.5 Packaged goods are weighed and labelled in accordance with delivery instructions, transportation / shipping regulations and workplace procedures

SU21c–4  Dispatch product
- SU21c–4.1 Packaged product is stacked on / in appropriate storage / shipping containers prior to dispatch
- SU21c–4.2 Product is dispatched via appropriate delivery mode in accordance with workplace instructions, workplace procedures and occupational health and safety requirements
- SU21c–4.3 Product shipping details are recorded in accordance with workplace procedures
- SU21c–4.4 Delivery schedules are monitored and amended as required in accordance with workplace procedures

Range of Variables

<table>
<thead>
<tr>
<th>Type of inspection</th>
<th>Types of inspection techniques (ie 100% random periodic and continuous in-line inspection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing techniques</td>
<td>Methods of packing and use of equipment for wrapping and packing of screen printed products</td>
</tr>
<tr>
<td>Weighing techniques</td>
<td>Accurate use of weighing machines and scales</td>
</tr>
</tbody>
</table>
Product mobility  Pallet trucks and forklifts for storage and loading of goods

Dispatch methods  Packaging requirements for different methods of transportation of screen printed products (ie courier, interstate)

Degree of autonomy  Application of initiative and judgement to ensure wrapping, packing and dispatch requirements have been met

Workplace procedures  Tasks must be performed in accordance with workplace procedures

Workplace quality standards  Tasks must meet workplace quality standards

**Evidence Guide**

**Required evidence**

Supervise the wrapping and packing of a variety of printed matter (at least THREE lots) and dispatch goods to at least THREE destinations to job sheet specifications and in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- quality checking of printed matter for defects and discrepancies
- specific customer instructions for wrapping, packing and dispatching
- wrapping and packing materials, methods and equipment used
- use of weighing machines, scales and labelling equipment
- use of pallet trucks, forklifts and storing and loading goods
- modes of transport and writing of consignment notes
- monitoring delivery schedules
- information sources

**Sample Questions for Underpinning Knowledge**

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

**Quality checking of printed matter for defects and discrepancies**

How do you determine what is a defective print or item?

How are these defects rectified?

Why does the job need to be checked against job specifications?

**Specific customer instructions for wrapping, packing and dispatching**

What are the customers specific requests for wrapping and packing?

How do you ascertain the quantities required for each destination?

**Wrapping and packing materials, methods and equipment used**

What OH&S concerns are there when using packaging materials and equipment?

What type of shipping container is to be used?

What are the requirements for wrapping manually?

What are the requirements for mechanical wrapping?

What are the packing requirements for the mode of transport being used?

**Use of weighing machines, scales and labelling equipment**

How critical is the weight of each parcel for dispatch purposes?

Why is it important to weigh and note the weight of each parcel?

What labelling requirements are necessary?

**Use of pallet trucks, forklifts and storing and loading goods**

What are the OH&S requirements for the use of forklifts?

What is the maximum weight that the pallet truck / forklift can lift?

What are the safety measures in place for the use of forklifts?

What restrictions are there for personnel in the use of forklifts?
What checks are in place to ensure goods are correctly loaded onto transport to prevent damage during transit?

**Modes of transport and writing of consignment notes**
- What factors affect the choice of mode of transport for a particular consignment?
- What arrangements need to be made for the consignment to be picked up by the transport company?
- What labelling needs to be placed on the goods to ensure delivery to the right destination?
- What consignment note / dispatch documentation needs to be completed?
- Why is the signature of the driver necessary on the documentation?
- Why should the time of dispatch be noted on documentation?

**Monitoring delivery schedules**
- How do you ensure that the time of delivery at each destination complies with client’s requirements?
- What procedures are in place if parcels do not reach their destination?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SU22b  Pack and dispatch solid waste

Elements and Performance Criteria

SU22b–1  Assess solid waste
- SU22b–1.1 Reusable waste is sorted from recyclable waste in accordance with workplace procedures
- SU22b–1.2 Waste is weighed and weight and source of waste recorded

SU22b–2  Prepare solid waste for removal from site
- SU22b–2.1 Waste is shredded in accordance with workplace procedures, storage and delivery specifications
- SU22b–2.2 Waste is baled as appropriate for waste destination, delivery method and method of transportation and in accordance with workplace procedures

SU22b–3  Dispatch solid waste
- SU22b–3.1 Waste is stacked / packed on / in appropriate storage / shipping containers prior to dispatch
- SU22b–3.2 Waste is dispatched in appropriate delivery mode in accordance with workplace procedures and job specification
- SU22b–3.3 Waste is dispatched at pre–determined rate to prevent accumulation of waste around machines

SU22b–4  Complete documentation
- SU22b–4.1 Documentation associated with tasks is accurately completed to meet enterprise procedures

SU22b–5  Carry out minor routine maintenance and cleaning of waste packaging machines
- SU22b–5.1 Shredder is cleaned, checked and lubricated in accordance with manufacturer's specifications and company standard operating procedures
- SU22b–5.2 Baler is cleaned, checked and lubricated in accordance with manufacturer's specifications and company standard operating procedures

Range of Variables

<table>
<thead>
<tr>
<th>Packing techniques</th>
<th>Various methods and equipment used in packing of solid waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispatch methods</td>
<td>Packaging requirements for the various methods of transportation of products</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Autonomy required in working under supervision to ensure production requirements have been met</td>
</tr>
<tr>
<td>Workplace procedures</td>
<td>Range of workplace procedures within defined work area</td>
</tr>
<tr>
<td>Quality processes and standards</td>
<td>Range of workplace quality processes and standards within defined work area</td>
</tr>
<tr>
<td>Substrate types</td>
<td>Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal</td>
</tr>
</tbody>
</table>
Evidence Guide

Required evidence
Assess, prepare and dispatch TWO lots of solid waste and maintain and clean waste packaging machines according to job and workplace specifications and the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- sorting solid waste
- processing solid waste
- dispatch and documentation
- waste packaging machine maintenance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances

Sorting solid waste
What is the difference between reusable and recyclable waste?
Give an example of each of the above
How will reusable waste be stored and used?
What are the weight limitations of each batch of solid waste?

Processing solid waste
What are the OH&S regulations on operating the shredding machine?
What are the capabilities of the shredding machine?
How was the appropriate baling method determined?

Dispatch and documentation
What is the appropriate method for storage of solid waste prior to dispatching?
How could accumulation of waste around machines be a problem?
What details are recorded when dispatching solid waste?
Where are these details for dispatching obtained?

Waste packaging machine maintenance
What are the OH&S concerns related to cleaning and maintaining shredding machines?
What are the OH&S concerns related to cleaning and maintaining baling machines?
How often should these machines be cleaned and lubricated?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU23b  Treat and dispose of liquid waste

Elements and Performance Criteria

SU23b–1  Test liquid waste
  SU23b–1.1 Waste is tested against specified quality standards using appropriate prescribed testing procedures and in accordance with OH&S and EPA requirements
  SU23b–1.2 Waste treatment system is monitored to ensure correct operation

SU23b–2  Treat liquid waste
  SU23b–2.1 Liquid waste is treated to ensure compliance with workplace and EPA standards

SU23b–3  Record and report test result
  SU23b–3.1 Recording and reporting of test results is completed in accordance with enterprise and statutory requirements

SU23b–4  Clean and maintain testing equipment
  SU23b–4.1 Equipment is cleaned and stored in accordance with enterprise and OH&S requirements

Range of Variables

Waste environment  The competencies apply to personnel who are dealing with liquid waste in the printing industry with appropriate equipment and resources
Degree of autonomy  The work environment application relates to working under supervision exercising initiative and judgement with discretion
Sampling techniques  Various liquid waste sampling techniques

Evidence Guide

Required evidence
Test, treat and dispose TWO lots of liquid waste and maintain and clean testing equipment in accordance with enterprise and statutory requirements and regulations and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
  • testing procedures
  • treatment procedures
  • documentation and statutory requirements
  • liquid waste testing equipment maintenance
  • information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances
Testing procedures
What are the health hazards associated with handling chemicals?
What safety precautions did you observe when handling chemicals?
Where did you obtain information on the application of each chemical?
What testing method did you use for each chemical?
What are the environmental hazards of chemical disposal?

Treatment procedures
What are the OH&S regulations in the treatment of chemicals?
How was the appropriate treatment method determined?
What could be result of incorrectly treated chemicals?
How was the appropriate storage method identified?

Documentation and statutory requirements
Where were enterprise and statutory details to check results obtained?
What details are recorded when recording results of liquid waste treatment?

Liquid waste testing equipment maintenance
What are the OH&S concerns related to cleaning and maintaining testing equipment?
Why is it necessary for the equipment be kept clean and maintained?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU24b Perform basic machine maintenance

Elements and Performance Criteria

SU24b–1 Carry out minor routine maintenance and programmed cleaning of reel handling system
- SU24b–1.1 Unwind unit is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–1.2 Web control devices are cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–1.3 Rewind unit is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–1.4 Folding unit is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–1.5 Sheeting unit is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–1.6 Basic maintenance is carried out within OH&S requirements

SU24b–2 Carry out minor routine maintenance and programmed cleaning of sheet or object handling systems
- SU24b–2.1 Feeder is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–2.2 Lays and transfer gripper system are cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–2.3 Delivery is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–2.4 Basic maintenance is carried out within OH&S requirements

SU24b–3 Carry out minor routine maintenance and programmed cleaning of printing unit(s)
- SU24b–3.1 Cylinder / screen / plate and roller surfaces, safety devices, gears and bearings are checked, lubricated and maintained in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–3.2 Ink distribution system components are checked, lubricated, maintained and replaced in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–3.3 Various print control devices are checked, lubricated and maintained in accordance with manufacturers' recommendations and company standard operating procedures
- SU24b–3.4 Basic maintenance is carried out within OH&S requirements

SU24b–4 Carry out minor routine maintenance and programmed cleaning of ancillary units
- SU24b–4.1 Ancillary equipment is cleaned, checked and lubricated in accordance with manufacturer's recommendations and company standard operating procedures

SU24b–5 Carry out minor routine maintenance and programmed cleaning of cutting units
- SU24b–5.1 Cutting devices and knives are checked, lubricated, maintained and replaced in accordance with manufacturer's recommendations and company standard operating procedures
- SU24b–5.2 Machine bed is checked and maintained in accordance with manufacturer's recommendations and company standard operating procedures
SU24b–5.3 Basic maintenance is carried out within OH&S requirements

**SU24b–6 Carry out minor routine maintenance and programmed cleaning of folding / collating units**

SU24b–6.1 Folding / collating system components are checked, lubricated, maintained in accordance with manufacturer's recommendations and company standard operating procedures

SU24b–6.2 Machine bed is checked and maintained in accordance with manufacturer's recommendations and company standard operating procedures

SU24b–6.3 Basic maintenance is carried out within OH&S requirements

**SU24b–7 Carry out minor routine maintenance and programmed cleaning of fastening units**

SU24b–7.1 Adhesive and mechanical fastening components are checked, lubricated, maintained in accordance with manufacturer's recommendations and company standard operating procedures

SU24b–7.2 Machine bed is checked and maintained in accordance with manufacturer's recommendations and company standard operating procedures

SU24b–7.3 Basic maintenance is carried out within OH&S requirements

**Range of Variables**

**Supervision**
The work is carried out under minimal supervision, exercising initiative and judgement with discretion.
Occasional supervision of the work of other personnel may be required

**Machines**
The operation may apply to a complex machine, various types of machines or all the machinery in a work area.
Complex machines include those with electronic, pneumatic, hydraulic or robotics technology

**Inks / coatings**
Range of standard and specialty inks and specialty finishes such as wax, embossing, foils

**Printing process**
All printing processes ie lithographic, flexographic, gravure, relief polymer mechanical printing

**Cutting units**
Range of semi-automatic and automatic folding, collating and inserting units. In-line or off-line operation

**Substrate types**
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

**Substrate handling**
Wide and narrow reel, and large and small sheet handling systems

**Evidence Guide**

**Required evidence**
Carry out routine maintenance on any TWO pieces of equipment or systems, satisfying job, workplace and statutory requirements in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of maintenance and cleaning requirements and common causes of failure in at least TWO of the following areas:

- reel handling system
- sheet or object handling systems
- printing units
- ancillary units
- cutting units
- folding / collating units
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel handling system
What are the OH&S requirements when maintaining and cleaning the reel handling system?
What are three common causes of failure or breakdown?
What precautions must be observed when working with compressed air?
How could electronic sensors be damaged during cleaning?
What checks were performed on this area of the machine?
Why was that particular chemical used for cleaning purposes?

Sheet or object handling systems
What are the OH&S requirements when maintaining and cleaning the sheet or object handling system?
What are three common causes of failure or breakdown?
What would be the problem with inefficient cleaning?
What parts of this area of the machine require cleaning?
What would be the effect of excessive lubricant in this area of the machine?
Explain the need for regular maintenance of this area of the machine.

Printing units
What are the OH&S requirements when maintaining and cleaning the printing units?
What are three common causes of failure or breakdown?
What problem arises due to continual inefficient wash–up of roller surfaces?
Why is it necessary to clean the bearers on all cylinders in the printing unit?
What problems could result from cylinder bodies not being cleaned correctly?
What safety devices were checked in the printing unit?
What should be done if a safety device is found to be inoperative?
What checks must be carried out when replacing rollers in the inking system?

Ancillary units
What are the OH&S requirements when maintaining and cleaning ancillary units?
What are three common causes of failure or breakdown?
What checks were performed on ancillary units?
What precautions should be observed when cleaning ancillary units?

Cutting units
What are the OH&S requirements when maintaining and cleaning the cutting units?
What are three common causes of failure or breakdown?
What checks are carried out on cutting devices and knives?
How should cutting knives be stored after being replaced?
What problems would arise if the machine bed was not maintained?
What problems would arise if blades or knives were not maintained?

Folding / collating units
What are the OH&S requirements when maintaining and cleaning the folding / collating units?
What are three common causes of failure or breakdown?
What components were checked with this equipment?
What would be the problem with inefficient cleaning of the folding / collating unit?
What parts of this machine require cleaning?
What type of lubricant was used on this equipment and why?

Fastening units
What are the OH&S requirements when maintaining and cleaning the fastening units?
What are three common causes of failure or breakdown?
What chemicals were used when cleaning this equipment?
How should you dispose used chemicals?
How often should this equipment be cleaned?
What problems could be caused by inefficient cleaning?
What parts of the equipment be cleaned?
What would be the result of excessive lubricant in this part of the machine?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU35b  Lift loads mechanically

Elements and Performance Criteria

SU35b–1  Attach lifting gear to loads

- SU35b–1.1 All work undertaken safely and to prescribed procedures
- SU35b–1.2 Load is inspected and best lifting method determined for weight and shape
- SU35b–1.3 Appropriate load shifting equipment is selected
- SU35b–1.4 Lifting gear is inspected and damaged or worn items are labelled and rejected
- SU35b–1.5 Where appropriate, safe working loads are calculated to Australian Standards
- SU35b–1.6 Lifting gear is attached to load in a most appropriate and safe manner and to specifications where required

SU35b–2  Move loads

- SU35b–2.1 Load moving is performed to acceptable safe working practices, Australian Standards, codes of practice and specifications
- SU35b–2.2 Lifting gear is connected to load mover using safe and appropriate techniques
- SU35b–2.3 Appropriate communication and signals methods are used to co-ordinate the load movement in a safe manner
- SU35b–2.4 Load is grounded or put down in accordance with prescribed procedure, in a safe and stable manner
- SU35b–2.5 All lifting gear is detached from load mover and load

Range of Variables

- Legislative requirements: Work is undertaken to state / territory legislative requirements
- Equipment range: Includes slings, ropes, shackles, eye bolts, spreader beams
- Signals: Include using hands, verbal signals and whistles. Signals are given both within sight and out of sight of equipment operators
- Degree of autonomy: Working under supervision alone or in a team using initiative and judgement with discretion

Evidence Guide

- Lift TWO loads mechanically in accordance with enterprise and statutory requirements and regulations and the listed performance criteria.
- Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
- Demonstrate detailed knowledge of:
  - attaching lifting gear and selecting appropriate equipment to lift loads
  - applying correct practices to move loads
  - information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

Attaching lifting gear and selecting appropriate equipment to lift loads
- What references are available to determine safety practices in lifting loads?
- What are some of the most important considerations when lifting loads mechanically?
- How did you determine the best method to lift the load?
- What types of mechanical lifting devices are there?
- Under what circumstances would each type be used?
- What type of damage can occur to any particular piece of lifting equipment?
- What problems could occur if lifting gear is not attached properly?

Applying correct practices to move loads
- What safe practices must be observed when moving loads?
- What things should be observed when connecting the lifting gear to the load mover?
- Why was the particular communication technique used for moving the load?
- What would be considered to be a safe distance for personnel not involved in moving the load?
- What other technique for communication could of been used?
- What can happen if a load is not grounded correctly?
- Where should lifting gear be stored after it has been detached?

Information sources
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SU36b  Shift loads mechanically

Elements and Performance Criteria

SU36b–1  Conduct routine operation and safety checks of load shifting equipment
   SU36b–1.1  Routine pre-use checks undertaken in accordance with manufacturer's specifications and regulatory safety requirements
   SU36b–1.2  Non compliance with specification reported for repair / replacement

SU36b–2  Determine handling methods
   SU36b–2.1  Type of material determined from labels, colour codes, signage
   SU36b–2.2  Material properties understood
   SU36b–2.3  Load is inspected and best handling method determined for weight and shape
   SU36b–2.4  All relevant uncertainties and unknowns clarified with appropriately qualified and authorised authority
   SU36b–2.5  All relevant safety and emergency procedures understood and implemented as required
   SU36b–2.6  All relevant codes of practices and regulation understood and observed
   SU36b–2.7  Correct and appropriate handling methods undertaken

SU36b–3  Shifts loads
   SU36b–3.1  Most appropriate load shifting device selected
   SU36b–3.2  Load shifting device operated within design specifications and safe working load
   SU36b–3.3  Load is lifted, ensuring balance, vision of operation and protection of load
   SU36b–3.4  Safe and efficient path of movement selected and used
   SU36b–3.5  Path of movement is checked and monitored for obstacle and hazards and safely maintained

SU36b–4  Place loads
   SU36b–4.1  Loads are placed ensuring safety, stability, protection of material and avoidance of hazards on site

Range of Variables

Degree of autonomy  Work undertaken autonomously or in a team environment
Range of equipment  Load shifting equipment includes ride on fork lifts and pallet trucks, overhead travellers, load shifting equipment operated within limits of manufacturers' recommended procedures and safe working loads
Workplace procedures  All work practices undertaken to regulatory and legislative requirements

Evidence Guide

Required evidence
Shift TWO loads mechanically using AT LEAST a ride–on forklift or electric trolley, in accordance with enterprise and statutory requirements and regulations and the listed performance criteria.
Possess appropriate licences.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- maintenance and safety checks for load shifting equipment
- determining correct handling methods
- safety requirements for load shifting operations
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

**Maintenance and safety checks for load shifting equipment**
- How often should routine checks on equipment be carried out?
- Who do you report to about problems with load shifting equipment?
- What circumstances would necessitate replacement of such equipment?

**Determining correct handling methods**
- What do colour codes indicate about the type of material?
- Where can information about correct handling methods be obtained?
- What personal injuries could occur if incorrect handling methods were undertaken?
- How does implementation of safety procedures effect enterprise operations?
- What statutory authority is responsible for and controls of safety procedures?

**Safety requirements for load shifting operations**
- What licensing requirements are needed to operate various shifting devices?
- What could cause a load to move and become off balance during shifting?
- Why was the path chosen when shifting the load?
- What position should shifting devices be placed after completing the shifting of the load?
- How could incorrect placement of loads affect job requirements and enterprise procedures?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SU41b  Undertake warehouse / stores materials processing

Elements and Performance Criteria

SU41b–1  Undertake dispatch / receiving procedures

SU41b–1.1  Warehouse / store standard operating procedures understood and followed
SU41b–1.2  Warehouse / store materials managed in accordance with standard operating procedures
SU41b–1.3  Incoming / outgoing materials labelled in accordance with standard operating procedures and legislative requirements
SU41b–1.4  Warehouse / store materials labelled and stored in accordance with standard operating procedures and to legislative requirements
SU41b–1.5  Issue / dispatch materials in accordance with standard operating procedures
SU41b–1.6  Recording of issues / dispatch materials undertaken to standard operating procedures

SU41b–2  Determine handling methods

SU41b–2.1  Type of material determined from labels, colour codes, signage
SU41b–2.2  Material properties understood
SU41b–2.3  All relevant uncertainties and unknowns clarified with appropriately qualified and authorised authority
SU41b–2.4  All relevant safety and emergency procedures understood and implemented as required
SU41b–2.5  All relevant codes of practices and regulation understood and observed
SU41b–2.6  Correct and appropriate handling methods undertaken

SU41b–3  Store / package warehouse / store materials

SU41b–3.1  Materials packaged to meet safety, storage conditions, and site and legislative requirements
SU41b–3.2  Materials stored in safe, orderly and retrievable manner
SU41b–3.3  Materials labelled / identified and recorded in accordance with site procedures and legislative requirements

SU41b–4  Store bulk fluids / gases

SU41b–4.1  Correct storage conditions determined from instructions / manufacturers’ specifications / directions
SU41b–4.2  Containers checked for safe and clean use
SU41b–4.3  Containers filled / emptied in accordance with standard operational procedures, regulations / legislative requirements
SU41b–4.4  Containers handled and moved in accordance with site procedures, regulations / legislative requirements
SU41b–4.5  Containers correctly labelled and stored to standard operational procedures, regulations / legislative requirements
Range of Variables

Degree of autonomy  Work undertaken autonomously or in team environment
Inventory control processes  Process used to control inward / outward goods include inventory control methods and procedures utilising manual or electronic system to standard operating procedures
Types of stores / warehouses  Includes tool, requisition, supply and parts stores, storage, inward / outward warehouse etc
Range of equipment  Range of equipment used to move warehouse / store goods include pallet trucks, trolleys, hand trucks etc
Range of packaging  Procedures and materials used are appropriate for applications and product requirements and can include plastic and paper board wrap, anti–corrosion coverings etc. pallets, drums, sacks, etc
Workplace procedures  Work and organisational methods to standard operation procedures and to regulatory and legislative requirements

Evidence Guide

Required evidence
Demonstrate handling and storage techniques and procedures for at least THREE different types of goods / materials according to performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
  ✷ dispatching and receiving of production materials
  ✷ handling methods and procedures
  ✷ storing and packaging of warehouse / store materials
  ✷ storage of bulk fluids and gases

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.
Answers need to show knowledge required when working in a limited ranged of circumstances

Dispatching and receiving of production materials
  What procedures are in place for the receipt of goods?
  What procedures is in place for the inspection of goods on arrival?
  How do you indicate that goods received have been approved for production and comply with the purchase order?
  Why do goods have to be labelled in accordance with operating procedures?
  Why do goods have to be labelled in accordance with legislative requirements?
  What procedures are in place if dispatched goods do not reach their destination?
  What procedures are in place if goods are not received as requested?
  Who has the authority to sign for goods received?

Handling methods and procedures
  What production problems are caused by inconsistent stock handling?
  Describe the procedure in reporting and recording damaged materials?
  What could be the alternatives for using damaged stock or materials?
  Is the company covered by any insurance for damaged stock and materials?

Storing and packaging of warehouse / store materials
  What is the effect of relative humidity and temperature on substrates?
  What effect will UV light have on exposed rubber blankets or rollers?
  How should materials be stored in relationship to their use by date or shelf life?
In what position should heavy or liquid materials be stored on a shelving system?

**Storage of bulk fluids and gases**
- Describe why inks and solvents are stored in fireproof enclosures?
- What are statutory regulations for the storage of flammable solvents and gases?
- What are some of the dangerous fluids and gases used by this organisation?
- What could be the result of using a container for a different chemical?
- Why is it important for correct labelling of containers?
SU42c  Undertake inventory procedures

**Elements and Performance Criteria**

**SU42c–1  Use inventory procedures**
- SU42c–1.1 Inventory procedures understood and carried out to standard operational procedures
- SU42c–1.2 Requisition, purchase, shipping and invoice documentation used as required to standard operational procedures
- SU42c–1.3 Inward / outward recording / filing system understood, accessed and maintained to standard operational procedures
- SU42c–1.4 Customer orders maintained to standard operational procedures
- SU42c–1.5 Returned orders booked back using standard operational procedures

**SU42c–2  Requisition goods**
- SU42c–2.1 Requisition procedures understood and carried out to standard operational procedures
- SU42c–2.2 Goods requisitioned on time
- SU42c–2.3 All recording completed and filed correctly in accordance with site procedure

**Range of Variables**

- **Degree of autonomy**: Work undertaken autonomously or in team environment
- **Inventory control processes**: Inventory control based on standard operational procedures utilising manual or electronic systems. Standard operational procedures undertaken include Just–in–Time, Kan Ban etc
- **Workplace procedures**: All work and work practices undertaken to regulatory and legislative requirements

**Evidence Guide**

**Required evidence**
Compile a portfolio of inventory paperwork covering ONE month that shows performance criteria have been met.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- using standard procedures to maintain inventory
- routine stocktaking
- requisitioning and recording of goods

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*
Answers need to show knowledge required when working in a wide range of circumstances

Using standard procedures to maintain inventory
  What effect would poor inventory control have on organisational procedures?
  What is the difference between requisitioning and purchasing?
  What type of goods and materials would be filed under incoming or inward?
  What type of goods and materials would be filed under outgoing or outward?
  Why should recording and filing systems for inward/outward goods and accurately maintained?
  Why must customer’s orders be maintained?
  Why would orders be returned?
  What checks are made on why the goods are returned?
  How do you determine when goods should be replenished?

Routine stocktaking
  Describe the system used for stocktaking different types of goods (eg inks, substrates, consumables, perishables).
  Who calculates the value of stock at the date of the stocktake?
  What records of stock value are kept?
  What system is in place for segregating non–current stock?

Requisitioning and recording of goods
  Who has the authority to approve the requisition of goods?
  Is there special approval required for the requisition of certain goods or materials?
  How do you indicate that goods received have been approved for production and comply with the purchase order?
  What procedures are in place for the urgent requisition of goods?
  What additional information may need to be recorded prior to filing requisition orders?
SU45c  Purchase materials and schedule deliveries

**Elements and Performance Criteria**

**SU45c–1  Identify material requirements**
- SU45c–1.1  Detail customer order specifications, consulting with customer, client as appropriate
- SU45c–1.2  Supporting production data is examined
- SU45c–1.3  Materials required are identified including type, quality and quantity
- SU45c–1.4  Quantities required are estimated according to predetermined standards

**SU45c–2  Prepare purchase order / list**
- SU45c–2.1  Purchase order / list developed to standard operational procedure

**SU45c–3  Purchase materials and schedule deliveries**
- SU45c–3.1  Delivery requirements are determined from production plan
- SU45c–3.2  Supplier / vendor informed of requirements and specifications
- SU45c–3.3  Supply / purchasing schedules are adjusted where required according to standard operational procedures
- SU45c–3.4  Appropriate paperwork / contracts exchanged to standard operational procedure
- SU45c–3.5  Records / files maintained accurately using standard operational procedure

**Range of Variables**

<table>
<thead>
<tr>
<th>Purchasing schedules</th>
<th>On site procedures developed for pre–contracted suppliers / vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract preparation</td>
<td>Manual or electronic systems utilising on site system</td>
</tr>
<tr>
<td>Purchasing specifications</td>
<td>Determined from standard job sheets, written and verbal instructions</td>
</tr>
<tr>
<td>Context</td>
<td>Working within a production team or a warehouse / store section servicing a number of production teams</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working under limited supervision to defined procedures</td>
</tr>
</tbody>
</table>

**Evidence Guide**

**Required evidence**

Produce a portfolio of paperwork that shows scheduling and purchasing of material deliveries. This should include a record of at least a month during which there were no major interruptions of production caused by absence of materials and no excess inventory in stock.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:
- determining materials and purchasing requirements
- purchasing procedures
- scheduling materials delivery
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances.

Determining materials and purchasing requirements
- Where are customer order specifications obtained?
- Why is it necessary to keep an accurate stock control system?
- What manual or computer stock control systems are in place?
- How do you determine when stocks need to be replenished?
- When would you ask a customer or client to verify verbal instructions?

Purchasing procedures
- Is there a list of preferred suppliers and the products they supply?
- Where is the order raised and by whom?
- What contracts are listed for purchase orders?
- Why do you have purchasing contracts?
- Who has determined the required quantity on the order?
- What special instructions could be listed on the order?
- Why should you accurately maintain purchasing records?

Scheduling materials delivery
- What are the procedures if delivery requirements cannot be met?
- What are the possible alternatives if delivery requirements cannot be met?
- Who should be informed if delivery requirements cannot be met?
- Why would you adjust purchasing schedules?
- What effects could atmospheric conditions have on materials in storage?
- What effects could UV light have on materials in storage?
SU51c  Undertake basic production scheduling

**Elements and Performance Criteria**

**SU51c–1  Identify production requirements and capacities**
- **SU51c–1.1** Printing converting and finishing production data is identified
- **SU51c–1.2** Inventory capacities and requirements are identified
- **SU51c–1.3** Procurement and supply requirements and constraints are identified
- **SU51c–1.4** Production capacity and constraints are identified
- **SU51c–1.5** Production constraints are identified
- **SU51c–1.6** Standard times are identified

**SU51c–2  Prepare schedule for production of a component / part**
- **SU51c–2.1** Production of component is scheduled in accordance with production, inventory, procurements, time constraints and supply capacities and requirements
- **SU51c–2.2** Schedule is documented in accordance with accepted organisation procedure

**Range of Variables**

**Print processes**
Any processes in pre–press, press, finishing, screen printing

**Scope of scheduling**
Applies to the scheduling for a single small production work unit or production cell, or work station or work unit; or a single production process where there are only a small number of constraints or variables. The scheduling applies to only a part of the overall production process

**Degree of autonomy**
Initiative and judgement must be demonstrated

**Evidence Guide**

**Required evidence**
Produce a portfolio that shows all appropriate paper work for one month’s scheduling according to performance criteria for a single small production unit, in pre–press, printing, screen printing, converting or finishing.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:
- identifying production requirements and capacities
- checking stock levels
- preparation and documentation of the production schedule
- revising schedules

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*
Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

**Identifying production requirements and capacities**
- What job requirements determine the production processes?
- How do you identify special production requirements and possible problems?
- What criteria are used to determine availability of machines, materials and labour?
- What OH&S concerns need to be considered when planning production?

**Checking stock levels**
- How are internal stock levels checked?
- What information do you obtain from outside suppliers that will allow you to establish job priorities?
- What system do you use to select alternative suppliers?

**Preparation and documentation of the production schedule**
- How is the production workflow determined?
- What is the system used to work out job priorities?
- What is the purpose of documenting production workflow?
- How are schedules communicated to the workforce?

**Revising schedules**
- How are production schedules monitored and amended if required?
- What consideration is given to revising production schedules to take into account customer requirements and job complexity?
SU52e  Plan operational processes

This unit has some overlap with National Frontline Management Unit 5 (BSX014805) at ASF 4/5

Elements and Performance Criteria

SU52e–1  Review design
- SU52e–1.1 Design is examined for manufacturing feasibility
- SU52e–1.2 Design changes required are processed in accordance with organisational processes
- SU52e–1.3 Material requirements are identified
- SU52e–1.4 Process to be used is identified

SU52e–2  Review customer order specifications
- SU52e–2.1 Customer order specifications obtained and examined
- SU52e–2.2 Supporting production data is examined
- SU52e–2.3 The production process to be used is determined based on information supplied in production plan

SU52e–3  Determine process operations
- SU52e–3.1 Existing process operations are reviewed
- SU52e–3.2 Existing problems are clarified
- SU52e–3.3 Work operations required are identified
- SU52e–3.4 Suitable machinery or equipment is identified
- SU52e–3.5 Suitable tooling is identified
- SU52e–3.6 Cost and duration are estimated
- SU52e–3.7 Test and trials are undertaken to establish cost factors
- SU52e–3.8 Results of test / trials are compiled and analysed
- SU52e–3.9 Recommendations on possible solutions are made
- SU52e–3.10 Process is documented in accordance with established procedure

SU52e–4  Determine production sequence
- SU52e–4.1 Steps required for the process are identified
- SU52e–4.2 Material and parts list are prepared
- SU52e–4.3 Tooling requirements are documented
- SU52e–4.4 Quality assurance steps and specifications are identified
- SU52e–4.5 Process steps are documented and clearly represented

Range of Variables

Range of processes  Applies to the development of new processes or the modification of existing processes based on known and documented changes to process technology or product. Applies to a part of the overall production process
Workplace procedures

Carried out in accordance with established organisational practices and processes and following instructions as to approach. Plan is developed in accordance with accepted organisation practice and procedures. Work for the process element is planned over the specified time frame taking into account resources available and required. Process plan establishes detailed steps required, and milestones against which progress can be checked.

Degree of autonomy

Applies to personnel who supervise employees

Evidence Guide

Required evidence

Produce a portfolio that includes paperwork showing planning of operational processes in any ONE of pre-press, printing, screen printing, converting, binding and finishing, corrugating, laminating, according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- examination of design and identification of materials and suitable processes
- reviewing customer and production requirements
- reviewing existing operations and problems
- identifying operations and machinery
- testing and costing for analysis and recommendations
- determining production sequence and identifying process specifications

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

Examination of design and identification of materials and suitable processes

Why is it necessary to implement change?
What changes to existing production areas will have to be made?
How can the operation be integrated into existing organisational processes?
What materials are required in addition to existing ones?
What are the alternatives to the chosen process?
Why was this process chosen?

Reviewing customer and production requirements

What review was conducted to assess the process to suit customer requirements?
Will new customers have to be sought?
How will new customers be sought?
What production plan information will aid in determining the process?

Reviewing existing operations and problems

What impact will the process have on existing operations?
How can training be integrated into existing process operations?
How can the process eliminate existing production problems?

Identifying operations and machinery

How can existing machinery or equipment be utilised?
What space will the equipment occupy in the production area?
What special provisions will be necessary to accommodate the equipment?
What is the expected production life of this equipment?
What technology could see this equipment outdated?

Testing and costing for analysis and recommendations
What production factors were established from tests and trials?
How were cost savings estimated?
What will be the estimated total cost savings per annum?
What positive conclusions can be drawn from the tests and trials?
What negative conclusions can be drawn from the tests and trials?
Who has the authority to approve the operational process?

Determining production sequence and identifying process specifications
How were the step for the process identified?
Will the process have any effect on existing quality assurance steps? If so, what?
What new materials will need to be supplied?
Why is it important to document the steps of the process?
SU53e  Prepare production costing estimates

Elements and Performance Criteria

SU53e–1  Identify costing estimate requirements
  SU53e–1.1  Labour hours, times and other statistics required are identified and applied in calculations
  SU53e–1.2  Available machine hours are identified, applied in calculations
  SU53e–1.3  Economic batch sizes are identified
  SU53e–1.4  Material requirements are identified

SU53e–2  Prepare costing estimates
  SU53e–2.1  Costing estimates are calculated using material, labour and machine costs
  SU53e–2.2  Cost estimate details are calculated

SU53e–3  Compare estimates with actual costs
  SU53e–3.1  Actual costs are compared with estimates

Range of Variables

Type of costing
  Estimation of production costs taking into account time, labour, materials and equipment requirements

Workplace procedures
  Estimates and calculations are undertaken in accordance with established organisational practices and procedures, and incorporate the organisation's known resources and work load as well as identified capacities

Scope of costing
  Estimates are based on familiar processes using available standard cost item statistics

Degree of autonomy
  Applies to personnel who supervise employees

Evidence Guide

Required evidence

Produce a portfolio of costing estimates in any ONE of pre-press, printing, screen printing, converting, binding and finishing, corrugating, laminating, and prepared according to performance criteria. Difference between estimated and actual costs should be no greater than 10% in any instance.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:
  - OH&S and other statutory requirements
  - printing processes and operations
  - printing materials
  - different costing / estimating methodologies
  - sampling and quality control techniques
  - production records
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

**OH&S and other statutory requirements**
- What legal requirements affect the costing of your operations?

**Printing processes and operations**
- What information do you require from a client before costing / estimating can be done?
- How do you ensure that production costs are minimised on any given job?
- Describe the relationships between the processes you are involved in and prior and subsequent operations done to the job.
- How do you determine set up and change over times for your processes?

**Printing materials**
- What materials need to be included in the costing / estimating process?
- How do you determine if alternative materials may be suitable for a client?
- When would you suggest alternative materials or processes to a client?
- What references and resources about materials, suppliers etc do you need to have access to, to help in costing / estimating?

**Different costing / estimating methodologies**
- Why have you chosen this particular costing / estimating method?
- What other methods are there, and when might you use them?
- How do you determine appropriate rates of overs?
- What factors might you adjust in your estimations if they consistently do not match costs?

**Sampling and quality control techniques**
- What quality checks are necessary on out sourced materials or other inputs?
- What effect does quality control have on costing?

**Production records**
- Why is it necessary to keep accurate production records?
- How often should you review production records and actual costs?
SU54c  Coordinate work of others

This unit is equivalent to National Frontline Management Unit 4 (BSX014804) at ASF 3

Elements and Performance Criteria

SU54c–1  Lead planning

SU54c–1.1  A range of questioning and prompting techniques is applied to promote participative team or individual planning

SU54c–1.2  Proposals are accurately recorded to reflect the outcomes of the planning

SU54c–1.3  Plans take into account the timelines, responsibilities and production requirements which affect the team or individual

SU54c–1.4  Tasks are selected to suit skill level of individuals or team members

SU54c–2  Lead problem solving

SU54c–2.1  Problem is clearly defined by the team or individuals involved, and criteria for selecting solution is identified

SU54c–2.2  Data or evidence is collected and analysed

SU54c–2.3  Group or individual is encouraged to contribute to determine solutions

SU54c–2.4  Alternatives are identified and solution selected

SU54c–2.5  Implementation is planned and carried out

SU54c–2.6  Implementation of solution is evaluated to determine effectiveness of decisions

SU54c–3  Develop individual or team participation

SU54c–3.1  Support is provided to individuals or team members to ensure full participation

SU54c–3.2  Procedures are implemented to enable the team or individual to assess effectiveness

SU54c–4  Check OH&S standards in the work area

SU54c–4.1  Applicable OH&S and environmental standards are identified, interpreted and implemented

SU54c–4.2  Implementation of standards is monitored to determine safety in the work area

SU54c–4.3  Improvements are recommended in order to achieve established standards

SU54c–5  Monitor process standards

SU54c–5.1  Quality and performance standards are identified, interpreted and implemented

SU54c–5.2  Implementation of standards is monitored to determine effectiveness of process

SU54c–5.3  Improvements are recommended in order to achieve established quality control standards

SU54c–6  Communicate with work team, individuals and management

SU54c–6.1  Information affecting work area, including OH&S is given logically and in an easily understood manner to other workers

SU54c–6.2  Feedback from team members and individuals is sought to assist in the participation process

SU54c–6.3  Communication and reporting is carried out, where required, with management and/or external personnel in a manner which ensures effective and appropriate information exchange
Range of Variables

Degree of autonomy
The competencies apply to personnel who supervise employees, and schedule under limited supervision, approved work in a team environment

Evidence Guide

Required evidence
Produce a portfolio that demonstrates that each element has been carried out. This can include rosters, schedules, quality related documentation and testimonials from superiors and workers being supervised.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S standards in the work area
- planning the production requirements of individuals to suit skill level
- promoting problem solving decision making
- developing individual or team participation
- improving quality and performance standards
- workplace communication

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

OH&S standards in the work area
Who determines the OH&S standards?
What parties monitor the OH&S standards in the work place?
What power do individuals in the workplace have in relation to OH&S standards?

Planning the production requirements of individuals to suit skill level
What is the importance of team participation?
Why is it necessary to determine the skill level of workers?
How can the skill levels of individual workers be determined?

Promoting problem solving decision making
What type of problems may be determined?
What strategies are in place for the implementation of problem solving techniques?

Developing individual or team participation
How can team members be encouraged to participate?
Why is it necessary to assess the effectiveness of implementation procedures?

Improving quality and performance standards
What checks are made to quality standards?
Who has the power to implement improvements to process standards?
What could be the ramification of standards not being improved?

Workplace communication
How can you ensure effective communication with individuals in the work place?
How can feedback be implemented?
What is the importance of gaining feedback?
SU55e  Supervise and schedule work of others

This unit has some overlap with National Frontline Management Unit 4 (BSX014804) at ASF 4/5

Elements and Performance Criteria

SU55e–1 Plan and implement work schedules
   SU55e–1.1 Tasks and / or jobs are identified and prioritised
   SU55e–1.2 Timelines and personnel are identified for each job and task
   SU55e–1.3 Schedules are communicated logically and in an easily understood manner
   SU55e–1.4 Changes to schedules are implemented through reorganisation of priorities, with reasons being clearly conveyed to team leaders, teams or individuals
   SU55e–1.5 Priority of task(s) is communicated to team leaders, teams or individuals

SU55e–2 Monitor performance of tasks
   SU55e–2.1 Required standard is effectively communicated to the team leader, teams or individuals to ensure understanding of the allotted task
   SU55e–2.2 Instruction or support to achieve required standard is provided as necessary
   SU55e–2.3 Standard of performance is monitored, including quality standards, to ensure achievement of outcomes and is reported in accordance with enterprise procedures

SU55e–3 Monitor and support development of teams or individuals
   SU55e–3.1 Individual team or worker performance is monitored to determine effectiveness and is reported in accordance with enterprise procedures
   SU55e–3.2 Support is provided to individuals or teams to ensure full participation
   SU55e–3.3 Procedures are provided to assist interaction and feedback on effectiveness between teams and individuals

SU55e–4 Monitor the application of OH&S in the work area
   SU55e–4.1 Implementation of standards, both OH&S and environmental, is monitored to determine safety in the work area
   SU55e–4.2 Strategies for prevention or correction of problems are determined from the monitoring process
   SU55e–4.3 Recommendations for prevention or correction are made in order to achieve established standards

SU55e–5 Liaise with management, work teams and individuals
   SU55e–5.1 All information affecting work is explained logically and in an easily understood manner to team coordinators, teams or individuals where appropriate
   SU55e–5.2 Effective and appropriate information provision is carried out with management and/or external personnel
   SU55e–5.3 Written reports are concise and conform to enterprise procedures

Range of Variables

Degree of autonomy: The competencies relate to personnel who work independently and may be responsible for a number of employees or in charge of a shift.
Evidence Guide

Required evidence
Produce a portfolio that demonstrates that each element has been carried out. This can include rosters, schedules, quality related documentation and testimonials from superiors and workers being supervised.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

+ OH&S standards
+ planning and implementing work schedules
+ standards monitoring
+ staff and workforce development
+ workplace liaison and communication

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

**OH&S standards**
- Who is responsible for OH&S standards in the work place?
- What reporting procedures are necessary with OH&S matters?

**Planning and implementing work schedules**
- How is the priority of jobs determined?
- What work scheduling procedures are used within the company?
- What would necessitate changes to scheduling?

**Standards monitoring**
- What information is reported in performance monitoring?
- Who provides instruction to achieve the required standard?

**Staff and workforce development**
- How often should teams or individuals be monitored on performance?
- What changes can be made to enhance individual performance?
- What changes can be made to enhance team performance?

**Workplace liaison and communication**
- What is the advantage of providing written reports to management?
- What level of management should reports be directed to?
SU56e Control production

This unit is roughly equivalent to National Frontline Management Unit 9 (BSX014809) at ASF level 4/5

Elements and Performance Criteria

SU56e–1 Identify requirements for efficient production

SU56e–1.1 Machine operations, staff and production processes are organised to meet production requirements

SU56e–1.2 Recommendations are made related to requirements and in accordance with enterprise procedures, OH&S and EPA requirements

SU56e–1.3 Quality standards and safe work practices are checked to ensure compliance with enterprise procedures and legislative requirements

SU56e–2 Monitor production efficiency

SU56e–2.1 Compliance to specified requirements is checked to ensure efficiency is maintained

SU56e–2.2 Non-compliance is identified, reported or recorded and investigated to determine causes

SU56e–3 Implement improvements to production efficiency

SU56e–3.1 Corrective or preventative action is recommended and implemented where appropriate

SU56e–3.2 Changes are communicated to relevant personnel in a logical and easily understood manner

SU56e–3.3 Changes are monitored to confirm improvement to production efficiency

Range of Variables

Degree of autonomy: The competencies apply to personnel who supervise employees

Technical guidance: The competencies relate to personnel who provide technical guidance and assistance to work teams

Decision making: Decisions may have a significant effect on the results of a production line / unit / department

Evidence Guide

Required evidence

Produce a portfolio that demonstrates that each element has been carried out. This can include production summaries, quality related documentation and testimonials from superiors and workers being supervised.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- requirements for efficient production standards
- maintaining production efficiency
- improving production efficiency
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected

Requirements for efficient production standards
  - What OH&S requirements should be met with production control?
  - How was the production process information obtained?
  - What quality standards were checked to ensure enterprise procedures were met?
  - What quality standards were checked to ensure EPA requirements were met?

Maintaining production efficiency
  - What problems could have caused non-compliance of production efficiency?
  - How could these problems resulted?

Improving production efficiency
  - Who has the authority to implement production changes?
  - What information needs to be communicated to implement changes to production control?
SU61a  Follow OH&S practices and identify environmental hazards

*Follow defined OH&S policies and procedures related to the work being undertaken in order to ensure own safety and that of others in the workplace*

### Elements and Performance Criteria

**SU61a–1  Follow workplace procedures for hazard identification and risk control**

**SU61a–1.1** Hazards in the work area are recognised and reported to designated personnel according to workplace procedures

**SU61a–1.2** Workplace procedures and work instructions for controlling risks are followed accurately

**SU61a–1.3** Workplace procedures for dealing with accidents, fire and emergencies are followed whenever necessary within scope of responsibilities and competencies

**SU61a–2  Follow workplace procedures for the control of environmental discharges / emissions**

**SU61a–2.1** Abnormal or unacceptable emission levels are recognised and reported according to workplace procedures

**SU61a–2.2** Emission levels are monitored and measured in accordance with standard operating procedures where appropriate

**SU61a–2.3** Waste removal from work area complies with workplace procedures and environmental regulations

**SU61a–2.4** Containment procedures are applied in accordance with standard operating procedures where required

**SU61a–2.5** Correct safety procedures are followed and personal protective equipment used correctly

**SU61a–3  Contribute to participative arrangements for the management of OH&S**

**SU61a–3.1** OH&S issues are raised with designated personnel in accordance with workplace procedures and relevant OH&S legislation

**SU61a–3.2** Contributions to OH&S management in the workplace are made within organisational procedures and scope of responsibilities and competencies

### Range of Variables

**Degree of autonomy**

This unit describes OH&S competencies applicable for employees without supervisory or managerial responsibilities

**Scope**

It involves application of relevant OH&S legislation, and codes of practice including duties and responsibilities of all parties under general duty of care legislation

**Workplace procedures**

Relevant workplace procedures will include hazard policies and procedures, emergency, fire and accident procedures, procedures for the use of personal protective clothing and equipment, hazard identification and issue resolution procedures, and job procedures and work instructions

**Emissions / discharges**

A range of environmental conditions including: noise, light, gas, smoke, odour, vapour, liquids / solids, particulates, fumes
Evidence Guide

Required evidence
A record of at least one month of following safe working practices.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate knowledge of:
  * significant hazards in the workplace
  * location and use of safety equipment and personnel
  * workplace procedures for dealing with fire and accidents
  * symbols used on OH&S signs
  * safety data sheets
  * information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Significant hazards in the workplace
Identify the major hazards in this workplace.
What safety devices are on this machine and what are their functions?

Location and use of safety equipment and personnel
Where are the fire extinguishers and fire exits?
Who is the first aid officer in your section?
Where is the first aid kit kept?

Workplace procedures for dealing with fire and accidents
What should you do in case of fire or accident?
Who should you report any dangerous situation to?

Symbols used on OH&S signs
What do these symbols mean? (eg hazardous chemicals, goggles, footwear, fire equipment)

Safety data sheets
Where are safety data sheets kept, and what information do they contain?
Where can you find information about safe levels for discharges or emissions?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU61e Implement and monitor OH&S (OHS2)

Implement and monitor the organisation's OH&S policies, procedures and programs in the relevant work area to achieve and maintain OH&S standards

This unit is equivalent to National Frontline Management Unit 8 (BSX014808) at ASF 4/5

Elements and Performance Criteria

SU61e–1 Provide information to the work group about OH&S and the organisation's OH&S policies, procedures and programs

SU61e–1.1 Relevant provisions of OH&S legislation and codes of practice are accurately and clearly explained to the work group

SU61e–1.2 Information on the organisation's OH&S policies, procedures and programs is provided in a readily accessible manner and is accurately and clearly explained to the work group

SU61e–1.3 Information about identified hazards and the outcomes of risk identification and control procedures is regularly provided and is accurately and clearly explained to the work group

SU61e–2 Implement and monitor participative arrangements for the management of OH&S

SU61e–2.1 Organisational procedures for consultation over OH&S issues are implemented and monitored to ensure that all members of the work group have the opportunity to contribute

SU61e–2.2 Issues raised through consultation are dealt with and resolved promptly or referred to the appropriate personnel for resolution in accordance with workplace procedures for issue resolution

SU61e–2.3 The outcomes of consultation over OH&S issues are made known to the work group promptly

SU61e–3 Implement and monitor the organisation's procedures for identifying and assessing hazards

SU61e–3.1 Existing and potential hazards in the work area are identified and reported so that risk assessment and control procedures can be applied

SU61e–4 Implement and monitor the organisation's procedures for controlling risks

SU61e–4.1 Existing risk control measures are monitored and results reported regularly in accordance with workplace procedures

SU61e–4.2 Inadequacies in existing risk control measures are identified in accordance with the hierarchy of control and reported to designated personnel

SU61e–4.3 Inadequacies in resource allocation for implementation of risk control measures are identified and reported to designated personnel

SU61e–4.4 Work procedures to control risks are implemented and adherence to them by the work group is monitored in accordance with workplace procedures

SU61e–5 Implement the organisation's procedures for dealing with hazardous events

SU61e–5.1 Workplace procedures for dealing with hazardous events are implemented whenever necessary to ensure that prompt control action is taken

SU61e–5.2 Hazardous events are investigated to identify their cause in accordance with investigation procedures
SU61e–5.3 Control measures to prevent recurrence and minimise risks of hazardous events are implemented based on the hierarchy of control if within scope of responsibilities and competencies or alternatively referred to designated personnel for implementation.

SU61e–6 Implement and monitor the organisation's procedure for providing OH&S training

SU61e–6.1 OH&S training needs are identified accurately specifying gaps between OH&S competencies required and those held by work group members.

SU61e–6.2 Arrangements are made for fulfilling identified OH&S training needs in both on and off-the-job training programs in consultation with relevant parties.

SU61e–7 Implement and monitor the organisation's procedure for maintaining OH&S records

SU61e–7.1 OH&S records for work area are accurately and legibly completed in accordance with workplace requirements for OH&S records and legal requirements for the maintenance of records of occupational injury and disease.

SU61e–7.2 Aggregate information from the area's OH&S records is used to identify hazards and monitor risk control procedures within work area according to organisational procedures and within scope of responsibilities.

Range of Variables

Degree of autonomy / responsibility
This Unit describes generic OH&S competencies applicable for employees with supervisory responsibilities.

Scope
To be exhibited in the work area of responsibility. In accordance with all relevant OH&S legislation, particularly general duty of care, requirements for the maintenance and confidentiality of records of occupational injury and disease, provision of information and training, regulations and codes of practice relating to hazards present in work area, health and safety representatives and OH&S committees, and issue resolution.

Types of hazards
Hazardous events include accidents, fire and emergencies such as chemical spills or bomb scares. Procedures for dealing with them include evacuation, chemical containment and first aid procedures. In accordance with workplace procedures for inspection, housekeeping, consultation processes, with general or specific to OH&S, training and assessment, specific hazard policies and procedures, OH&S information, OH&S record keeping, maintenance, purchasing, and counselling / disciplinary processes.

Evidence Guide

Required evidence
Produce a portfolio that shows that all performance criteria have been met. This should include procedures, information distributed to workers, records of monitoring and checking procedures and equipment.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- all applicable OH&S legislation and codes of practice
- the hierarchy of control (the preferred order of risk control measures: elimination, engineering controls, administrative controls, personal protective equipment)
- potential hazards of ALL equipment and materials used in the workplace
- the significance of EEO principles and practices for OH&S
- the importance of other management systems for OH&S
- levels of literacy and communication levels of workforce
- teamwork, supervision and training
- information sources
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace. When discussing the portfolio the candidate should demonstrate, in each area, the essential knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.
SU62a  Communicate in the workplace

Elements and Performance Criteria

SU62a–1  Gather, record and convey simple and routine information in a workplace related context

SU62a–1.1  Personal interaction is courteous
SU62a–1.2  Queries are made clearly and concisely
SU62a–1.3  Correct procedures for location and storage of information are employed and the particular workplace practices are adhered to
SU62a–1.4  Information is organised clearly, concisely and logically
SU62a–1.5  Workplace documents are completed clearly and accurately within a specified time
SU62a–1.6  Time is used efficiently

SU62a–2  Give and follow simple and routine instructions

SU62a–2.1  Safe work practices are incorporated in the instructions
SU62a–2.2  Instructions are accurate, clear, concise, comprehensive and are consistent with the skills of the receiver
SU62a–2.3  Appropriate methods of instruction are selected
SU62a–2.4  Interaction with others is efficient, effective, responsive, courteous and supportive
SU62a–2.5  Prescribed sequences are adhered to
SU62a–2.6  Routine checking of own and others’ performance is exercised
SU62a–2.7  Task is carried out

SU62a–3  Participate in small informal work groups

SU62a–3.1  Interaction is supportive, efficient, effective and courteous
SU62a–3.2  Participation in the discussion takes place
SU62a–3.3  Contributions are constructive in terms of the goal
SU62a–3.4  Group decisions are understood

SU62a–4  Interact with clients within, and external to, an organisation about simple routine matters

SU62a–4.1  Interaction is consistent with the needs of the organisation and the organisation is presented in a positive and client-centred way
SU62a–4.2  Correct forms of greeting, identification and address are used
SU62a–4.3  The needs of the client are clarified and noted where appropriate
SU62a–4.4  Referral processes are followed to establish contact between client and appropriate personnel
SU62a–4.5  Discretion and confidentiality are exercised where appropriate
SU62a–4.6  Time is used efficiently
SU62a–4.7  Appropriate follow-up steps are taken
Range of Variables

Range of communication

Range of written and spoken communication within the workplace and with clients including telephone, face to face, electronic media and documents

Evidence Guide

Context

Competency should be assessed over time in the work environment, using relevant workplace communications.

The underlying skill of workplace communication should be transferable across sectors of the press and post press industries. It is important that both the written and spoken elements are assessed.

Required evidence

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Competence is demonstrated in basic

- grammar and spelling
- correct use of relevant industry terminology
- diction and pronunciation
- understanding job specifications
- comprehension
- summarising

Completion of the national module Workplace Communication will be accepted in lieu of the above.

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to demonstrate level of knowledge necessary for all workers to effectively function in the workplace.
SU62c  Workteam communication

Elements and Performance Criteria

SU62c–1  Participate in a small group discussion to reach agreement on a workplace related issue

SU62c–1.1 Personal views are presented in a way that supports the views of others involved in the discussion
SU62c–1.2 Appropriate meeting procedures are adhered to
SU62c–1.3 Information is conveyed in a logical, clear and concise manner
SU62c–1.4 Specified follow up steps are taken

SU62c–2  Cooperate with team members to plan and prepare a simple presentation

SU62c–2.1 Agreed tasks are completed
SU62c–2.2 The participant's purpose in the presentation is clearly evident from the context
SU62c–2.3 Interaction is supportive and constructive

SU62c–3  Present a job related report to a group

SU62c–3.1 Views are presented clearly and logically
SU62c–3.2 The stated purpose of the presentation is achieved
SU62c–3.3 At least two media are used

Range of Variables

<table>
<thead>
<tr>
<th>Range of workteams</th>
<th>Range of workgroups or workteams found in the workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation media</td>
<td>Range of media including overheads, slides, charts, models, computers, etc</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>This unit applies to people involved in organising work teams and their activities.</td>
</tr>
</tbody>
</table>

Evidence Guide

Context
Competency should be assessed over time in the work environment, in actual work teams or work related groups

Required evidence
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Competence is demonstrated in
- listening
- speaking
- note taking
- gathering and organising information
- meeting procedure
- group goal setting techniques
- conflict handling
- negotiation
- presentation techniques and media
Completion of the national module Workteam Communication will be accepted in lieu of the above.

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances*
SU63b  Perform basic industry calculations

Elements and Performance Criteria

SU63b–1  Calculate costs and dimensions
  SU63b–1.1 Additions, subtractions, multiplications and divisions of costs and dimensions are correctly calculated
  SU63b–1.2 Material and time costs are correctly calculated for the elements of a brief
  SU63b–1.3 Percentages of cost and time are correctly calculated to fulfil the requirements of a brief
  SU63b–1.4 Results of calculations are correctly recorded

SU63b–2  Calculate area, density and volume
  SU63b–2.1 The areas of design components are correctly calculated in accordance with job specifications
  SU63b–2.2 The density and/or volume of fluids and colours are correctly calculated and applied
  SU63b–2.3 Percentages of areas, densities and volumes are correctly calculated to fulfil the requirements of a brief
  SU63b–2.4 Enlargements and reductions are correctly calculated

SU63b–3  Calculate and draw geometric shapes
  SU63b–3.1 Angles, areas and diameters are correctly calculated to fulfil the requirements of a brief
  SU63b–3.2 Geometric shapes are calculated and drawn correctly, by hand or on computer, in accordance with design specifications

SU63b–4  Use basic measuring tools and apply results of measurement
  SU63b–4.1 Appropriate measuring tools are selected and used correctly and accurately
  SU63b–4.2 Measurements are correctly interpreted and used in appropriate calculations

Range of Variables

Types of calculations  Numerical calculations involved in basic arithmetic, percentages and geometry used in the printing and graphic arts industry
Calculating methods  Includes approximation and formal calculations using pen and paper, calculators, computers and other calculating devices
Degree of autonomy  Working under supervision
Measuring tools  Basic measuring tools used in the printing industry, for example micrometers, scales, humidity meters, pH meters, screen angle and screen ruling guages, dot gain scales and pantone colour matching

Evidence Guide

Required evidence
Perform correct measurements and calculations on jobs according to performance criteria.
At least THREE elements must be assessed.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Must demonstrate knowledge of:

- different applications of arithmetic, percentages, geometry and drawing
- quick approximations of expected answers
- calculations required for enlargements and reductions
- use of basic measurement tools

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required working in a limited range of circumstances*

**Different applications of arithmetic, percentages, geometry and drawing**

In what other jobs would you use a similar calculation?

**Quick approximations of expected answers**

What do you expect the answer to be? and why?

**Calculations required for enlargements and reductions**

How do you calculate enlargement factors?

**Use of basic measurement tools**

What is parallax error and how does it affect measurement?

How do you determine acceptable tolerances in measurement?
SU64d  Customer service / customer education

Elements and Performance Criteria

SU64d–1  Establish and maintain a positive relationship with the client
SU64d–1.1  Rapport with client is built and maintained
SU64d–1.2  Opportunities to provide additional services to client are identified

SU64d–2  Match customer needs and expectations with production process requirements
SU64d–2.1  Job requirements are clarified with client and compared with quote / estimate
SU64d–2.2  A job ticket / docket is created
SU64d–2.3  Serve as liaison between client and technical staff
SU64d–2.4  Job specifications and job parameters are used to define appropriate production procedures and processes
SU64d–2.5  Demonstrate knowledge of company services, equipment capabilities, limitations and workflow
SU64d–2.6  Project is evaluated and feedback provided to client
SU64d–2.7  Preliminary proof and contract proof are distinguished according to company standards and that is communicated to the client
SU64d–2.8  Ensure that client has reviewed and approved all dummies and proofs at appropriate stages in the production process
SU64d–2.9  Job information (eg work orders, quotes, job tickets) is documented and compiled

SU64d–3  Manage project budget and time-line
SU64d–3.1  Client–requested changes are monitored and documented and the impact on budget and time–line is communicated to the client
SU64d–3.2  The client is advised on alternative production techniques

Range of Variables

Range of processes  All printing processes
Customers  Internal and external customers
Degree of autonomy  Working independently using initiative and judgement

Evidence Guide

Context
Competency demonstrated in either pre–press OR screen printing OR printing and finishing

Required evidence
Provide a portfolio covering a month that demonstrates
bullet all paper work has been completed correctly
bullet jobs are completed within budgets
bullet customers’ expectations are met eg by providing written or verbal reports or examining work error reports

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate knowledge of:

- requirements of all printing processes
- relationship between pre-press, press and post press
- costs and characteristics of a range of substrates and inks
- information sources

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*When discussing the portfolio the candidate should demonstrate, in each area, the essential knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
SU71b  Provide basic instruction for a task

This competency applies to skilled workers who are instructing other workers in a task during normal work.

Elements and Performance Criteria

SU71b–1  Ensure that conditions are suitable for training

| SU71b–1.1 | Check that training is required |
| SU71b–1.2 | Check that any necessary equipment is available |
| SU71b–1.3 | Check that sufficient time is available for yourself and trainee |

SU71b–2  Instruct trainee in task

| SU71b–2.1 | Instruct trainee in task: this may include demonstrations and/or descriptions of procedures |
| SU71b–2.2 | Provide trainee with details of required knowledge about potential problems and causes of failure |
| SU71b–2.3 | Provide trainee with information about potential hazards |
| SU71b–2.4 | Allow trainee to practice task under supervision |
| SU71b–2.5 | Encourage trainee to ask questions and provide feedback |

SU71b–3  Check that learning has taken place

| SU71b–3.1 | Check that trainee can perform task |
| SU71b–3.2 | Check that trainee is aware of potential problems and causes of failure |
| SU71b–3.3 | Check that trainee is aware of potential hazards and knows how to avoid them |

SU71b–4  Arrange for necessary follow–up training

| SU71b–4.1 | Estimate trainee's level of skill and their requirements for follow up training |
| SU71b–4.2 | Arrange for appropriate follow–up training or supervised practice sessions |

Range of Variables

Target group
This competency applies to skilled workers instructing other workers in a task during normal work.

Scope of training
Training is provided on a one–to–one basis or to small groups of trainees.

Degree of autonomy
Working independently but at the direction of a supervisor.

Evidence Guide

Required evidence
Trainer must be competent in the task he/she is instructing.

Evidence of satisfactory performance in this Unit is best obtained by observation of training on TWO separate occasions combined with discussion with the trainer about what has been done and his/her assessment of trainee's progress.
An independent assessment of the trainee(s) should be done to verify that the trainer’s assessment of the trainee’s skill and need for extra training is accurate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show the essential knowledge required when working in a limited range of circumstances.*
SU81b Use computer systems

Elements and Performance Criteria

SU81b–1 Use a work station correctly
- SU81b–1.1 The correct posture at the keyboard is adopted in accordance with OH&S
- SU81b–1.2 Files are manipulated correctly to ensure access, retrieval and storage of data
- SU81b–1.3 The correct fingers are used for keyboarding

SU81b–2 Perform computer functions
- SU81b–2.1 Files are accessed, saved and retrieved for reference and for amendment and addition
- SU81b–2.2 The appropriate program is selected for the job to be undertaken
- SU81b–2.3 Program configuration options are changed correctly to deliver the desired output
- SU81b–2.4 Mouse and keyboard functions are used correctly to operate the computer system
- SU81b–2.5 Features of applications are used correctly to deliver a specified output
- SU81b–2.6 Files are saved in correct format and location

SU81b–3 Exchange files between operating systems and/or storage devices
- SU81b–3.1 Files are correctly written or copied to different devices and/or environments to ensure no loss of data
- SU81b–3.2 Files are correctly accessed from different devices and/or environments to ensure no loss of data
- SU81b–3.3 Master pages, templates and style sheets are used consistently to ensure data is the same after exchange or transfer

Range of Variables

Degree of autonomy
Work is done to defined procedures and in consultation with others to ensure production requirements have been met

Types of systems
Computer systems used in the printing industry

Types of applications
Software used in the printing industry, including: typesetting, image manipulation, page layout, word processing, database, spreadsheet, production control and monitoring systems

Evidence Guide

Context
Competency should be assessed in the work environment using industry software packages.

Critical aspects
The underlying skill of computer applications should be transferable across sectors of the printing industry.

Required evidence
Use a computer work station with at least TWO software applications relevant to the printing industry to perform a variety of computing functions, access and save files, in accordance with the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- OH&S and ergonomic issues
- starting, operating and shutting down the computer
- basic typing skills
- use of applications
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working in a limited range of circumstances.

### OH&S and ergonomic issues

What are the potential health risks associated with the use of a computer workstation?

### Starting, operating and shutting down the computer

Under what circumstances should you turn off the power to the computer? and why?
What should you do each time you start or stop using the computer?
If you use a password, who else is allowed to know that password?
How do you access alternative file storage devices?

### Basic typing skills

Identify the base finger positions on the keyboard.
Why is it better to type at an even pace instead of typing some letters more quickly than others?

### Use of applications

What is the mathematical relationship of byte, kilobyte, megabyte and gigabyte
How is a compressed file produced?
Why should you use master pages, templates or style sheets?
What is a macro?
What file formats are used in your workplace, and why?
What are three common errors and their consequences?
How can you find out whether you have made a mistake?

### Information sources

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SU81c Operate and maintain computer resources

Elements and Performance Criteria

SU81c–1 Perform routine system maintenance
SU81c–1.1 Required equipment is checked to be in working order and available for use
SU81c–1.2 Peripherals are fitted, maintained, cleaned, adjusted as required
SU81c–1.3 Workstation furniture and fittings are adjusted in accordance with OH&S practices and protection of equipment
SU81c–1.4 Routine system maintenance and security processes are performed
SU81c–1.5 Correct functioning of automated processes is monitored
SU81c–1.6 Minor network problems are diagnosed and corrected or reported
SU81c–1.7 All abnormalities and system malfunctions are reported
SU81c–1.8 Off-line maintenance records are kept up to date
SU81c–1.9 Networked system is started and shut down according to schedules and during abnormal circumstances such as power failure or emergency

SU81c–2 Perform backups and restorations
SU81c–2.1 Filesystem backups are performed regularly according to established workplace practices
SU81c–2.2 Backup media are labelled, stored, and rotated according to established workplace practices
SU81c–2.3 Files are restored from backup as required
SU81c–2.4 Data is recovered from damaged and corrupted files
SU81c–2.5 Adequate written records of backups are kept

SU81c–3 Store and supply consumables
SU81c–3.1 Consumables are stored and disposed of with regard to OH&S, care of equipment and system security
SU81c–3.2 Stock levels and user needs are monitored to ensure required consumables are available

SU81c–4 Upgrade and configure system
SU81c–4.1 Software and peripherals are installed, upgraded and configured according to enterprise policy
SU81c–4.2 New software, upgrades and adjustments are tested to ensure adequate performance
SU81c–4.3 Associated workstation furniture and fittings are adjusted to meet workplace standards for OH&S and care of equipment
SU81c–4.4 Written records of installations, upgrades and configurations are maintained

SU81c–5 Access documentation, records and updates
SU81c–5.1 Documentation, including hardware and software manuals and equipment inventory and service records, is stored and accessed appropriately
SU81c–5.2 Supplementary product information, updates and technical reference material are accessed using the Internet, journals and other sources
SU81c–6 Access and deliver data

- SU81c–6.1 Removable storage devices are connected, disconnected and configured as required
- SU81c–6.2 Data is accessed from different types of filesystems
- SU81c–6.3 Data is stored and converted to suit a variety of operating systems, environments and applications
- SU81c–6.4 Data is transmitted effectively by the method (eg ISDN, removable devices, Internet, etc) most appropriate to the task

Range of Variables

- Degree of autonomy: Working independently under limited supervision
- Types of systems: Multi-user computer systems used in the printing industry including publishing, consultancy, advertising or packaging
- Types of installations: Peripherals and software with pre-configured installation routines

Evidence Guide

Context
Competency should be assessed in the work environment using industry hardware and software.

Critical aspects
The underlying skill of system maintenance should be transferable across sectors of the design and pre-press industries.

Required evidence
Produce log books and written records showing system maintenance and configuration history over a period of THREE months, including all reported abnormalities and how they were addressed, stock records.
Perform a routine system backup, and restore a nominated file from an earlier backup.
Convert a document from one common file format to another and make available for access on a different platform (eg Macintosh application to MS–Windows application via suitably encoded Internet e-mail attachment)
Research and report the availability of upgrades and support for TWO pieces of hardware and TWO pieces of software currently in use.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:
  - OH&S requirements for terminal operators
  - computing technology
  - security and storage of data
  - file preparation, conversion and encoding including cross-platform considerations
  - correct use of network and telecommunications technologies
  - specific hardware peripherals and consumables for the Pre-press area
  - pre-press software
  - information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required in a wide range of circumstances.

OH&S requirements for terminal operators
How are the keyboard, mouse and screen positioned to avoid fatigue? When would you provide a foot rest?

Computing technology
What are the relationships between baud rate, bits per second and bandwidth? What is meant by MIPS? What is the function of the video card? What must be checked before commencement of a software installation or upgrade?

Security and storage of data
A user wishes to install his own software to use during his lunch break. Assuming the software is scanned for viruses, what risks might exist for the system, the company and the user if the installation proceeds? Describe the backup and restoration procedures currently used. Where do you see strengths and weaknesses? Why are hand–written records kept? What would alert you to a possible security breach or virus attack, and how would you respond? What environmental factors could cause loss of data from removable media?

File preparation, conversion and encoding including cross–platform considerations
How do you ensure that a converted file retains its fonts? What are the differences in file naming conventions between IBM–PC, Macintosh and Unix? Name at least three encoding methods for Internet e–mail transmission of files, and state which platform each is used for. Name four common graphics file formats. When would each format be chosen?

Correct use of network and telecommunications technologies
How can a Macintosh communicate with another computer without using Appletalk? What types of cabling and network cards are installed, and what is their effect on data transmission speed? Can a v34 modem transmit data at 38400bps? Explain. How do you initiate a search for product information on the Internet? What is the most efficient way to exchange files with clients or other companies?

Specific hardware, peripherals and consumables for the pre–press area
What is a SCSI device and how does the system refer to SCSI devices? List the configuration of a typical high performance pre–press computer. What form of computer language is used to drive an imagesetter? Describe the types of removable media commonly used in the pre–press area. What pieces of hardware require periodical cleaning?

Pre–press software
What is the limiting factor with most DTP pre–press software? Where does UNIX fit into the Pre–press production process? Identify the appropriate software required to scan for a virus produce a logo manipulate an image set up a printer network create a page of text

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept? What information is included in these documents? What other sources of information are available?
SU81d Manage systems

Elements and Performance Criteria

SU81d–1 Plan and configure an integrated system
   SU81d–1.1 Plan the components of pre–press operations to be incorporated into an integrated system of production
   SU81d–1.2 Configure the components of an integrated system to produce the required flow of pre–press work

SU81d–2 Network a system
   SU81d–2.1 Create workstations for an integrated pre–press system so that specifications for operations and links are clearly identified
   SU81d–2.2 Link the components of an integrated pre–press system into a network so that information is relayed between them
   SU81d–2.3 Apply industry software to produce work station output of pre–press tasks

SU81d–3 Manage an integrated system
   SU81d–3.1 Maintain the workstations, network lines and component hardware of an integrated pre–press system according to manufacturer specifications
   SU81d–3.2 Apply up–to–date knowledge of industry hardware and software to enhance the efficiency of the integrated system to maintain competitive practices

SU81d–4 Monitor and adjust system performance
   SU81d–4.1 System performance is monitored and tuned using diagnostics and other tools in accordance with workplace practices
   SU81d–4.2 System usage is monitored and processing scheduled as required to maintain availability of resources
   SU81d–4.3 System configuration is adjusted as required by production and testing schedules
   SU81d–4.4 Network problems are diagnosed and corrected
   SU81d–4.5 System failures and abnormalities are identified and corrective action is taken
   SU81d–4.6 Procedures are automated by writing and updating scripts, macros and templates

Range of Variables

Types of systems
   Computer systems used in the printing industry including publishing, consultancy, advertising or packaging

Degree of autonomy
   Work needs to show initiative and the ability to cope with the unexpected

Evidence Guide

Context
   Competency should be assessed in the work environment using industry hardware and software.

Critical aspects
   The underlying skill of systems management should be transferable across sectors of the design and pre–press industries.
**Required evidence**

Produce a portfolio that demonstrates that you have successfully planned, configured and maintained an integrated pre-press or other system of production relevant to the printing industry, according to performance criteria. This should include verifiable reports and references.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- OH&S
- computing technology
- specific hardware for the pre-press area
- pre-press software
- network systems and telecommunications
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working to a very wide range of circumstances.

**OH&S**

What OH&S practices are important to observe and promote in your work?

**Computing technology**

What is the relationship between the video card, the monitor resolution and the monitor colour bit depth?
What are the major advantages and disadvantages of the IBM–PC platform and the Macintosh platform?
What are the major differences between SCSI and Enhanced IDE, and how do they impact on performance efficiency?

**Specific hardware for the Pre-press area**

How does the hardware make use of PostScript data?
Describe the purpose of an online colour proofing unit.
Explain the advantages of a central print server.

**Pre-press software**

What is OPI?
Describe the purpose of a software RIP.
What are the advantages of having an ICC compliant colour management system on a Macintosh or a UNIX based workstation?

**Network systems and telecommunications**

Explain the terms: spot function; laserprep file.
When discussing network cabling, what properties control transmission speed?
What is the purpose of a hub?
What options exist for expansion of ISDN services?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
SU81e  System research development and diagnosis

Elements and Performance Criteria

SU81e–1  Perform research and development activities
- SU81e–1.1 New hardware and software is tested and developed
- SU81e–1.2 System errors are debugged
- SU81e–1.3 New software is created
- SU81e–1.4 Clients are advised on system questions
- SU81e–1.5 A library of current information is maintained

SU81e–2  Provide advanced troubleshooting
- SU81e–2.1 PostScript errors are diagnosed and resolved
- SU81e–2.2 Network errors are diagnosed and resolved
- SU81e–2.3 System and software errors are diagnosed and resolved
- SU81e–2.4 File errors are diagnosed and resolved
- SU81e–2.5 RIP messages are diagnosed and resolved
- SU81e–2.6 Communication with vendors
- SU81e–2.7 Appropriate documentation is completed

Range of Variables

Range of processes    All printing processes
Degree of autonomy    Working independently
Systems and methods   All systems and methods used in printing industry

Evidence Guide

Required evidence
Provide a portfolio that includes
- reports on new software and hardware
- evidence that all performance criteria have been met
- evidence that reported problems in each area of the performance criteria have been diagnosed and resolved
- three examples of hardware and/or software developments that have been done
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required in a wide range of circumstances and being able to cope with the unexpected
Pre–press Units

Pre–press covers design, compositing, typography, scanning, camera work, combining, image output and platemaking.

Pre–press workers need units from this section as well as from the Support Units, and possibly Multimedia Units and National Generic Units.

Pre–press Units:
PP11b Develop a basic design concept
PP11c Develop a detailed design concept
PP11d Undertake a complex design brief
PP21b Select and apply type
PP21c Produce a typographic image
PP21d Compose and evaluate typography
PP22b Scan a line image
PP22c Scan images for reproduction
PP22d Scan complex images for reproduction
PP23b Photograph a line image
PP23c Photograph and produce halftone images
PP31b Manually combine spot colour and basic four colour images
PP31c Manually combine complex four colour images
PP32c Electronically combine and assemble data
PP32d Electronically combine complex images
PP33c Prepare a (layout) format for printing processes
PP33d Generate complex imposition
PP52b Output images to film and paper
PP52c Output complex images to film
PP52d Output complex images direct to plate or press
PP53b Output images to electronic media
PP60b Chemically proof images
PP60c Undertake special colour and digital proofing
PP66b Make and proof relief plates
PP67b Make offset lithographic plates
PP68b Make photopolymer plates (flexographic)
PP69b Make photopolymer plates (pad printing)
PP70c Make multiple image plates
PP72b Make gravure cylinders manually
PP72c Make gravure cylinders electronically
PP81b Design carton (basic)
PP81d Design carton (complex)

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
PP11b  Develop a basic design concept

Elements and Performance Criteria

PP11b–1  Assess the requirements of the brief
- PP11b–1.1 The printing requirements of the layout brief are determined to align pre-press processes with printing feasibility
- PP11b–1.2 The brief is broken down into stages of production in order to determine a plan of procedure
- PP11b–1.3 A plan of action is determined to meet the time requirements of each stage so that deadlines are identified and adhered to
- PP11b–1.4 Correct design and typographic terms are used to facilitate communication in accordance with industry standards

PP11b–2  Assemble layout materials
- PP11b–2.1 Client copy and images are assembled to conform with the brief requirements
- PP11b–2.2 Library files are accessed for relevant data to conform with the brief requirements
- PP11b–2.3 Appropriate equipment and materials to complete the layout are assembled to enable the brief to be undertaken efficiently
- PP11b–2.4 The design area is cleaned and prepared ready for use

PP11b–3  Render a simple graphic design
- PP11b–3.1 The client requirements are checked to ensure a design concept matches the brief
- PP11b–3.2 Preliminary graphic design ideas are sketched in accordance with the brief
- PP11b–3.3 A simple graphic design concept is rendered electronically or manually to conform to the brief
- PP11b–3.4 The rendered graphic design is checked for accordance with the requirements of the brief

PP11b–4  Produce finished artwork
- PP11b–4.1 A layout grid is ruled-up to meet the specifications of the brief
- PP11b–4.2 Type is selected for readability and fitted into the grid space allocated to conform with brief requirements
- PP11b–4.3 Photographs and illustrations are selected, scaled and cropped appropriately to fit the grid space allocated
- PP11b–4.4 Overlays / colour roughs are created to accord with brief specifications
- PP11b–4.5 The components of the layout are positioned accurately using keylines to conform with the grid framework

PP11b–5  Check for suitability
- PP11b–5.1 The layout is checked to eliminate omissions and errors
- PP11b–5.2 The layout design is checked against the requirements of the brief to conform with the proposed printing process
- PP11b–5.3 The layout is rendered ready to present to the client

PP11b–6  Tidy materials and store data
- PP11b–6.1 Equipment and materials are returned to storage in accordance with enterprise requirements
PP11b–6.2 Design data and materials are filed ready for future retrieval in accordance with enterprise requirements

PP11b–6.3 The design area is cleaned to enterprise requirements ready for re-use

**Range of Variables**

<table>
<thead>
<tr>
<th>Complexity of process</th>
<th>Artwork may contain simple line work or a combination of line and tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of autonomy</td>
<td>Working in consultation with others to ensure production requirements have been met</td>
</tr>
<tr>
<td>Workplace procedures</td>
<td>Tasks must be performed in accordance with workplace procedures</td>
</tr>
<tr>
<td>Workplace quality standards</td>
<td>Tasks must meet workplace quality standards</td>
</tr>
</tbody>
</table>

**Evidence Guide**

**Context**

Competency should be assessed in the work environment, using either manual and/or electronic equipment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

**Critical aspects**

The underlying skill of designing a basic layout to conform to brief specifications should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

**Required evidence**

Prepare TWO sets of colour roughs and artwork containing line and tone work in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- technical requirements for preparing art for printing or electronic output
- preparing rough layout and colour rough
- reproduction characteristics of halftones
- preparing finished art photographically or by computer
- evaluating finished art
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances.

**Technical requirements for preparing art for printing or electronic output**

For what purpose is this artwork being prepared?
What is the number and the specific colours of the job?
What scale is this artwork to finished job?
Describe the difference between reflective and transparent originals.
What are three essential elements to consider when preparing art for printing / publication?
Describe the different requirements for TWO different printing or electronic output processes.

**Preparation of rough and colour layout**

Why have you used manual / computer techniques to prepare this colour rough?

**Preparing finished art**
What OH&S concerns are there when using cameras or computers?
What is the colour sequence and overlap for transparent / opaque colours?
Why are you preparing the finished artwork at this size or scale?
Why have you chosen these specific type faces?
What effect (influence) does the selection of different type faces have on a job?

Reproduction characteristics of halftones
Describe the various types of halftone dot structures and the maximum and minimum tonal ranges that could be used to reproduce this artwork.

Evaluating finished art
What method have you used for registration and trim marks?
Why must you evaluate artwork for density, definition and resolution, and how can this be corrected?
What are the characteristics of properly prepared line artwork?
How have you determined that finished art complies with job specifications and approved colour rough?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP11c  Develop a detailed design concept

Elements and Performance Criteria

PP11c–1  Determine the specifications of the brief

PP11c–1.1 Appropriate communication techniques are selected to determine relevant client information and brief requirements
PP11c–1.2 Job details are accurately documented to meet enterprise policies and procedures

PP11c–2  Render a graphic design

PP11c–2.1 The client requirements are translated into a design concept that accords with the brief
PP11c–2.2 A range of graphic design ideas are detailed and the potential of each is assessed in accordance with the brief
PP11c–2.3 A unique graphic design concept is rendered electronically or manually to conform to the brief
PP11c–2.4 The rendered graphic design is assessed for printing feasibility in accordance with the requirements of the brief
PP11c–2.5 A visual is produced showing position and fit of design elements to document the design layout

PP11c–3  Produce a dummy

PP11c–3.1 A range of visual imagery interpretations of the brief are made to present options to the client
PP11c–3.2 Text and images are graphically presented to conform with the grid layout
PP11c–3.3 Basic imposition is calculated to suit printing and binding processes
PP11c–3.4 A dummy is produced for marking–up copy and to obtain client feedback about the suitability of design

PP11c–4  Produce complex finished artwork

PP11c–4.1 A design concept is structured step by step to conform with a grid format
PP11c–4.2 Appropriate type styles are selected to conform with the client brief and the printing substrate
PP11c–4.3 Line reproduction quality is assessed to effect the standard of print reproduction required by the client brief
PP11c–4.4 Appropriate styles of photography and illustration are selected to conform with the client brief and the printing substrate
PP11c–4.5 Tone reproduction quality is assessed to effect the standard of print reproduction required by the client brief
PP11c–4.6 Colours are selected and combined effectively using overlays to conform with the client brief and the printing substrate

PP11c–5  Verify brief fulfilment

PP11c–5.1 Client feedback is incorporated into the final design layout to ensure conformance with client expectations
PP11c–5.2 The layout is checked for errors and omissions to effect the requirements of the brief
Range of Variables

- Complexity of process: Artwork is complex and may involve numerous elements
- Degree of autonomy: Initiative, judgement and working in consultation with others
- Workplace procedures: Tasks must be performed in accordance with workplace procedures
- Workplace quality standards: Tasks must meet workplace quality standards

Evidence Guide

Context
Competency should be assessed in the work environment, using either manual and/or electronic equipment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skill of designing a detailed layout to conform to brief specifications should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Prepare TWO sets of design, colour roughs and finished artwork which incorporates line and tone work in accordance with listed performance criteria and to workplace standards.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- technical requirements for preparing art for printing or electronic output
- recognition and how to use and apply different type faces
- basic design principles and use instruments, materials and CAD programs
- use of camera and computer equipment
- paste up elements and overlays
- evaluating artwork and its suitability for printing
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Technical requirements for preparing art for printing or electronic output
- What are the parameters of the job for which this artwork is being prepared?
- What instruments, materials and computer equipment will be used in producing this artwork?
- How is colour used for effect and harmony?
- What is the colour composition of white light?
- Describe colour wheel elements and the use of the Pantone Matching System.
- What method do you employ for the care and maintenance of pens and artists brushes?
- What effect does the selection of a print or electronic output system have on the preparation of artwork?

Recognition of and how to use and apply different type faces
- Describe the fundamental features of three different type faces.
- Describe how, when and where to use and apply different type faces (ie light, medium or heavy).
- What scanning and digitising systems are you using?
- What system is used for ordering type to fit a predetermined space on artwork?
- What methods of type setting are used (eg phototype, dry transfer, or computer)?

Basic design principles and use of instruments, materials and CAD programs
- Describe the method for making or revising a layout.
- What basic design principles are used in the preparation of layouts?
What technical drawing instruments are required for the hand drawing of finished art?
How do you vary format, size, style and preparation of artwork when using computer equipment for layouts / colour roughs?
What is a CAD program and how could such a program aid the work of a designer?

Use of camera and computer equipment
What OH&S concerns are there when using cameras or computers?
Describe the production of bromides using a process camera and contact frame.
Describe the diffusion transfer process for producing bromides.
What is your understanding of the operation of mono laser printers and resolution output?
How do you calculate proportional enlargement and reduction?
Describe the process of drawing line, borders and corners using drawing instruments or a computer or digitiser.

Paste up elements and overlays
Describe the method of retouching bromides / artwork.
How do you determine colour breakdown and colour sequence in printing?
How do you determine the size of overlays when overprinting?
Describe the process of producing overlays using masking film.
How do you determine that paste up components are clean and correctly positioned and proportioned?

Evaluating artwork and suitability for printing
How do you recognise and rectify faults on artwork supplied by the client?
How do you determine the effect of colour breakdown and sequence on printing operations and printed jobs?
What method do you use for checking size and scale of reproduction?
How do you assess whether artwork matches customer's specifications as outlined on the job sheet?
What methods do you use for assessing the quality and suitability of externally produced artwork?
What problems can be caused by using sub-standard and unsuitable artwork?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP11d  Undertake a complex design brief

Elements and Performance Criteria

PP11d–1  Negotiate a complex design contract
- PP11d–1.1 Appropriate communication techniques are selected to receive complex design brief requirements and instructions from the client
- PP11d–1.2 Job analysis and research are undertaken to source cost–efficient design production procedures
- PP11d–1.3 Possible design options are analysed to meet optional printing processes and substrates
- PP11d–1.4 Individual design stages of the brief are timed and costed to determine accurate parameters of cost
- PP11d–1.5 A quotation is prepared using accurate estimates to communicate to the client the fees required to undertake the brief
- PP11d–1.6 A design brief contract is presented to the client to confirm client preparedness to remunerate the design process

PP11d–2  Plan the design process
- PP11d–2.1 Client approval to proceed is obtained to determine the allocation of work within the enterprise
- PP11d–2.2 The appropriate production processes are planned and scheduled to meet the specifications of the brief for the printing substrate
- PP11d–2.3 Materials are sourced and ordered to conform with the brief requirements
- PP11d–2.4 Design team members are briefed and work roles allocated to facilitate the orderliness and timeliness of the design process

PP11d–3  Render a complex graphic design
- PP11d–3.1 A complex graphic design concept is rendered electronically or manually to conform to the brief
- PP11d–3.2 The production processes of the design concept for colour, production run, substrates and costs are assessed in accordance with the requirements of the brief
- PP11d–3.3 The specifications for reproducing the finished artwork are annotated so as to define specified printing processes and substrates

PP11d–4  Ensure feasibility of production
- PP11d–4.1 Type options are checked to meet specified printing processes and substrates
- PP11d–4.2 The reproduction feasibility of multiple colour vignettes is analysed to meet specified printing processes and substrates
- PP11d–4.3 Line and tone are combined and dot complexity of photography is analysed to meet specified printing processes and substrates
- PP11d–4.4 The feasibility of complex imposition and folds are calculated to meet specified printing processes and substrates
- PP11d–4.5 Foils and embossing are checked to meet specified printing processes and substrates

PP11d–5  Solve technical problems
- PP11d–5.1 Technical problems are resolved by re–design or amendment of the brief in consultation with the client to acceptable standards
PP11d–6  Ensure quality output

PP11d–6.1 Standards for reproduction are documented to form a reference bank for the design process

PP11d–6.2 Design solutions are filed and stored ready for retrieval in accordance with enterprise standards

PP11d–6.3 Internal performance standards are evaluated to identify potential reforms for future enterprise procedures

PP11d–6.4 Future actions are determined to incorporate accurate cost and time analyses into future briefs

Range of Variables

Design tools  The competency can be demonstrated using a range of manual or electronic equipment and software applications

Clients  The client can refer to internal or external clients

Costing  Costing details can include hourly rates, material costs and any other factor contributing to job costs

Applications  Design can be specific to publishing, consultancy, advertising or packaging

Complexity  Complex refers to intricate and detailed design (line and tones) and may include difficult vignettes, tone separations, colour reproductions and embossing

Quality standards  Quality refers to the standard of outcome specified by the client in accordance with enterprise standards

Degree of autonomy  Working independently and taking responsibility for fulfilment of brief

Evidence Guide

Context
Competency should be assessed in the work environment, using either mechanical and/or electronic equipment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skill of solving complex technical problems of layout to conform to brief specifications should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Produce finished art from a complex design brief. Provide evidence that each stage from initial negotiations to completion has been carried out satisfactorily.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- relevant printing processes and electronic media
- design and colour theory
- typography
- chemical and reproduction nature of substrates
- technical problem solving
- evaluating artwork
- costing
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

Relevant printing processes and electronic media

What is the effect of the design brief upon the selection of a printing process?
Describe in detail the different design requirements for THREE printing processes, operations or electronic media.

Design and colour theory

What factors have you considered when selecting appropriate colours for this job?
How does the choice of colours utilised effect the mood of a targeted consumer?

Typography

What procedures have you implemented to produce a special effect?
The selection of type face design must be appropriate to the intended product. Explain this concept.

Chemical and reproduction nature of substrates

What factors have you considered when selecting the appropriate printing substrate for this job?
What effects do different inks and substrates have on design?
What problems may arise when running an image across a double page spread?

Technical problem solving

What steps would you take to overcome the problem of finger marks on dark solids?
What common technical problems occur when a design is printed and how can they be resolved?

Evaluating artwork

How do you recognise and rectify faults on artwork supplied by the client?
How do you determine the effect of colour breakdown and sequence on printing operations and printed jobs?
How do you assess whether artwork matches customer’s specifications as outlined on the job sheet?
What methods do you use for assessing the quality and suitability of externally produced artwork?
What problems can be caused by using sub-standard and unsuitable artwork?

Costing

What design factors affect the cost of a printed job?
How do you ensure that a design can be reproduced within budget?

Information sources

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP21b  Select and apply type

Elements and Performance Criteria

PP21b–1  Identify fonts
PP21b–1.1 A range of fonts is identified to meet diverse client requirements and printing substrates
PP21b–1.2 Point sizes of type are identified to meet diverse client requirements and printing substrates

PP21b–2  Select, fit and produce type for a basic brief
PP21b–2.1 Appropriate type is selected to meet the specifications of the brief
PP21b–2.2 Type is fitted into the copy space allocated in accordance with the design layout
PP21b–2.3 Type is set and produced using rules and boxes in accordance with the design layout

PP21b–3  Proof read and correct type
PP21b–3.1 Type is checked for accuracy, omissions and errors in accordance with job specifications
PP21b–3.2 Proofs are marked up with correct proof reading marks
PP21b–3.3 Type is corrected to accord with job specifications

Range of Variables

Complexity  Simple briefs that do not involve problem solving or complex layouts or designs
Input  Interpretation of brief
Capture  Manual typesetting; proprietary or computer equipment
Manipulation / edit  Software and/or hardware function
Output  Type proof, screen display and mono chromatic PS laser image
Degree of autonomy  Supervised and assisted

Evidence Guide

Context
Competency should be assessed in the work environment, using either mechanical and/or electronic equipment.

It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skill of selecting and applying type should be transferable across sectors of the design and pre-press industries.

It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Use manual or electronic equipment and suitable software to select, set, arrange and modify type in TWO different jobs according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- relevant printing processes and electronic media
- interpretation of brief
- type selection
- type arrangement
- type modification and proof reading
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working in a limited range of circumstances.

**Relevant printing processes and electronic media**

How do different printing processes or electronic media affect type selection and design?

**Interpretation of brief**

State THREE aspects of typography that influence the design of the brief.

**Type selection**

What limitations are there with type reproduction in the printing processes?

Classify nominated typefaces into serif and sans serif categories.

**Type arrangement**

What is meant by type atmosphere?

What are the elements of a dynamic arrangement?

**Type modification and proof reading**

Identify and explain the meaning of SIX pairs of text and margin proof reader marks.

Recognise and correct THREE each of the nominated faults with grammar, punctuation and the apostrophe.

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?

What information is included in these documents?
PP21c Produce a typographic image

Elements and Performance Criteria

PP21c–1 Select and evaluate typography
  PP21c–1.1 Typeface, type–size, letter and word, and line spacing are selected in accordance with the design setting requirements
  PP21c–1.2 Typeface and type–size are evaluated for their suitability to retain the required characteristics through the set of reproduction stages in accordance with the design brief and printing process

PP21c–2 Position images
  PP21c–2.1 Images are positioned accurately according to the design specifications

PP21c–3 Produce and proof type
  PP21c–3.1 Type is produced either on the keyboard from copy using the appropriate layout and design, and typesetting technology or by transferring information from the electronic medium into the typesetting program
  PP21c–3.2 Typographic quality is checked to meet the job requirements
  PP21c–3.3 Proof reading is carried out to ensure the typesetting meets the job requirements
  PP21c–3.4 Proofs are marked up with correct proof reading marks and corrected

PP21c–4 Assess text for punctuation and grammar
  PP21c–4.1 Text is read, and errors in grammar, punctuation and word–breaks are identified
  PP21c–4.2 Errors are corrected in consultation with client

Range of Variables

Input Producing and proofing type can involve hard copy or captured key strokes
Clients The client can refer to internal or external clients
Application Design can be specific to publishing, consultancy, advertising or packaging in either hard copy or electronic media
Degree of autonomy Working under limited supervision

Evidence Guide

Context Competency should be assessed in the work environment, using mechanical and/or electronic equipment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects The underlying skill of applying typographic principles to setting and proofing copy and design should be transferable across sectors of the design and pre–press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Use manual or electronic equipment and suitable software to select, set, arrange, evaluate and modify type in TWO different design briefs according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- relevant printing processes and electronic media
- design theory
- point sizes
- kerning
- typography
- proof reading marks
- grammar and punctuation
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a wide range of circumstances.

**Relevant printing processes and electronic media**

How has the choice of typeface selected for this job been influenced by the printing process or electronic medium?

**Design theory**

Does the type face design selected suit the topic of the job?

What is the appropriate number of words generally accepted in a line of text type?

**Point sizes**

What is the relationship between point size and column width?

Viewing distance of the final product has an effect on point size selection. Explain.

**Kerning**

When should kerning be used or not used, and why?

**Typography**

What considerations must be made when selecting a type face to be used on a particular product?

**Proof reading marks**

List ten proof reader marks and give the meaning of each.

**Grammar and punctuation**

Three different words sound like the word "there". What are the three different ways of writing "there" and when should each be used?

What are the uses of the apostrophe, and how are apostrophes often misused?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?

What information is included in these documents?

What other sources of information are available?
PP21d  Compose and evaluate typography

Elements and Performance Criteria

PP21d–1  Compose type

PP21d–1.1 Type is composed using overlays and tints according to job specifications
PP21d–1.2 Allowance is made for type runarounds, stipples, spot colour and complex shapes
PP21d–1.3 Kerning is applied to type in accordance with job specifications

PP21d–2  Solve typographic technical problems

PP21d–2.1 Capabilities of the equipment to produce type are assessed correctly
PP21d–2.2 Technical problems relevant to the colour and reproduction of type are resolved by re-evaluation of typographic elements or amendment of the brief in consultation with the client

PP21d–3  Ensure a quality of typographic output

PP21d–3.1 The finished typography is checked for conformance to client specifications, including correct grammar and punctuation and technical printing requirements
PP21d–3.2 The quality of typographic reproduction is monitored to ensure the required standards of output

PP21d–4  Manage the type system

PP21d–4.1 The electronic type system is managed to facilitate the storage, retrieval and outputting of data
PP21d–4.2 Type software and files are maintained to ensure an operative system

Range of Variables

Tools  The competency can be demonstrated using a range of manual or electronic equipment and software applications

Clients  The client can refer to internal or external clients

Application  Design can be specific to publishing, consultancy, advertising or packaging in hard copy or electronic media

Input  Type can be generated manually or electronically using typesetting software applications

Complexity  Complex refers to intricate and contingency operations requiring problem solving beyond the routine operation

Quality standards  Quality refers to the standard of outcome specified by the client in accordance with enterprise standards

Degree of autonomy  Working independently and being able to cope with the unexpected

Evidence Guide

Context
Competency should be assessed in the work environment, using either mechanical and/or electronic equipment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

**Critical aspects**
The underlying skill of solving typographic problems should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

**Required evidence**
Produce and evaluate TWO complex typographic jobs according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- relevant printing processes and electronic media
- design theory
- point sizes
- typography
- technical problem solving
- grammar
- punctuation
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

**Relevant printing processes and electronic media**
What typographic considerations must be taken into account when making type face selections for the various printing processes or electronic media?

**Design theory**
What effects do type alignment and justification have on a job?
Discuss the nature of dynamic design layouts which affect type selection.

**Point sizes**
What is the difference between text point size and display point size?

**Typography**
What are the basic classifications of text typefaces?

**Technical problem solving**
What problems arise when using fine type in reverse print?
What typographic principles must be considered when stippling type?
What are the colour considerations when using text type?

**Grammar**
What references have you utilised to evaluate if appropriate grammar has been used in this job?

**Punctuation**
What references have you utilised to evaluate if appropriate punctuation has been used in this job?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP22b  Scan a line image

**Elements and Performance Criteria**

**PP22b–1  Prepare the line image for scanning**
- PP22b–1.1 The line image for scanning is scaled to conform with production specifications
- PP22b–1.2 The quality of the line image for scanning is assessed to determine scanner settings
- PP22b–1.3 The line image is cleaned and mounted ready for scanning

**PP22b–2  Prepare the scanner**
- PP22b–2.1 The scanner is set correctly for the line images to be scanned
- PP22b–2.2 Appropriate software is selected for scanning and processing line images

**PP22b–3  Scan and check the image**
- PP22b–3.1 The original line image is scanned for reproduction in accordance with the design specifications
- PP22b–3.2 The quality of the scanned image is checked against the job specifications and the printing requirements
- PP22b–3.3 Appropriate software is applied to scan and process line images

**Range of Variables**

<table>
<thead>
<tr>
<th>Input</th>
<th>A variety of high contrast line artwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capture</td>
<td>Flat bed or drum scanner</td>
</tr>
<tr>
<td>Manipulation / edit</td>
<td>Appropriate software relative to image input quality and output device</td>
</tr>
<tr>
<td>Output</td>
<td>Laser printers, film, disk, proof</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Under limited supervision to defined procedures</td>
</tr>
</tbody>
</table>

**Evidence Guide**

**Context**
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

**Critical aspects**
The underlying skill of scanning images should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the scanned image be suitable for the identified printing processes.

**Required evidence**
Use a desktop flat bed scanner and reproduce THREE line originals in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- relevant printing processes and electronic media
- evaluation of line original
• establishing hardware and software needs for scanning and outputting line originals
• information sources

The application of scanning images requires a basic understanding of:
• scanning
• line characteristics (broad, fine, density, dot for dot)
• scaling and cropping

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

Relevant printing processes and electronic media
How do scanning requirements vary with different printing processes or electronic media?

Evaluation of line original
What are the characteristics of a line original?

Hardware and software needs
What OH&S concerns are there when operating a scanner?
What factors determine line scanning resolution?
What controls exist within the software for line scanning?
What are the essential hardware specifications for line scanning?
Identify the software requirements for line scanning.
What specific software requirements are there to process and output the image?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP22c Scan images for reproduction

Elements and Performance Criteria

PP22c–1 Mount original copy
- PP22c–1.1 The original image is scaled and identified in accordance with job specification
- PP22c–1.2 Work surfaces are cleaned and prepared to ensure the images are dirt free
- PP22c–1.3 The original is mounted according to workplace standards
- PP22c–1.4 OH&S issues are identified and correct practices in using solvents are applied

PP22c–2 Set up scanner
- PP22c–2.1 The scanner is set up and calibrated according to specifications
- PP22c–2.2 Data from copy evaluation and aim points to suit the original are entered correctly onto the scanner according to manufacturer specifications
- PP22c–2.3 A program is selected on the scanner to suit job specification

PP22c–3 Produce images
- PP22c–3.1 The medium being scanned to is selected in accordance with job requirements
- PP22c–3.2 The disk capacity is checked where appropriate to ensure sufficiency for the job
- PP22c–3.3 The processor is set and checked where appropriate in accordance with job specifications
- PP22c–3.4 Images are outputted as required in accordance with the job requirements
- PP22c–3.5 The output images are checked for conformance to the job specifications

Range of Variables

Input
- Transparency (positive and negative) reflection and re-screens for mono, RGB, CMYK
- Pre-planning and mounting

Capture
- Flat bed or drum scanner with medium to high end full colour capabilities

Manipulation / edit
- Software and/or hardware functions

Output
- Film, disk, proof

Degree of autonomy
- Limited supervision to defined procedures

Evidence Guide

Context
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skill of scanning images should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the scanned image be suitable for the identified printing processes

Required evidence
Use a medium to high end full colour scanner to reproduce ONE mono, ONE colour transparency (positive), ONE negative and ONE rescreen in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- relevant printing processes and electronic media
- colour theory
- print process requirements ie selection of highlight and shadow points, tone graduation, grey balance, colour correction
- output requirements eg screen ruling, dot percents, resolution
- evaluation of films and proof
- information sources

The application of scanning images requires a sound understanding of:

- scanning
- copy evaluation
- colour etching
- data storage

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a wide range of circumstances.*

**Relevant printing processes and electronic media**
How would you change the scanner settings for TWO different printing processes or electronic media?

**Colour theory**
Explain primary colours and colour mixing principles.
State the variables that influence the colour separation requirements.

**Print process requirements**
What is the importance of tone graduation and grey balance?
Why is it necessary to apply colour correction?

**Output requirements**
What factors influence the selection of screen ruling and dot percent?
What impact does output resolution have on final screen ruling?

**Evaluation of films and proof**
When evaluating a final film, what are the essential elements to consider?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP22d  Scan complex images for reproduction

Elements and Performance Criteria

PP22d–1  Mount and prepare original copy
PP22d–1.1  Copy is angled in accordance with artwork specifications
PP22d–1.2  Crops are marked to minimise the use of disk space
PP22d–1.3  Multiple copy units are correctly identified and assigned in accordance with job specifications

PP22d–2  Set up and adjust the scanner
PP22d–2.1  The scanner program is set to suit the specific job requirements
PP22d–2.2  Colourcast and catchlights are assessed to ensure the image is scanned in accordance with job requirements
PP22d–2.3  Adjustments are made to fine tune tone and colour correction requirements
PP22d–2.4  Scanner settings are utilised to achieve the required results for varied print processes
PP22d–2.5  End points are set for drop out masks and vignettes

PP22d–3  Produce complex images and evaluate results
PP22d–3.1  Images are scanned using appropriate software commands and scanner controls
PP22d–3.2  Scanned images are evaluated for colour and grey balance, tone reproduction, cast removal and point accuracy
PP22d–3.3  Images are stored on file and displayed on monitor or output device as required by the job specification

Range of Variables

Input
- Transparency (positive and negative) reflection and re–screens for mono, RGB, CMYK
- Evaluation preparation and mounting

Capture
- Flat bed or drum scanner with full colour capabilities

Manipulation / edit
- Software to achieve programming and functional control to suit various printing processes and copy specifications

Output
- Film, disk proof

Degree of autonomy
- Minimum supervision to defined procedures and specifications

Evidence Guide

Context
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skill of scanning images should be transferable across sectors of the design and pre–press industries. It is important that the substrate for reproduction is identified and that the quality of the scanned image be suitable for the identified printing processes.
Required evidence
Use a medium to high end full colour scanner (with full software capabilities) to reproduce at least TWO colour continuous tone originals with different contrast characteristics and ONE rescreen in accordance with listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:
- relevant printing processes, electronic media and transfer characteristics
- copy evaluation
- copy preparation
- colour correction and grey balance
- catchlight controls
- image output
- file formats
- information sources

The application of scanning images requires an understanding of:
- operation of scanners
- copy evaluation and interpretation
- data storage

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to demonstrate knowledge required in a wide range of circumstances and being able to cope with the unexpected.

Relevant printing processes, electronic media and transfer characteristics
Describe THREE examples of why scanner settings need to be varied to suit subsequent printing processes or electronic output.

Copy evaluation
What are the factors that influence selection of highlight and shadow aim points?
What are the critical qualities of a copy that need evaluation prior to reproduction?

Copy preparation
What are the main points to be considered when preparing a copy for scanning?

Colour correction and grey balance
Why must grey balance requirements be determined prior to applying colour correction?
Describe the process of determining grey balance requirements.
What factors determine the requirement for colour correction?

Catchlight controls
How and why are catchlight controls applied?

Image output
What considerations are necessary to ensure predictability and repeatability at the output stage?
What methods of storage and filing of images for retrieval are used?
What are the criteria used for evaluating scanned images?

File formats
Why have you selected the file format (eg TIFF, EPS, PICT etc) you have used to save the scan?
What other file formats are available for saving scans, and when would you use them?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP23b   Photograph a line image

Elements and Performance Criteria

PP23b–1   Prepare the camera
PP23b–1.1  The camera is prepared to ensure the appropriate size and focus for the job
PP23b–1.2  The correct exposure for line reproduction is established in accordance with manufacturer specifications

PP23b–2   Prepare and operate a processor
PP23b–2.1  The processor is prepared to ensure correct chemical balance, temperature and maintenance

PP23b–3   Operate a camera
PP23b–3.1  Appropriate photographic material and processing chemical combination is selected for the line image
PP23b–3.2  Line images are photographed using the correct camera settings
PP23b–3.3  The quality of the photographic output is evaluated to ensure suitability for design purposes and printing processes

Range of Variables

Input     A variety of high contrast line artwork
Capture   A variety of graphic arts cameras
Manipulation / edit Spotting, mask cutting
Output    Diffusion transfer, rapid access
Degree of autonomy Under limited supervision to defined procedures

Evidence Guide

Context
Competency should be assessed in the work environment, using mechanical and/or electronic equipment

Critical aspects
The underlying skill of photographic images should be transferable across different camera designs and processing systems.
It is important that the substrate for reproduction is identified and that the quality of the photographic image be suitable for the identified printing process.

Required evidence
Prepare, set up and use a graphic arts camera to photograph and process TWO different line originals in accordance with listed performance criteria
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:

* relevant printing processes
* establishing base exposure data
* establishing basic processing data
* evaluation and exposure of copy
• evaluation and interpretation of results
• processor maintenance
• information sources

The application of preparing and maintaining the work area and handling chemicals at this level requires a basic understanding of:
• pre–press tools and equipment
• occupational health and safety
• dry and wet chemicals
• storage methods and systems

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working in a limited range of circumstances.

**Relevant printing processes**

How do different printing processes affect line images required?

**Establishing base exposure data**

How do you calculate an enlargement factor?
Describe how you would determine base exposure data.
What factors cause base exposure to change?

**Establishing basic processing data**

How do you identify a correctly processed image?
What factors control the quality of output through the processor?

**Evaluation and exposure of copy**

What are the copy characteristics that require a change to base exposure?
Explain the relationship between magnification and exposure?

**Evaluation and interpretation of results**

What are the characteristics of a correctly exposed line negative?
Detail the image requirements for the various printing processes.

**Processor maintenance**

What OH&S concerns are there when operating a processor?
How do you maintain consistent output from the processor?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP23c  Photograph and produce halftone images

**Elements and Performance Criteria**

**PP23c–1  Evaluate copy**
- **PP23c–1.1** Copy is scaled and gradation aim points are selected to produce the required output
- **PP23c–1.2** Screen rulings, angles, tone gradation, dot percentages, and dot shapes are selected in accordance with the job specifications
- **PP23c–1.3** Rescreens and mono conversions from colour originals are evaluated for reproduction requirements

**PP23c–2  Prepare for exposure**
- **PP23c–2.1** The camera is cleaned and prepared and lights are set to deliver the required output
- **PP23c–2.2** Exposure program is set according to stock and print conditions
- **PP23c–2.3** Densities are measured on the copy according to stock and print conditions
- **PP23c–2.4** Exposure programs for special effects and duotones are calculated to deliver job requirements

**PP23c–3  Process and evaluate image**
- **PP23c–3.1** The processor is checked and maintained within tolerances
- **PP23c–3.2** Film is processed according to job specifications
- **PP23c–3.3** The image is checked for size, gradation, cleanliness and dot percentages as per job specifications

**PP23c–4  Solve technical photographic problems**
- **PP23c–4.1** Technical problems relevant to tone and reproduction of photographic images are resolved by reassessing the elements for photography, camera operations or amendment of the brief in consultation with the client
- **PP23c–4.2** Images are photographed with the potential to be reproduced in conformity with brief specifications

**Range of Variables**

<table>
<thead>
<tr>
<th>Input</th>
<th>Capture</th>
<th>Manipulation / edit</th>
<th>Output</th>
<th>Degree of autonomy</th>
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<tr>
<td>A variety of continuous tone originals</td>
<td>A variety of graphic arts cameras</td>
<td>Masking to crop or deep etch</td>
<td>Diffusion transfer, rapid access</td>
<td>Limited supervision to defined procedures</td>
</tr>
</tbody>
</table>

**Evidence Guide**

**Context**
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.
**Critical aspects**
The underlying skill of photographing images should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the photographed image be suitable for the identified printing processes.

**Required evidence**
Use a graphic arts camera to photograph and process at least THREE continuous tone originals with different contrast characteristics in accordance with the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- relevant printing processes
- evaluation of copy and image requirements
- determining basic screen and processing data
- exposure of the half tone image
- evaluation of the results
- information sources

Preparing and maintaining the work area and handling chemicals requires a basic understanding of:
- pre-press tools and equipment
- occupational health and safety
- preparation of photographic chemicals
- handling and storage of photographic materials

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**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required in a wide range of circumstances.*

**Relevant printing processes**
How do half-tone images need to be varied to suit different printing processes?

**Evaluation of copy and image requirements**
What are the main characteristics of a half tone image?
What factors would influence selection of highlight and shadow point (first and last printing tones)?
What is the problem associated with the reproduction of screened copy? How is this overcome?

**Determining basic screen and processing data**
Describe the method of calibrating the densitometer and copy measurement.
What factors influence basic exposure data?
How would you prepare a basic exposure program?

**Exposure of the half tone image**
How do you apply exposure data to selected copy?
What factors could cause a change of exposure?
How is a grey scale used to assist in exposure control?

**Evaluation of the results**
What are the criteria for evaluation of the half tone image?
Describe the effect a change to processing conditions may have on the final result.
Detail the image requirements for the various printing processes.
What are the criteria for evaluation of a duotone?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP31b  Manually combine spot colour and basic four colour images

Elements and Performance Criteria

PP31b–1  Evaluate images for planning

PP31b–1.1 Screen rulings are checked according to job requirements and enterprise procedures
PP31b–1.2 Dot percentages are checked according to job requirements and enterprise procedures
PP31b–1.3 Image orientation is checked to meet job requirements

PP31b–2  Contact film

PP31b–2.1 The frame is prepared for contacting in accordance with enterprise procedures
PP31b–2.2 Film is contacted using a vacuum frame and using predetermined exposures to fit job requirements

PP31b–3  Combine film manually

PP31b–3.1 A range of basic combining techniques is identified to meet diverse client requirements and film substrates
PP31b–3.2 Film is combined employing brush skills to achieve opaquing in accordance with job specifications
PP31b–3.3 Film is combined adding masks in accordance with design requirements
PP31b–3.4 Film is combined adding tints and stipples in accordance with design requirements

PP31b–4  Combine paste–up elements manually

PP31b–4.1 Elements of paste–up are checked and imperfections identified and corrected
PP31b–4.2 Screen, line and type images are combined on the base sheet to meet the requirements of the job
PP31b–4.3 Masks are produced and positioned on the base sheet for the purpose of adding tints, stipples and colour in accordance with design requirements
PP31b–4.4 Rules, keylines and cut marks are drawn to meet the requirements of the job
PP31b–4.5 The assembled paste–up is checked for squareness, accuracy in the positioning of elements and cleanliness of work

PP31b–5  Maintain the register of combined images

PP31b–5.1 Punch register systems are applied to combine images
PP31b–5.2 The registration of combined images is accurately placed to ensure alignment of film
PP31b–5.3 The registration of combined images is accurately secured to ensure the alignment of all components

PP31b–6  Prepare finished film and artwork for the next production stage

PP31b–6.1 Finished film and artwork are laid–down and spaced according to specified paper size identified in job specifications
PP31b–6.2 Pages and film are pasted up to suit the given imposition
Range of Variables

Input  A variety of screen and line images for contacting and assembly
Capture  A variety of contacting equipment including darkroom and daylight handling
Manipulation / edit  Hand and photographic techniques
Output  Photographic duplicating and contacting, rapid access, direct to plate
Degree of autonomy  Under supervision to defined procedures

Evidence Guide

Context
Competency should be assessed in the work environment using mechanical and/or electronic equipment.

Critical aspects
The underlying skill of combining should be transferable across safelight and roomlight environments using various light sensitive materials, exposure and processing systems.

Required evidence
Prepare and assemble TWO designated layouts, using a variety of selected image elements, according to job brief and listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- relevant printing processes
- contacting films
- establishing exposure data
- mask preparation
- pin registration systems
- information sources

The application of preparing and maintaining the work area at this level requires a basic understanding of:
- pre-press tools and equipment
- occupational health and safety
- handling of photographic emulsions and chemicals
- photographic systems

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

Relevant printing processes
How do different printing processes affect the requirements for combining?

Contacting films
What are the appropriate films to use for contacting and for duplicating?

Establishing exposure data
Describe a procedure for establishing basic exposure data for contact emulsions.

Mask preparation
How are spreading and choking requirements determined for the preparation of a mask?
What techniques are used to control the degree of spread and choke?

Pin registration systems
What are the requirements of an effective pin registration system?
List the main types of pin register systems and their applications.
Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP31c  Manually combine complex four colour images

Elements and Performance Criteria

PP31c–1  Plan the combining strategy and prepare the work
- PP31c–1.1 Job components are gathered and checked in accordance with the job specification
- PP31c–1.2 Dot shapes and percentages are checked in accordance with the job specification
- PP31c–1.3 The correct masking technique is used to combine the job economically
- PP31c–1.4 Screen rulings and angles are checked to accord with job specifications
- PP31c–1.5 Spotting techniques are performed accurately to achieve the required combining effect
- PP31c–1.6 Exposures and processing equipment are set up to manufacturer specifications
- PP31c–1.7 Stipples and vignettes are laid at the correct angles and using the correct percentages

PP31c–2  Combine film
- PP31c–2.1 Spreads, chokes, reverses, deep etchings and line and tone combinations are created to accord with job specifications
- PP31c–2.2 Colours are separated correctly to meet job specifications

PP31c–3  Ensure accurate registration
- PP31c–3.1 Register marks, register punch holes, centre lines and trim lines are calculated and aligned accurately in accordance with job specifications
- PP31c–3.2 All elements registered accurately in accordance with design specifications

PP31c–4  Apply photographic contacting
- PP31c–4.1 The basic exposures for contact, duplication and spreads and chokes are determined
- PP31c–4.2 The contact frames for contact, duplication and spreads and chokes are used correctly

Range of Variables

Input  A variety of screened colour separations and tints and a detailed job specification
Capture Variety of image registration and contact exposure equipment suitable for darkroom or roomlight handling
Manipulation / edit Hand and photographic techniques
Output Assembled to final film and colour proofing
Degree of autonomy Limited supervision and work to a detailed brief

Evidence Guide

Context
Competency should be assessed in the work environment, using either mechanical and/or electronic equipment. It is expected that special purpose tools and equipment would be used where appropriate.

**Critical aspects**
The underlying skill of combining should be transferable across safelight and roomlight environments. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

**Required evidence**
Prepare and assemble at least TWO layouts with a variety of selected image elements following a job brief according to listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- relevant printing processes
- planning a work strategy for the combining of the images
- mask preparation for image combination
- establishing basic exposure data
- establishing basic processing data
- assembling the images
- evaluation of the combined image
- proofing systems
- information sources

The application of preparing and maintaining the work area at this level requires an understanding of:
- pre–press tools and contacting equipment including registration systems
- occupational health and safety, e.g. light sources
- handling of photographic emulsions and chemicals
- photographic systems

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

**Answers need to show knowledge required in a wide range of circumstances.**

**Relevant printing processes**
How has the choice of printing process affected combining strategy and settings?

**Planning a work strategy for the combining of the images**
List the steps required to produce the combined image?
What are the image elements unique to this job specification?
State what criteria you should apply to colour separated images to ensure they meet job specification / printing process.

**Mask preparation for image combination**
Describe the masking technique to ensure accuracy and economy.
What equipment considerations are essential to ensure accuracy?
Describe the method of producing spreads and chokes (trapping).

**Establishing basic exposure data**
How could you determine basic exposure data for contacting and duplicating emulsions?
What aids can be used to ensure quality control?

**Establishing basic processing data**
What factors ensure quality of output through a processor?

**Assembling the images**
What procedures could be used to ensure accuracy of registration?
What factors should be observed to ensure screen elements are assembled correctly?
How do you ensure tints are of correct percentage?

**Evaluation of the combined image**
How do you ensure all job specifications have been met?

**Proofing systems**

What care must be taken when matching to PMS colours?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP32c  Electronically combine and assemble data

Elements and Performance Criteria

PP32c–1  Plan the combining strategy and prepare the work

PP32c–1.1 Basic computer functions are undertaken to access the required data from electronic files
PP32c–1.2 The appropriate software is checked for suitability to undertake combining tasks
PP32c–1.3 The system is checked for the required fonts to fulfil job specifications
PP32c–1.4 The storage capacity of the system is checked for sufficiency

PP32c–2  Combine data

PP32c–2.1 Page layout is created in accordance with job specifications
PP32c–2.2 Elements are placed in the page in accordance with job specifications
PP32c–2.3 Spreads and chokes (electronic trapping) is applied in accordance with job specifications
PP32c–2.4 The image output is prepared in accordance with job specifications

PP32c–3  Create multiple images

PP32c–3.1 Basic step and repeat layout is prepared to suit job specifications
PP32c–3.2 The appropriate software for step and repeat is accessed to suit job specifications
PP32c–3.3 Images are stepped to suit job specifications

Range of Variables

Input
Specific elements of type and/or screened images to be supplied either as hard copy or electronic files and along with layout or detailed job brief

Capture
Scanning device and/or electronic file storage

Manipulation / edit
Appropriate software relative to image input

Output
Imagesetter, laser printer

Degree of autonomy
Limited supervision and work to a detailed job specification

Evidence Guide

Context
Competency should be assessed in the work environment, using electronic equipment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects
The underlying skill of combining should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Use a desk top platform (or high end system) with appropriate layout, design, drafting software to combine and assemble TWO jobs in accordance with listed performance criteria
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- colour theory
- relevant print processes and electronic media
- planning the work strategy
- combining the data
- creation of multiple images
- evaluation of results
- proofing systems
- information sources

The application of electronically combining images requires a sound understanding of:

- computer file storage and management
- the use and handling of the relevant hardware and software

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances.

Colour theory
If a colour set doesn't have the colours marked how can we distinguish the colours?
What are the principles of additive and subtractive colour mixing?

Relevant print processes and electronic media
What difference do the different print process or electronic media make to assembling a layout?

Planning the work strategy
Which computer platform is being used?
How do you access the required data from electronic files?
What is the most appropriate software for this combining task, and why?
How would you determine the availability of fonts to fulfil job specifications?
How can you determine whether the storage capacity is available for the task?

Combining the data
How do you create a page layout in accordance with job specifications?
Describe the function of electronic trapping of image elements as applied to image assembly.
How does trapping relate to the job specification?

Creation of multiple images
How do you prepare a step and repeat layout to suit a job specification?

Evaluation of results
What are the main criteria for evaluating the final output?

Proofing systems
What are the requirements of a contract proof as compared to an in–house check proof?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP32d  Electronically combine complex images

Elements and Performance Criteria

PP32d–1  Assess complex image requirements for combining
  PP32d–1.1 The components of complex image reproduction are electronically evaluated for combining
  PP32d–1.2 Combined images are manipulated, retouched and corrected electronically to conform with design specifications
  PP32d–1.3 Operations are planned for combining digital information from any electronic source to effect design specifications

PP32d–2  Edit complex images
  PP32d–2.1 Images are retouched to conform with the job specification
  PP32d–2.2 Images are deep etched to conform with the job specification
  PP32d–2.3 Masks are created electronically to comply with the job specification
  PP32d–2.4 Colour correction is undertaken to comply with the job specifications
  PP32d–2.5 Tonal correction is undertaken to comply with the job specifications

PP32d–3  Solve technical combining problems
  PP32d–3.1 Technical problems relevant to combining images are resolved by reassessing the elements for combining or amendment of the design
  PP32d–3.2 Complex images are combined with the potential to be reproduced in accordance with brief specifications

PP32d–4  Prepare information for output devices
  PP32d–4.1 The disk capacity is checked for space before final assembly
  PP32d–4.2 The limitations of the system to achieve the required output are assessed

PP32d–5  Manage the combining system
  PP32d–5.1 The electronic combining system is managed effectively to facilitate the storage, retrieval and outputting of data
  PP32d–5.2 Combining software and files are maintained to ensure an operative system

Range of Variables

Input  Both DTP and / or proprietary system
Capture  Scanner, digital camera, hard storage
Edit / manipulate  Wrap around text, deep etched graphics, vignettes, use of layers
Output  Image setters, final films, direct imaging proofing, contract proofs
Degree of autonomy  Working independently and being able to cope with the unexpected

Evidence Guide

Context
Competency should be assessed in the work environment, using electronic equipment. It is expected that special purpose industry software packages would be used where appropriate.

**Critical aspects**

The underlying skill of combining should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

**Required evidence**

Produce TWO jobs that combine and manipulate complex elements according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- relevant printing processes and electronic media
- preplanning and scanning
- post scanning techniques
- page assembly processes
- RIP technology
- digital photography
- OPI
- advanced system applications
- information sources

The application of electronically combining complex images requires an understanding of:

- systems operations
- colour theory
- CAD–CAM
- technical problem solving

### Sample Questions for Underpinning Knowledge

*These questions are only examples.*

*They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working in a very wide range of circumstances an being able to cope with the unexpected.

**Relevant printing processes and electronic media**

Describe THREE examples of why settings need to be varied to suit subsequent printing processes or electronic output.

**Preplanning and scanning**

What factors are used in determining scan resolution?

What are the limitations of a CCD scanner when compared to a Photo Multiplier scanner?

**Post scanning techniques**

What factors are involved in calibrating the monitor?

When converting from an RGB colour model to a CIE colour model, what changes take place?

**Page assembly processes**

What is meant by Native format?

Describe the characteristics of EPS and TIFF formats.

**RIP technology**

What is meant by Raster Image Processing?

How do you calibrate the RIP?

**Digital photography**

What specific limitations are there with Digital cameras?

**OPI**

What are two advantages of OPI?

**Advanced systems application**
What is the difference between a bitmapped and a vector image?
What is the purpose of the calculation menu[or equivalent] in systems work?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP33c  Prepare a (layout) format for printing processes

Elements and Performance Criteria

PP33c–1  Generate a lay–down sheet and imposition scheme
   PP33c–1.1  Printing processes, sheet sizes, binding and finishing instructions are applied to the finished artwork to generate an imposition scheme
   PP33c–1.2  A lay–down sheet and imposition scheme is generated in accordance with folding and binding machine requirements and special printing requirements

PP33c–2  Impose pages and combine components to the final machine sized work sheets
   PP33c–2.1  Pages and combined components are imposed correctly to suit specified sheet size
   PP33c–2.2  Numerical sequence and laydown of the product or mock–up is correctly identified to meet binding and finishing requirements

Range of Variables

Input
   Variety of four colour images and page assemblies

Capture
   Images to be imposed can be as hard copy or generated as electronic files

Manipulation / edit
   Hand or electronic techniques

Output
   Manually prepared layout or electronically generated on screen or plotting

Degree of autonomy
   Under limited supervision working to a detailed brief

Evidence Guide

Context
   Competency should be assessed in the work environment. It is expected that special purpose cameras, tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
   The underlying skill of imposition should be transferable across sectors of the design and pre–press industries. It is important that the substrate for reproduction is identified and that the quality of the photographic image be suitable for the identified printing processes.

Required evidence
   Prepare, set up and use the manual or electronic system to produce TWO layouts in accordance with listed criteria.

   Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

   Demonstrate a detailed knowledge of:
   • relevant printing processes and working methods
   • numeracy and calculations relevant to the work parameters
   • available paper sizes and characteristics
   • image control marks related to the binding and finishing processes
   • imposition
   • information sources

   The application of preparing a layout at this level requires an understanding of:
Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances.

**Relevant printing processes and working methods**
- What are the main considerations when preparing a layout for a printing press?
- Describe the different working methods for sheet fed presses.
- What image control marks are important for press operation?

**Numeracy and calculations relevant to the work parameters**
- What calculations need to be done to ensure that the size of the layout is correct?

**Available paper sizes and characteristics**
- In which way do paper considerations impact on the type of imposition used?

**Image control marks related to the binding and finishing processes**
- Describe which image control marks are necessary at the binding finishing stage.

**Imposition**
- What are the factors that influence your imposition?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PP33d  Generate complex imposition

Elements and Performance Criteria

PP33d–1  Impose images electronically
  PP33d–1.1  Industry designated software is applied to the imposition of images to effect the quality standard required to meet job specifications

PP33d–2  Solve technical problems of imposition
  PP33d–2.1  Technical problems relevant to imposition are considered in the imposition scheme
  PP33d–2.2  A laydown sheet is prepared according to cutting and creasing requirements

Range of Variables

Input  Complex imposition data
Capture  Any desktop or proprietary computing system
Manipulation / edit  A suitable imposition application
Output  Printers, hard disk, imagesetters, digital proofers or plotters
Complexity  Complex refers to intricate and detailed imposition and may include difficult cuts for packaging, design variations, folds and bindings
Degree of autonomy  Working independently and being able to cope with the unexpected

Evidence Guide

Context
Competency should be assessed in the work environment, using industry software packages where appropriate.

Critical aspects
The underlying skill of solving complex technical problems of imposition to conform to brief specifications should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Produce TWO complex impositions according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- relevant printing processes and electronic output
- principles of imposition
- preparation of data
- use of imposition program
- output techniques
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a very wide range of circumstances

Relevant printing processes and electronic output
Describe THREE examples of how subsequent printing processes or electronic output affect imposition.

Principles of imposition
What is the difference between saddle stitch and perfect binding?
Why are head margins required?
Describe the difference between sheetwise and work and turn.

Preparation of data
What trapping requirements apply for specific jobs?
What do you have to consider when saving a PostScript file?
What is specific about the imposition setup document?

Use of imposition program
How do you install fold and cut marks?
How are creep settings nominated?
What is meant by creep and bottling?

Output techniques
Why is it important to have a server signature program available to the output station?
What technique is used to verify that pictures and fonts are available?
What is mockup and why is it used?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP52b  Output images to film and paper

Elements and Performance Criteria

PP52b–1  Set up and maintain the output device
- PP52b–1.1  Output devices are set up and maintained according to manufacturer and enterprise standards
- PP52b–1.2  The image processor is set up and maintained
- PP52b–1.3  The output medium is identified prior to operating the output device
- PP52b–1.4  Material is loaded into the output device appropriately for the output medium

PP52b–2  Output the image
- PP52b–2.1  The system is activate to initiate the output in accordance with job specifications
- PP52b–2.2  The image output is evaluated to ensure it conforms to the job specifications
- PP52b–2.3  The image is prepared for the next stage of the production process in accordance with job specification

Range of Variables

Input  Files from a variety of software sources
Output  Laser printers, film and paper imagesetters
Degree of autonomy  Procedures defined and given limited supervision

Evidence Guide

Context
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects
The underlying skills of outputting an image should be transferable across the pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence
Use at least TWO devices to output to film or paper images captured electronically in accordance with listed performance criteria
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a knowledge of:
- type and application of output devices
- calibration procedures to ensure accuracy
- systems procedures and file management
- establishing photographic processing data
- evaluation and interpretation of results

The operation of output devices will require an understanding of:
- relevant printing processes
- computer operating systems
- a range of output devices
- handling of photographic materials
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

Type and application of output devices

Describe the types of output devices used in pre–press.
What considerations would determine the application of these devices?

Calibration procedures to ensure accuracy

What is the function of the calibration software?
How do you calibrate at least TWO different output devices to ensure job specifications are achieved?

Systems procedures and file management

Describe the procedure for downloading a file to the output device.
What are the main considerations to ensure accurate transfer of the file?
Describe the correct handling and material loading of the output device.

Establishing photographic processing data

How do you identify a correctly processed image?
What factors control image quality through a processor?

Evaluation and interpretation of results

What are criteria for identifying a correctly transferred file?
Detail the requirement of the image to meet job specifications.
How can we be sure the result meets job specifications?
What are the criteria for evaluating a final film?

Information sources

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP52c  Output complex images to film

Elements and Performance Criteria

PP52c–1  Set up and maintain the output device

PP52c–1.1  Set up devices to manufacturer and enterprise standards
PP52c–1.2  Calibrate output medium by conducting exposure tests using appropriate software and hardware
PP52c–1.3  Evaluate calibration and make necessary adjustments to output device

PP52c–2  Adjust and manipulate images / files

PP52c–2.1  Evaluate files on electronic media as to suitability for output
PP52c–2.2  Set appropriate output resolution
PP52c–2.3  Set appropriate screen angle and dot type according to job specifications
PP52c–2.4  Assess availability of high resolution images for OPI process
PP52c–2.5  Ensure availability of appropriate fonts
PP52c–2.6  Ensure all support files are included with job

PP52c–3  Output the image

PP52c–3.1  Prepare file for output to imaging device
PP52c–3.2  Output images to the appropriate medium
PP52c–3.3  Ensure output is processed according to job specifications

PP52c–4  Evaluate the result

PP52c–4.1  Output is checked for correct dot size, screen angles and film density
PP52c–4.2  Image elements are checked according to original job specification
PP52c–4.3  Technical problems are solved and appropriate corrections made
PP52c–4.4  Job is prepared for the next stage of production

Range of variables

Input
Files from a variety of software sources and platforms

Output
Film image setters

Complexity
Complex refers to intricate and detailed design (line and tones) and may include difficult vignettes, tone separations, colour reproductions

Degree of autonomy
Working under limited supervision

Evidence Guide

Required evidence
Output TWO complex images to film.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

**Relevant printing processes**
What effect does the selection of printing process have on the output settings for final films?

**Calibration procedures**
What various methods / procedures are available for calibrating an output device?
What are the consequence of incorrect calibration?

**Systems procedures and file management**
If a file does not transfer correctly what action should you take to correct the problem?
What are the main points to be checked before sending a job to the RIP?

**Image manipulation**
What relationship to screen ruling does the selection of image resolution have?
What conditions would cause a variation from conventional screen angles?

**OPI**
What needs to be checked when preparing a job for OPI?
What are the consequences to image quality if OPI files are not placed in their correct folders?
What is the function of the low resolution file in the OPI process?

**RIPs**
What are the main factors that influence the processing speed of a job when being RIPped?
How can the RIPping speed of a job be increased?

**Stochastic / random dots**
What setting changes must be made to the output device when outputting a stochastic screen?
What factors influence the selection of the micron rating of the screen?

**File formats**
Define the main types of file formats and the effects the selection of a format has on the processing of a job.

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP52d  Output complex images direct to plate or press

Elements and Performance Criteria

PP52d–1  Set up and maintain the output device

- PP52d–1.1 Set up devices to manufacturer and enterprise standards
- PP52d–1.2 Calibrate output device for stock and ink types through use of calibration pages, densitometry etc.
- PP52d–1.3 Evaluate calibration and make necessary adjustments to output device on a regular basis

PP52d–2  Adjust and manipulate images / files

- PP52d–2.1 Evaluate files on electronic media as to suitability for output
- PP52d–2.2 Set appropriate output resolution
- PP52d–2.3 Set appropriate screen angle and dot type according to job specifications
- PP52d–2.4 Assess availability of high resolution images for OPI process
- PP52d–2.5 Ensure availability of appropriate fonts
- PP52d–2.6 Ensure all support files are included with job

PP52d–3  Output the image

- PP52d–3.1 Prepare file for output to plate setter or DI press
- PP52d–3.2 If outputting to plate select plate material to suit requirement of job and press
- PP52d–3.3 If outputting to plate select plate size to suit press
- PP52d–3.4 Position image on plate / press with correct orientation with respect to grip
- PP52d–3.5 Output images to the appropriate medium
- PP52d–3.6 Ensure output is processed according to job specifications

PP52d–4  Evaluate the result

- PP52d–4.1 Output is checked for correct dot size and screen angles
- PP52d–4.2 Image elements are checked according to original job specification
- PP52d–4.3 Technical problems are solved and appropriate corrections made
- PP52d–4.4 Job is prepared for the next stage of production (eg plates are cleaned etc)

Range of variables

Input  Files from a variety of software sources and platforms
Output  Digital plate setters and direct imaging presses
Complexity  Complex refers to intricate and detailed design (line and tones) and may include difficult vignettes, tone separations, colour reproductions
Degree of autonomy  Working under limited supervision
Evidence Guide

Required evidence

Output TWO complex images direct to plate or press.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- relevant printing processes
- calibration procedures
- systems procedures and file management
- image manipulation
- OPI
- RIPs
- stochastic / random dots
- file formats
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a very wide range of circumstances and being able to cope with the unexpected.

Relevant printing processes
What effect does the selection of printing process have on the output settings?

Calibration procedures
What various methods / procedures are available for calibrating an output device?
What are the consequence of incorrect calibration?
How do differences in stock affect calibration?
How often should calibration be checked?

Systems procedures and file management
If a file does not transfer correctly what action should you take to correct the problem?
What are the main points to be checked before sending a job to the RIP?

Image manipulation
What relationship to screen ruling does the selection of image resolution have?
What conditions would cause a variation from conventional screen angles?

OPI
What needs to be checked when preparing a job for OPI?
What are the consequences to image quality if OPI files are not placed in their correct folders?
What is the function of the low resolution file in the OPI process?

RIPs
What are the main factors that influence the processing speed of a job when being RIPped?
How can the RIPping speed of a job be increased?

Stochastic / random dots
What setting changes must be made to the output device when outputting a stochastic screen?
What factors influence the selection of the micron rating of the screen?

File formats
Define the main types of file formats and the effects the selection of a format has on the processing of a job.

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP53b  Output images to electronic media

Elements and Performance Criteria

PP53b–1  Access data

PP53b–1.1  Data required for the job is called up electronically using industry program
PP53b–1.2  Data is checked and amended to conform with job specifications

PP53b–2  Transfer image

PP53b–2.1  Data is transferred from one format to another in accordance with job requirements
PP53b–2.2  The image transfer is checked to ensure the output conforms to job requirements

Range of variables

Electronic media  Includes disk, CD, tape, cartridge, removable drives, etc and transmission technologies such as ISDN, modems
Images  Typographic and graphical images in black and white and colour
Degree of autonomy  Working under limited supervision

Evidence Guide

Context
Image transfer should be assessed in the work environment. It is expected that special purpose industry software packages would be used where appropriate.

Critical aspects
The underlying skills of image transfer is applicable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the photographic image be suitable for the identified printing processes.

Required evidence
Access and transfer image files to TWO different media according to performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

• relevant printing and publication processes
• computer programs and applications
• file format selection
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

Relevant printing and publication processes

What aspects related to printing and publication processes must be considered when transferring electronic files?
Computer programs and applications
Explain what you would do when converting a file across different computer platforms.
Should a file fail to transfer correctly what action would you undertake to correct the problem?
What programs have you used to manage this file?

File format selection
What are the consequences of using an incorrect file format?
What steps are required to ensure that the correct file format is used?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP60b  Chemically proof images

Elements and Performance Criteria

PP60b–1  Set up and maintain proofing equipment
PP60b–1.1 Proofing equipment is set up and maintained in accordance with manufacturer and enterprise standards
PP60b–1.2 The working environment is cleaned and maintained to ensure the quality of the proof
PP60b–1.3 Proofing materials including chemicals are used cost efficiently in accordance with job contract costs

PP60b–2  Expose and process the proof
PP60b–2.1 The densitometer control of the proof is maintained in accordance with job specifications
PP60b–2.2 Images are positioned accurately on the proof in accordance with job specifications
PP60b–2.3 Occupational health and safety requirements are observed to ensure the safe use of chemicals
PP60b–2.4 The proof is prepared for presentation ready for the next stage of the process

Range of Variables

Input  A variety of screened colour separated images
Capture  Contact exposure equipment
Manipulation / edit  Mask cutting
Output  Dedicated chemical processing equipment
Degree of autonomy  Working under limited supervision to defined procedures

Evidence Guide

Context
Competency should be assessed in the work environment using manual and electronically controlled equipment.

Critical aspects
The underlying skills associated with chemical proofing should be transferable across a range of systems. It is important that substrates be identified along with the associated printing process that is being simulated.

Required evidence
Prepare and set up the proofing area and produce chemical proofs of TWO four colour separated images in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- preparing the proofing environment
- exposure determination
- processing the proof
- evaluation of the proof
- PMS proofs
The preparation of chemical proofs and maintaining the working area requires an understanding of:

- relevant printing processes
- occupational health and safety in the proofing environment
- colour theory
- storage of materials
- correct handling of densitometers

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required in a limited range of circumstances.

**Preparing the proofing environment**
- What are the OH&S issues in the proofing area?
- What are the main considerations for setting up the proofing environment?

**Exposure determination**
- How would you establish the correct exposure level for your proofing system?
- What are the actinic light requirements?
- What aids can be used to control and ensure repeatability in the proofing area?

**Processing the proof**
- How can you detect incorrect processing of the chemical proof?
- What corrective action should be taken if incorrect processing occurs?

**Evaluation of the proof**
- What are the main criteria for evaluation of the proof?
- What are the lighting conditions for evaluating proofs?

**PMS proofs**
- What are the special requirements for PMS proofs?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PP60c  Undertake special colour and digital proofing

Elements and Performance Criteria

PP60c–1  Produce special colour proofs

PP60c–1.1  Colours are mixed to suit the job specifications
PP60c–1.2  Colours are checked against the job specifications using densitometers or spectrophotometers
PP60c–1.3  Colours are proofed in the correct sequence in accordance with job specifications

PP60c–2  Produce proofs from digital data

PP60c–2.1  The machine calibration is checked to conform with job requirements
PP60c–2.2  The image is retrieved from the data base using industry software
PP60c–2.3  The proof is produced in accordance with job specifications
PP60c–2.4  The proof is evaluated against job specifications using a densitometer
PP60c–2.5  The proof is prepared for client submission

Range of Variables

Input  A variety of electronic image files
Capture  Variety of digital colour output devices
Manipulation / edit  Software and hardware functions
Output  Standard copier materials of specially prepared substrate
Degree of autonomy  Limited supervision to defined procedures

Evidence Guide

Context
Proofing should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skills of proofing should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the image be suitable for the printing process.

Required evidence
Operate digital proofing systems and produce TWO images in accordance with listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:
- types of digital colour proofing systems
- production of colour proofs
- the use of quality control devices for colour appraisal
- evaluation of the proof
- information sources

The application of preparing and maintaining the work area to produce digital proofs requires an understanding of:
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances.

Types of digital colour proofing systems
- Describe the method of producing the colour image.
- What variations may occur when utilising different imaging methods?

Production of colour proofs
- Describe the procedure for outputting the image and produce a colour proof, i.e. the transfer of files and the use of specific assembly software.

The use of quality control devices for colour appraisal
- How do you use a densitometer for proof evaluation?
- Describe the function of the calibration software for the output device.
- How do you use colour evaluation charts?

Evaluation of the proof
- What are the criteria for evaluating a colour proof?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PP66b Make and proof relief plates

Elements and Performance Criteria

PP66b–1 Produce plates

PP66b–1.1 The plate processor is prepared and maintained according to manufacturer and enterprise standards

PP66b–1.2 Exposure control is established and maintained utilising vacuum frames and plate processors in accordance with job specifications

PP66b–1.3 Plates are produced that conform with job specifications

PP66b–2 Proof relief plates

PP66b–2.1 Relief plates are proofed in accordance with job specification

Range of Variables

| Input                                      | Assembled film and plates to suit various press sizes |
| Capture                                   | Plate exposing facility                               |
| Manipulation / edit                       | Masking and/or multiple exposure techniques           |
| Output                                    | Plates to suit relevant printing process              |
| Degree of autonomy                        | Limited supervision to defined procedures             |

Evidence Guide

Context

Competency should be assessed in the work environment using special purpose tools and equipment where appropriate.

Critical aspects

The underlying skills of plate production should be transferable across the pre-press industries. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes.

Required evidence

Use the plate making facilities to produce TWO printing plates to conform to job specifications in accordance with listed performance criteria. Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a knowledge of:

- the essential film requirements for plate production
- establishing plate exposure conditions
- determining plate processing requirements
- evaluation and quality control in platemaking
- the proofing of printing plates
- relevant printing processes
- information sources

Production of printing plates requires an understanding of:

- exposure control
- numeracy and calculations
- densitometry
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

The essential film requirements for plate production
- List the main factors to be considered when preparing to lay a plate.
- What aids can be used to ensure accuracy and repeatability?
- What quality control or problem solving devices can be included?
- What are the essential criteria for evaluating a film to be used in plate production?

Establishing plate exposure conditions
- How would you conduct a test exposure for plate making?
- What are the main considerations with a plate exposure system?
- What means can be used to ensure continuity and control with plate exposure?

Determining plate processing requirements
- Describe the plate processing operation.
- How could you identify a poor processing operation?

Evaluation and quality control in platemaking
- What are the main criteria for evaluating a correctly prepared plate?

The proofing of printing plates
- What OH&S concerns are there when processing and proofing printing plates?
- What are the main advantages of plate proofing?
- State the criteria for plate proof evaluation.

Relevant printing processes
- What are the different requirements for plates for litho printing and relief printing?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?

- handling of chemicals
- handling and storage of light sensitive surfaces
PP67b   Make offset lithographic plates

Elements and Performance Criteria

PP67b–1   Select and prepare plate
PP67b–1.1 The job specifications are interpreted to determine the appropriate type and size of plate for the job
PP67b–1.2 The plate is selected to deliver the quality of output required by the job brief
PP67b–1.3 Plate is prepared to accommodate printing machine plate positioning requirements

PP67b–2   Expose the plate
PP67b–2.1 The work area is tidied and cleaned to ensure a quality of output
PP67b–2.2 Film is correctly positioned on the plate as required by the job specification
PP67b–2.3 The correct exposure unit is selected to deliver the required output
PP67b–2.4 Exposure control is correctly established utilising step wedges
PP67b–2.5 Exposure and vacuum frame are maintained in accordance with manufacturer specifications

PP67b–3   Process the plate
PP67b–3.1 The plate processing unit is maintained in accordance with manufacturer specifications
PP67b–3.2 The plate is processed in accordance with plate manufacturer specifications

PP67b–4   Post treat the plate
PP67b–4.1 The plate is checked for quality of outcome and analysed against the job specifications
PP67b–4.2 Additions and deletions to the plate image are carried out correctly to deliver the standard of output required by the job specification
PP67b–4.3 The plate is chemically treated and/or baked to satisfy job specifications
PP67b–4.4 The plate is prepared for storage prior to printing in accordance with manufacturer specifications

Range of Variables

Degree of autonomy  Working to defined procedures in consultation with other relevant persons to ensure production requirements have been met
Types of plates  Range of plates used in offset lithography

Evidence Guide

Context
Plate making should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects
The underlying skills of plate making should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the plate be suitable for the identified printing processes.
**Required evidence**

Prepare, set–up and use lithographic plate exposure and plate processing equipment to produce ONE lithographic plate manually and ONE using a machine in accordance with the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- plate selection
- plate exposure techniques and control
- plate processing
- plate finishing and correction
- evaluation of plate quality
- recognition of dot gain issues
- plate punching and registration
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a limited range of circumstances.*

**Plate selection**

List the types of lithographic plates available.
Define the criteria for selection of plates.
What are the advantages and disadvantages of negative and positive plates?

**Plate exposure**

What is necessary for images to be centred and square?
Why is it important to use colour bars and control strips?
What light sources are used in plate exposing frames?

**Plate processing**

What OH&S concerns are there when processing printing plates?
State the baths and solutions used in a plate processing machine.
What is the impact of a change in processor time on the final plate?

**Plate finishing**

What is the purpose of gumming a plate?
Why are post exposure techniques applied?

**Dot gain**

What is the difference between physical and optical dot gain?
List the steps to overcome dot gain.

**Evaluation**

What criteria are used to evaluate the accuracy of the plate?

**Plate punching and registration**

What care needs to be taken to ensure accurate punching and registration?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP68b Make photopolymer plates (flexographic)

Elements and Performance Criteria

**PP68b–1 Select the plate**
- PP68b–1.1 Job specifications are interpreted to ensure appropriate plate selection
- PP68b–1.2 The correct plate is selected to meet the printing requirements and job specifications

**PP68b–2 Pre-plan the process**
- PP68b–2.1 Film negatives are checked for conformance with job specifications
- PP68b–2.2 Extra exposure masking is planned by examining the film
- PP68b–2.3 Appropriate exposure masks are cut
- PP68b–2.4 The appropriate amount of plate material is calculated to ensure economical use

**PP68b–3 Expose the plate**
- PP68b–3.1 Exposure is determined by using step wedges and depth gauge to establish the correct front and back exposure time
- PP68b–3.2 The plate is exposed to meet the job specifications
- PP68b–3.3 The exposure unit and vacuum frame are maintained in accordance with manufacturer's specifications

**PP68b–4 Develop the plate**
- PP68b–4.1 The chemistry balance is maintained in accordance with manufacturer's specifications
- PP68b–4.2 The washout unit is maintained in accordance with manufacturer's specifications
- PP68b–4.3 The plate is washed out to pre-determined depth that has been pre-set by front and back exposures

**PP68b–5 Finish the plate**
- PP68b–5.1 The plate is dried in a drying oven at a temperature and time in accordance with manufacturer's specifications
- PP68b–5.2 The back of the plate is cleaned
- PP68b–5.3 The plate is post-exposed in accordance with manufacturer specifications
- PP68b–5.4 The plate is light finished in accordance with manufacturer's specifications
- PP68b–5.5 OH&S procedures are observed to ensure a safe working environment when making plates

**PP68b–6 Establish and maintain a chemical register**
- PP68b–6.1 A chemical register is established to identify and describe the purpose of each chemical and to ensure finished plates meet set specifications
- PP68b–6.2 All chemicals used in the work place are identified and registered correctly according to safe working practices
Range of Variables

Types of plates
- Flexographic plates: includes plates using both water and chemical wash out

Degree of autonomy
- Working under supervision

Evidence Guide

Context
Plate making should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects
The underlying skills of plate making should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the plate be suitable for the identified printing processes.

Required evidence
- Produce TWO flexographic plates, with different characteristics, according to performance criteria.
- Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
- Demonstrate a detailed knowledge of:
  - relevant printing processes
  - chemicals
  - registration
  - information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Relevant printing processes
- What effect does flexo ink have on your selection of plate material?
- What effect does the "shoulder" have on the printing process?

Chemicals
- What OH&S requirements are there for flexographic plate chemicals?
- How do you overcome "orange peel effect"?
- What are the effects of chemicals used in de-taching?

Registration
- What methods can be used to counteract image elongation?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PP69b Make photopolymer plates (pad printing)

Elements and Performance Criteria

PP69b–1 Select the plate
PP69b–1.1 Job specifications are interpreted to ensure appropriate plate selection
PP69b–1.2 The correct plate is selected to meet the printing requirements and job specifications

PP69b–2 Pre-plan the process
PP69b–2.1 Film positives are scalloped to prevent air entrapment
PP69b–2.2 Exposure unit is energised for one cycle to warm up the UV elements where necessary
PP69b–2.3 The appropriate screen film positive is selected and checked according to the printing requirements

PP69b–3 Expose the plate
PP69b–3.1 Exposure is determined by using step wedges to establish the correct exposure time
PP69b–3.2 The plate is exposed to standard established exposure time
PP69b–3.3 The plate is exposed with screen film positive to meet job requirements
PP69b–3.4 The exposure unit and vacuum frame are maintained in accordance with manufacturer's specifications

PP69b–4 Develop the plate
PP69b–4.1 The chemistry balance is maintained in accordance with manufacturer's specifications
PP69b–4.2 The washout tools are maintained in accordance with manufacturer's specifications
PP69b–4.3 The plate is washed out for pre-determined time that has been established by tests

PP69b–5 Finish the plate
PP69b–5.1 The plate is blown dry by compressed air
PP69b–5.2 The plate is dried in a drying oven at a temperature and time in accordance with manufacturer's specifications
PP69b–5.3 The plate is post-exposed in accordance with manufacturer specifications
PP69b–5.4 OH&S procedures are observed to ensure a safe working environment when making plates

PP69b–6 Establish and maintain a chemical register
PP69b–6.1 A chemical register is established to identify and describe the purpose of each chemical and to ensure finished plates meet set specifications
PP69b–6.2 All chemicals used in the workplace are identified and registered correctly according to safe working practices
Range of Variables

Types of plates
Plates used in pad printing: includes plates using both water and chemical wash out

Degree of autonomy
Working under supervision

Evidence Guide

Context
Plate making should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.

Critical aspects
The underlying skills of plate making should be transferable across sectors of the design and pre-press industries. It is important that the substrate for reproduction is identified and that the quality of the plate be suitable for the identified printing processes.

Required evidence
Produce TWO photopolymer plates, with different characteristics, according to performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:
- relevant printing processes
- chemicals
- exposure
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Relevant printing processes
What effect does print life requirement have on your selection of plate material?
What effect does the screen dot have on the printing process?

Chemicals
What OH&S requirements are there for photopolymer plate chemicals?
How do you overcome undercutting of screens?

Exposure
What methods can be used to counteract air entrapments between film and plate?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PP70c  Make multiple image plates

Elements and Performance Criteria

PP70c–1 Produce step and repeat layout
- PP70c–1.1 Client information is gathered to enable step and repeat layout
- PP70c–1.2 A layout is produced in accordance with client information
- PP70c–1.3 Data is stored for future retrieval using industry software package
- PP70c–1.4 A register of stock levels is maintained and advice about the depletion of stock is recorded as required by the enterprise

PP70c–2 Set up step and repeat machine
- PP70c–2.1 The film is mounted squarely to produce an accurate image
- PP70c–2.2 Accurate masks are cut for image protection / bleeds
- PP70c–2.3 Mounting foils are positioned in a chase to ensure a quality output
- PP70c–2.4 The film or plate is punched, loaded, exposed and processed in accordance with job specifications

Range of Variables

Input  A variety of images to be assembled in multiples repeated in a single layout
Capture  A variety of devices electronically or manually operated
Manipulation / edit  Appropriate software and/or masking methods
Output  Dedicated step and repeat machine either manual or electronically driven
Degree of autonomy  Work under limited supervision to defined procedures

Evidence Guide

Context
Step and repeat should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skills of step and repeat should be transferable across different pre–press systems and printing processes. It is important that the substrate for reproduction is identified and that the quality of the photographic image be suitable for the identified printing processes.

Required evidence
Prepare and set up at least TWO step and repeat layouts for production of multiple repeated images according to listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- preparation of step and repeat layout
- set up of the step and repeat machine
- programming of the step and repeat machine
- producing the multiple image output
The application of preparing step and repeat images at this level requires an understanding of:

- handling of light sensitive materials
- occupational health and safety
- pre-press tools and equipment
- treatment and storage of printing plates

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required in a wide range of circumstances.*

**Preparation of step and repeat layout**
- What is the relationship between the image of the original and the final substrate.
- Describe the calculation required to produce the final layout.

**Set up of the step and repeat machine**
- Explain what steps are necessary to ensure the correct operation of the step and repeat machine.
- What steps are necessary to ensure safe operation?

**Programming of the step and repeat machine**
- To produce the layout rough, what calculations using x and y coordinates need to be done?

**Producing the multiple image output**
- What OH&S concerns are there when processing printing plates?
- How do you prepare and use a mask to suit the job?
- What procedures are employed to ensure correct registration and accuracy / repeatability of exposure?

**Evaluation of the results**
- What are the characteristics of correct image layout?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PP72b  Make gravure cylinders manually

Elements and Performance Criteria

PP72b–1  Select the cylinder
   PP72b–1.1  The job specifications are interpreted to determine the appropriate type of cylinder for the job
   PP72b–1.2  The cylinder is selected to deliver the quality of output required by the job brief

PP72b–2  Coat and expose the cylinder
   PP72b–2.1  The work area is tidied and cleaned to ensure a quality of output
   PP72b–2.2  The exposure and coating equipment is maintained in accordance with manufacturer specifications
   PP72b–2.3  Exposure is controlled using step wedges and densitometry
   PP72b–2.4  The cylinder is coated according to manufacturer specifications
   PP72b–2.5  The cylinder is exposed making sure image direction, autotrons and tracker lines are correctly positioned according to job specifications
   PP72b–2.6  OH&S requirements are observed when handling chemicals

PP72b–3  Develop the cylinder
   PP72b–3.1  The chemical balance is maintained in the developing tank
   PP72b–3.2  The cylinder is developed in accordance with manufacturer’s and enterprise specifications

PP72b–4  Etch the cylinder
   PP72b–4.1  The etching bath is maintained to the correct activity level in accordance with manufacturer’s and enterprise specifications
   PP72b–4.2  The cylinder is etched in accordance with the job specification (cell depth)

PP72b–5  Establish and maintain a chemical register
   PP72b–5.1  A chemical register is established to identify and describe the purpose of each chemical and to ensure finished cylinders meet set specifications
   PP72b–5.2  All chemicals used in the workplace are identified and registered correctly according to safe working practices

Range of Variables

Input  Line and tone images
Capture  Carbon tissue and direct transfer methods
Manipulation / edit  Chemical processing – conventional and post
Output  A variety of cylinders and shells
Degree of autonomy  Under limited supervision to defined procedures

Evidence Guide

Context
Cylinder making should be assessed in the work environment. It is expected that special purpose tools and equipment would be used where appropriate.

**Critical aspects**

The underlying skills of cylinder making should be transferable across sectors of the pre-press industry. It is important that the substrate for reproduction is identified and that the quality of the cylinder be suitable for the identified printing processes.

**Required evidence**

Manually produce TWO gravure cylinders and establish and maintain a chemical register in accordance with the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of

- OH&S issues
- selection of appropriate cylinder
- coating and exposure processes
- chemistry of cylinder production
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*

*They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show the essential knowledge required when working in limited range of circumstances*

**OH&S issues**

State the chemical names and symbols for three chemicals used in cylinder production?

Describe the standard safety procedures used when handling gravure chemicals.

**Selection of appropriate cylinder**

Describe two methods of manual gravure cylinder production.

What is cylinder balancing and how is it achieved?

State the preparation processes for both steel and aluminium cylinder bases.

**Coating and exposure processes**

What is a Blue Print and how is it produced?

State the Direct Transfer method of cylinder production.

What determines the cell depth?

**Chemistry of cylinder production**

What is the chemical of the etching solution?

What is the thickness chrome coating on the etched surface?

What factors govern the rate of etch?

**Information sources**

What manuals, safety documentation, etc are relevant to this task and where are they kept?

What information is included in these documents?
PP72c  Make gravure cylinders electronically

Elements and Performance Criteria

PP72c–1  Select the cylinder
PP72c–1.1  The job specifications are interpreted to select an appropriate cylinder
PP72c–1.2  The cylinder is selected in accordance with the job specifications

PP72c–2  Pre-plan for engraving
PP72c–2.1  Opels are analysed against the job specifications and the technical requirements of the equipment
PP72c–2.2  Opels are masked manually for any uneven start positioning

PP72c–3  Engrave cylinder electronically
PP72c–3.1  A clean work environment is maintained to ensure a quality of output
PP72c–3.2  Equipment is maintained in accordance with manufacturer specifications
PP72c–3.3  The cylinder is engraved in accordance with job specifications

PP72c–4  Add and delete to finished cylinders
PP72c–4.1  Required changes are pre-planned
PP72c–4.2  Additions and deletions are made to cylinders in accordance with job specifications

Range of Variables

Input  A variety of line and tone originals, either as scan ready or digital data
Capture  Proprietary or desk top system, or scanning technology
Manipulation / edit  Use of specific or desk top software
Output  Laser and programmable stylus machine
Degree of autonomy  Under limited supervision to defined procedures

Evidence Guide

Context
Cylinder making should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software) would be used where appropriate.

Critical aspects
The underlying skills of cylinder making should be transferable across sectors of the pre-press industry. It is important that the substrate for reproduction is identified and that the quality of the cylinder be suitable for the identified printing processes.

Required evidence
Prepare, set up and use an electronic engraving system to produce BOTH stylus and laser gravure cylinders.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a detailed knowledge of:
- pre-planning for engraving
- cylinder production techniques
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances.

Pre-planning for engraving
- What OH&S concerns are there when engraving cylinders?
- State EIGHT production parameters that should exist on the job ticket
- How do you calculate a change in screen angle?
- What would be the screen line ratio for fine rulings?

Cylinder production techniques
- What are the specific features of the laser engraving process?
- How would the cutting stylus affect the print quality?
- What are the characteristics of the diamond stylus used for colour work?

Corrections to finished cylinders
- State TWO techniques of deleting errors on the finished cylinder

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PP81b  Design carton (basic)

**Elements and Performance Criteria**

**PP81b–1  Assess the requirements of the brief**
- **PP81b–1.1** Check that all relevant information is in brief eg carton type, dimensions, material etc

**PP81b–2  Select and modify template**
- **PP81b–2.1** Select appropriate template on the CAD system
- **PP81b–2.2** Adjust height, width and depth and gluing flap dimensions according to the requirements of the brief
- **PP81b–2.3** Check requirements for knife setting and stripping in production and position design so as to have correct grain direction and to maximise material use

**PP81b–3  Use plotter to cut sample**
- **PP81b–3.1** Set up plotter ready for downloading design
- **PP81b–3.2** Set cutting and creasing depths
- **PP81b–3.3** Position material correctly
- **PP81b–3.4** Operate plotter safely according to manufacturer's specifications
- **PP81b–3.5** Carry out routine machine maintenance

**PP81b–4  Assemble sample**
- **PP81b–4.1** Cut sample by hand
- **PP81b–4.2** Fold and glue cut sample by hand ensuring that angles and construction are correct

**PP81b–5  Check and adjust design**
- **PP81b–5.1** Check that sample meets the requirements of the brief
- **PP81b–5.2** Adjust design if necessary

**PP81b–6  Output design**
- **PP81b–6.1** Save design ready for downloading to forme cutter
- **PP81b–6.2** Output design as keyline for artwork or as film as required
- **PP81b–6.3** Complete necessary paperwork

**Range of Variables**

- **Design tools**   Appropriate CAD programs, plotters etc.
- **Types of design** Full range of cartons including sleeves, tucks, full flap, auto lock, crash lock, trays for which there are existing templates on the CAD system.
- **Standards**       Must meet industry and enterprise standards
- **Degree of autonomy** Working under limited supervision
Evidence Guide

Required evidence
Produce TWO different carton designs and samples using existing templates to meet job requirements according to the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
* OH&S
* board characteristics
* drawing instruments
* CAD programs and techniques
* carton types and uses
* packing techniques
* knife making and manufacturing processes
* information sources

Sample Questions for Underpinning Knowledge

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances.

**OH&S**
What health and safety concerns are there when using computers and plotters?

**Board characteristics**
How does board grain affect carton design?
How does board calliper affect carton design?

**Drawing instruments**
What are rulers, protractors and compasses used for?

**CAD programs and techniques**
What CAD programs are available for carton design?
How do you ensure that a cut out is correctly aligned and positioned in a design?

**Carton types and uses**
What types of products are the following types of cartons used for? (sleeves, full flap, auto lock, crash lock, trays)
How do you determine if a design is appropriate for its end use?
What aspects of product sizing and tolerances should be rechecked?

**Packing techniques**
What carton designs are suitable for machine packing?
What carton designs are suitable for hand packing?

**Knife making and manufacturing processes**
What constraints on design and positioning on the forme are caused by the requirements of knife making and production?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PP81d  Design carton (complex)

Elements and Performance Criteria

PP81d–1  Assess the requirements of the brief
PP81d–1.1  Discuss brief with client to ensure requirement is understood (if possible)
PP81d–1.2  Check that all relevant information is in brief eg end use, dimensions, product characteristics etc

PP81d–2  Design carton to suit requirements of the brief
PP81d–2.1  Determine appropriate carton style, size, material and calliper to meet brief requirements
PP81d–2.2  Use scanners or digitisers to import design material into CAD program
PP81d–2.3  Draw design using CAD program
PP81d–2.4  Set height, width and depth and gluing flap dimensions to meet the requirements of the brief
PP81d–2.5  Check requirements for knife setting, stripping and gluing in production and position design so as to have correct grain direction and to maximise material use and productivity

PP81d–3  Use plotter to cut sample
PP81d–3.1  Set up plotter ready for downloading design
PP81d–3.2  Set cutting and creasing depths
PP81d–3.3  Check calliper of material
PP81d–3.4  Position material correctly
PP81d–3.5  Operate plotter safely according to manufacturer's specifications
PP81d–3.6  Carry out routine machine maintenance

PP81d–4  Assemble sample
PP81d–4.1  Cut sample by hand
PP81d–4.2  Fold and glue cut sample by hand ensuring that angles and construction are correct

PP81d–5  Check and adjust design
PP81d–5.1  Check that sample meets the requirements of the brief
PP81d–5.2  Adjust design if necessary

PP81d–6  Output design
PP81d–6.1  Save design ready for downloading to forme cutter
PP81d–6.2  Output design as keyline for artwork or as film as required
PP81d–6.3  Complete necessary paperwork

Range of Variables

Design tools

Appropriate CAD programs, plotters, scanners, digitisers etc.
Types of design
Full range of cartons including sleeves, tucks, full flap, auto lock, crash lock, trays and other special designs for which there are NO existing templates on the CAD system.

Standards
Must meet industry and enterprise standards and tolerances and time constraints

Degree of autonomy
Working in consultation with others

Evidence Guide

Required evidence
Produce TWO different carton designs and samples from scratch to meet job requirements according to the listed performance criteria
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- OH&S
- board characteristics
- CAD programs and techniques
- digitisers and scanners
- carton types and uses
- structural issues
- packing techniques
- knife making and manufacturing processes
- graphic design software
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

OH&S
What health and safety concerns are there when using computers, plotters and scanners?

Board characteristics
How does board grain affect carton design?
How does board calliper affect carton design?
How do you use a micrometer correctly?
How do you determine what board is appropriate for a product?
How do you determine scuff, heat and moisture resistance?
What effect do inks and sealants have on board characteristics and selection?

CAD programs and techniques
What CAD programs are available for carton design?
What do you need to check when programming a new design on the CAD system?

Digitisers and scanners
What are the uses and limitations of digitisers and scanners?
What needs to be checked when using digitisers and scanners?

Carton types and uses
What types of products are the following types of cartons used for? (sleeves, full flap, auto lock, crash lock, trays)
How do you determine if a design is appropriate for its end use?
What effect on design and materials does refrigeration have?
What aspects of product sizing and tolerances should be rechecked?
Structural issues
- How do you set tolerances in a design?
- How do you ensure stability in a display carton?
- How do you determine appropriate strength?
- How do you determine appropriate size and placing of glue lines and nips?

Packing techniques
- What carton designs are suitable for machine packing?
- What carton designs are suitable for hand packing?

Knife making and manufacturing processes
- What constraints on design and positioning on the forme are caused by the requirements of knife making and production?
- How do manufacturing requirements with regard to cutting and gluing affect carton design?
- How do you determine appropriate angles and cornering of flaps?

Graphic design software
- What are the main features of, and differences between, TWO different graphic design software programs that need to be considered when outputting carton designs?
- How do you ensure that output is appropriate for the graphic design software used by customer?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
Multimedia Units

These units cover multimedia functions carried out by the pre–press sector of the printing industry.

People using these units will also need units from the Support Units, Pre–press Units and possibly National Generic Units.

Multimedia Units:
- MM11b Identify components of multimedia
- MM13c Author a multimedia sequence
- MM15d Develop a multimedia script
- MM21c Capture a digital image
- MM41c Incorporate text into multimedia presentations
- MM42c Incorporate 2D graphics into multimedia presentations
- MM43c Incorporate digital photography into multimedia presentations
- MM44c Incorporate audio into multimedia presentations
- MM45c Incorporate animation into multimedia presentations
- MM46c Incorporate video into multimedia presentations
- MM47d Incorporate 3D modeling into multimedia presentations
- MM61d Prepare multimedia for different platforms
- MM63b Access the Internet
- MM65d Create web pages with multimedia
- MM67d Plan interface design
- MM81e Manage multimedia production
- MM82e Manage multimedia projects

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
MM11b Identify components of multimedia

Elements and Performance Criteria

MM11b–1 Identify the electronic components of multimedia

- MM11b–1.1 Computer technology including CPU, ROM, RAM, storage devices, monitors and input devices relating to multimedia are identified and their functions explained
- MM11b–1.2 Analogue and digital devices relevant to multimedia are identified and the formats distinguished
- MM11b–1.3 The properties of digitised data are correctly defined to specifications
- MM11b–1.4 Issues relating to rapid technological change including electronic media and digital photography are discussed to deliver specific outcomes

MM11b–2 Explore the scope of multimedia

- MM11b–2.1 The scope of multimedia is explored and explained relevant to the industry sector
- MM11b–2.2 The authoring role of a multimedia project is identified and correctly explained
- MM11b–2.3 The components of various multimedia projects including text, graphics, photography, typography, sound, animation and video are correctly broken down into the component media
- MM11b–2.4 The use of multimedia and its relationship to pre-press for delivering a specified outcome is described
- MM11b–2.5 The difference between passive and interactive multimedia is explored and correctly explained
- MM11b–2.6 The features of contemporary multimedia software relevant to text, graphics, photography, typography, sound, animation and video are identified to ensure application to outcome is relevant
- MM11b–2.7 The use of multimedia with respect to a variety of outcomes including newspapers, magazines, traditional sheetfed, digital printing, Internet WWW page, digital billboards and CD-ROM are identified and the suitability of multimedia for such outcomes is discussed

MM11b–3 Assess the features and functions of multimedia operating systems

- MM11b–3.1 The distinguishing features of contemporary operating systems including DOS, UNIX, OS/2, VMS, Macintosh, Windows systems and emerging systems are correctly identified
- MM11b–3.2 The disk formats of operating systems are correctly identified
- MM11b–3.3 Functions and structures of operating systems are correctly identified
- MM11b–3.4 Compression software appropriate to the operating system is identified

MM11b–4 Outline the role of multimedia

- MM11b–4.1 The attributes of a multimedia generalist are defined in relation to the industry sector
- MM11b–4.2 The attributes of multimedia specialisations are defined in relation to the industry sector
- MM11b–4.3 The importance of resolution is examined relevant to the mode of multimedia presentation
Range of Variables

Degree of autonomy
The scope of multimedia is explored in the workplace in consultation with the supervisor to ensure that a thorough understanding of the parameters of multimedia is gained.

Types of systems
Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work.

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software.

Critical aspects
The underlying skills of exploring and assessing multimedia should be transferable across the printing industry and associated sectors.

Required evidence
Identify the digital components of multimedia and explain their distinguishing features and functions.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:
- electronic components of multimedia
- the scope of multimedia
- features and functions of multimedia operating systems
- the role of multimedia

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a limited range of circumstances.

Electronic components of multimedia
What are the functions of CPU, ROM, RAM, storage devices, monitors and input devices relating to multimedia?
What is the difference between analogue and digital devices relevant to multimedia?
What are the properties of digitised data?
How might technological change including electronic media and digital photography affect the pre-press sector?

The scope of multimedia
What areas does multimedia include?
What is meant by the authoring role of a multimedia project?
How is multimedia related to pre-press?
What is the difference between passive and interactive multimedia?
What are some multimedia software packages available for text, graphics, photography, typography, sound, animation and video?
What needs to be considered when using multimedia for newspapers, magazines, traditional sheetfed, digital printing, Internet WWW page, digital bill boards and CD-ROM?

Features and functions of multimedia operating systems
What are the distinguishing features of contemporary operating systems including DOS, UNIX, OS/2, VMS, Macintosh?
What different disk formats of operating systems are used for multimedia?
What is meant by compression software and why is it used?

The role of multimedia
What is meant by the terms multimedia generalist and multimedia specialist?
Why is resolution important in multimedia presentation?
MM13c Author a multimedia sequence

Elements and Performance Criteria

MM13c–1 Identify the elements of multimedia
- MM13c–1.1 The elements of multimedia are correctly defined for an integrated system
- MM13c–1.2 The uses of multimedia elements are described for an integrated system
- MM13c–1.3 Levels of interactivity are identified including passive, interactive and adaptive multimedia to deliver a specified outcome

MM13c–2 Identify the scope of authoring software
- MM13c–2.1 A range of contemporary multimedia authoring software is identified appropriate to a range of outcomes
- MM13c–2.2 Features and uses of contemporary commercial authoring software are distinguished relevant to specified outcomes
- MM13c–2.3 The appropriateness of specific contemporary commercial authoring software for a range of multimedia uses is assessed relevant to specified outcomes

MM13c–3 Use authoring software
- MM13c–3.1 An authoring program is selected, accessed and exited to deliver a specified outcome
- MM13c–3.2 An existing file is opened and run for a specified job
- MM13c–3.3 The tools and features of the particular software in use are demonstrated relevant to authoring
- MM13c–3.4 A new file involving a sequence of multimedia elements is created for a specified job
- MM13c–3.5 A simple program structure is created for a specified job and prepared elements are incorporated into the structure sequence
- MM13c–3.6 Passive and interactive samples of sequences are created and demonstrated for specified outcomes

MM13c–4 Create a multimedia presentation
- MM13c–4.1 A multimedia script identifying appropriate elements and sequencing is prepared
- MM13c–4.2 A storyboard is prepared and assessed for practicality
- MM13c–4.3 A program structure for the storyboard is created for a specified outcome
- MM13c–4.4 Relevant multimedia elements are identified and assembled in sequence to deliver the desired outcome
- MM13c–4.5 Methods for obtaining (purchasing) multimedia elements suitable for inclusion in a multimedia presentation are identified to deliver the desired outcome
- MM13c–4.6 The multimedia sequence is tested and then run as a presentation
- MM13c–4.7 File formats to save each multimedia asset are identified for a specified job

Range of Variables

Degree of autonomy
Multimedia authoring is undertaken in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used
Types of systems

Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work.

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software.

Critical aspects
The underlying skills of multimedia authoring should be transferable across the printing industry and associated sectors.

Required evidence
Use authoring software to create TWO multimedia sequences containing both passive and interactive elements, according to job specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- the elements of multimedia
- the scope of authoring software
- authoring software usage
- multimedia presentation
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances.

The elements of multimedia
What are the elements of multimedia?
What is meant by passive, interactive and adaptive multimedia?

The scope of authoring software
What are some of the contemporary multimedia authoring software available?
What is the purpose of multimedia authoring software?

Authoring software usage
What are the criteria for selecting an authoring program?
How is an authoring file opened and run?

Multimedia presentation
What is the process when documenting the authoring of a multimedia presentation?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM15d  Develop a multimedia script

Elements and Performance Criteria

MM15d–1 Identify and describe multimedia script formats and processes
   MM15d–1.1 Algorithmic and documentation styles are identified and their features are distinguished
   MM15d–1.2 Efficiencies and enhancements are identified using algorithms and documentation
   MM15d–1.3 A multimedia page is constructed incorporating algorithms with documentation

MM15d–2 Use scripting techniques to create a multimedia production script
   MM15d–2.1 A scripting language and its components is identified which involves I/O operations, clip and file importation, and keyboard commands
   MM15d–2.2 A script is created and edited using object based script language styles
   MM15d–2.3 Events sequencing is documented using a flow chart
   MM15d–2.4 Conditionals and loops are constructed using the scripting language
   MM15d–2.5 A run time is produced and documented for a specified job
   MM15d–2.6 The script is saved in the relevant file format for a specified job

Range of Variables

Degree of autonomy  Working independently but consulting others as required
Types of systems  Multimedia systems used in the pre–press sector and associated sectors with which a pre–press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of multimedia scripting should be transferable across the printing industry and associated sectors

Required evidence
Produce TWO multimedia scripts incorporating several sequences and a range of different elements according to job specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of
   • multimedia script formats and processes
   • scripting language and components
   • information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.
Answers need to show the essential knowledge required when working in a wide range of circumstances and being able to cope with the unexpected

**Multimedia script formats and processes**
- What are the distinguishing features of algorithmic and documentation styles?
- What efficiencies and enhancements can be used using algorithms and documentation?

**Scripting language and components**
- What constitutes a scripting language?
- What is meant by the terms I/O operations, clip and file importation, and keyboard commands?
- How are object based script language styles used?
- What is involved in documenting an events sequence?
- How are conditionals and loops used in scripting language?
- What is involved in producing a run time?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
MM21c  Capture a digital image

Elements and Performance Criteria

MM21c–1  Assess digital camera qualities

MM21c–1.1 Camera software compatibility with hardware systems is assessed and the appropriate software is selected for the job

MM21c–1.2 Pixel resolution of the camera is matched to the required quality and resolution of outcome

MM21c–1.3 The RAM capacity of the camera is checked to be appropriate to the number of images required to be captured

MM21c–1.4 Shutter speed, focal lengths and camera feature modes (flash, scrollage, icon menu, close-up, wide angle and telephoto capacity etcetera) are assessed suitable to the quality and use of photographic image required

MM21c–1.5 Lithium batteries are handled and stored in accordance with occupational health and safety requirements

MM21c–2  Photograph and upload a digital image

MM21c–2.1 The digital camera is loaded and operated in accordance with manufacturer specifications appropriate to the quality of image to be photographed

MM21c–2.2 The IBM–PC or Macintosh card interface / disk is uploaded onto the relevant computer and the image saved on hard disk

MM21c–2.3 Photographic image files are created and stored on the computer in accordance with software procedures

MM21c–2.4 Photographic images are enhanced, cropped and altered electronically to deliver the required image

MM21c–2.5 Photographic images are checked for fitness of purpose to comply with the brief specifications

MM21c–2.6 Photographic images are assessed fit for the relevant delivery mode (print, CD ROM, etcetera) and delivered appropriately

Range of Variables

Degree of autonomy  A digital photographic image is processed in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

Types of systems  Digital cameras used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in a work environment using industry resources and software

Critical aspects
The underlying skills of capturing a digital image using a digital camera should be transferable across the printing industry and associated sectors

Required evidence
Assess the capacity of, and operate, a digital camera to upload and process THREE digital images using industry hardware and software to deliver a designated quality of image outcome.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- using a digital camera
- uploading and processing digital images using IBM–PC and/or Macintosh
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show the essential knowledge required when working in a wide range of circumstances*

**Using a digital camera**
- What is meant by pixel resolution and how does this effect the resolution of the image?
- Why is the RAM capacity of a digital camera relevant?
- Why are shutter speed and focal lengths important to check when capturing a digital image?
- What are the safety requirements for handling and storing lithium batteries?

**Uploading and processing digital images using IBM–PC and/or Macintosh**
- How is the data uploaded to a computer from the IBM–PC or Macintosh card interface / disk?
- What is the process for filing and creating photographic image files on the computer?
- What is required to enhance, crop and alter photographic images electronically?
- What considerations need to made to assess a digital photograph suitable for a newspaper, glossy brochure and CD ROM?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
MM41c  Incorporate text into multimedia presentations

Elements and Performance Criteria

MM41c–1  Use multimedia text software

MM41c–1.1  Appropriate software is assessed and selected for the required medium (hard copy or screen)

MM41c–1.2  Entering and exiting the selected software are demonstrated and the tools and features of the program used correctly

MM41c–1.3  Editing and manipulating text are demonstrated and the tools and features of the program used correctly

MM41c–1.4  Text is saved and retrieved using the designated file formats

MM41c–2  Create multimedia text

MM41c–2.1  Text that incorporates the principles of typography is created using the designated software

MM41c–2.2  Advanced issues of electronic fonts including Multiple Masters, font types and True Type are identified and discussed

MM41c–2.3  Text is edited (enhanced and amended) and saved using the designated software

MM41c–2.4  The elements of text are integrated into a designated multimedia sequence

MM41c–2.5  Text is tested and run as part of a multimedia presentation

MM41c–2.6  Text is published electronically appropriate for the job to be undertaken

Range of Variables

Degree of autonomy  Multimedia text is created in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

Types of systems  Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of creating multimedia text should be transferable across the printing industry and associated sectors

Required evidence
Produce TWO different multimedia sequences incorporating text according to job specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of

- multimedia text software
- creating multimedia text
- the principles of on screen typography and electronic publishing
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances

Multimedia text software
- What contemporary digitised text software is available?
- What are the distinguishing features of selected digitised text software?

Creating multimedia text
- What principles of typography need to be considered when using text software?
- What are the features of electronic fonts such as Multiple Masters, font types and True Type?

The principles of on screen typography and electronic publishing
- What are the two common uses of the term electronic publishing and when are they used?
- What factors need to be considered with regard to legibility in on screen presentation?
- What are the differences in styles, font selection and layout between material presented in hard copy, transparencies / slides and on screen?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
MM42c Incorporate 2D graphics into multimedia presentations

Elements and Performance Criteria

MM42c–1 Work with digital imaging

MM42c–1.1 The correct terminology for digital imaging is employed within a specified context

MM42c–1.2 The use of a range of graphic file formats, file management and transfer systems are demonstrated correctly including storing, archiving, importing, exporting and transferring digital images as electronic files

MM42c–1.3 Contemporary Vector and Bitmap graphic editing software programs are identified and their features explained

MM42c–1.4 The properties of Vector and Bitmap images are identified and their features explained

MM42c–1.5 Conversion from Bitmap to Vector image and vice versa are demonstrated for a specified job

MM42c–1.6 Scanning devices are correctly operated to convert continuous tone or line image to digitised data with attention to tonal detail, halftones, resolution, and image correction

MM42c–2 Use 2D multimedia graphics software

MM42c–2.1 Appropriate 2D software is assessed and selected for the required medium (hard copy or screen)

MM42c–2.2 Entering and exiting the selected graphics software are demonstrated and the tools and features of the program used correctly

MM42c–2.3 Editing and manipulating graphics are demonstrated and the tools and features of the program used correctly

MM42c–2.4 Graphics are saved and retrieved using the designated file formats

MM42c–3 Create 2D multimedia graphic designs

MM42c–3.1 A design brief is assessed for the appropriate digital imaging solution

MM42c–3.2 Graphics that incorporate the principles of design are created using the designated software to produce Bitmap or Vector graphics and digital artwork

MM42c–3.3 2D digital artwork techniques are demonstrated including the correct use of painting, editing and pallets

MM42c–3.4 Digital collages and montages are created by adjusting image mode and resolution, modifying image using filters, selecting the correct colour mode for the output, and producing halftones and colour separations for relevant printing procedures

MM42c–3.5 Graphic designs are edited, (enhanced and amended) using accurate selection techniques, special effects, cropping and resizing of images, and saved using the designated software

MM42c–3.6 The elements of graphic design are integrated into a designated multimedia sequence

MM42c–4 Present 2D Digital artwork

MM42c–4.1 Graphics are tested and run as part of a multimedia presentation

MM42c–4.2 Digital images are professionally mounted for presentation using the mount cutter
MM42c–4.3 Graphics are titled and laminated to presentation size

MM42c–4.4 Non colour fast digital artwork is presented under screened glass or perspex

MM42c–4.5 Images are published electronically if required

**Range of Variables**

**Degree of autonomy**
Multimedia graphic design is undertaken in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

**Types of systems**
Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

**Evidence Guide**

**Context**
Competency should be assessed in the work environment using industry resources and software

**Critical aspects**
The underlying skills of multimedia graphics should be transferable across the printing industry and associated sectors

**Required evidence**
Produce TWO different multimedia sequences incorporating 2D graphics according to job specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of

- the principles of digital imaging
- file formats, file management and transfer systems
- principles of 2D multimedia graphic designs
- digital collages and montages and other presentation techniques
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show the essential knowledge required when working in a wide range of circumstances

**The principles of digital imaging**
What is meant by digital imaging and 2D graphics?

**File formats, file management and transfer systems**
What is the difference between Vector and Bitmap images?
What is necessary to convert from Bitmap to Vector image and vice versa?
How do you account for tonal detail, halftones, resolution, and image correction when scanning?

**Principles of 2D multimedia graphic designs**
What features should be considered when assessing a design brief for digital imaging?
What is the purpose of 2D digital artwork techniques such as painting, editing and pallets?
What is involved in creating digital collages and montages?
What is involved in enhancing digital graphic designs?
What differences in layout are there between graphics presented in hard copy, transparencies / slides or on screen?

**Digital collages and montages and other presentation techniques**
When is a mount cutter used?
What is involved in titled and laminated presentations?
When should digital artwork be presented under glass or perspex?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM43c  Incorporate digital photography into multimedia presentations

Elements and Performance Criteria

MM43c–1 Use a digital camera
  MM43c–1.1 A digital camera is operated correctly with consideration of focus and exposure to capture a digital image successfully
  MM43c–1.2 Entering and exiting the selected digital image software are demonstrated and the tools and features of the program used correctly
  MM43c–1.3 Editing and manipulating photographs are demonstrated and the tools and features of the program used correctly
  MM43c–1.4 Digital photographs are saved and retrieved using the designated file formats

MM43c–2 Incorporate digital photography into a multimedia sequence
  MM43c–2.1 Graphics that incorporate the principles of design are created using the designated software
  MM43c–2.2 Digital photographs are edited (enhanced and amended) and saved using the designated software
  MM43c–2.3 Digital photographs are integrated into a designated multimedia sequence
  MM43c–2.4 The digital photographic outcomes are evaluated and interpreted appropriately for the end use and run as part of a multimedia presentation

MM43c–3 Create a collage of digital photography and 2D graphics
  MM43c–3.1 Digital collages and montages are created by adjusting image mode and resolution, modifying image using filters, selecting the correct colour mode for the output, and producing halftones and colour separations for relevant printing procedures

Range of Variables

Degree of autonomy  Digital photography is undertaken in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

Types of systems  Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of digital photography should be transferable across the printing industry and associated sectors

Required evidence
Produce TWO different multimedia sequences incorporating digital photography according to job specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a knowledge of
- the principles of digital photography
- selected digital image software
- the principles of design
- enhancing digital photography
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*

They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances

**The principles of digital photography**
- What are the main considerations when operating a digital camera?

**Selected digital image software**
- Why have you chosen this software?
- What are the capabilities of other software packages?

**The principles of design**
- How are digital collages and montages created?
- What are the major considerations when creating digital montages and collages?

**Enhancing digital photography**
- Describe THREE ways of enhancing digital photographs.

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
MM44c  Incorporate audio into multimedia presentations

Elements and Performance Criteria

MM44c–1  Identify and describe formats of digital audio
- MM44c–1.1 The features of analog and digital audio are distinguished for a range of uses
- MM44c–1.2 Amplitude, sound waves, frequency, mono and stereo are correctly defined and their functions explained
- MM44c–1.3 Contemporary digital audio formats are identified and explained relevant to a defined outcome
- MM44c–1.4 Data rates for major digital sources are detailed relevant to a defined outcome
- MM44c–1.5 Methods for saving and producing digital audio outputs are described relevant to a range of sources and destinations
- MM44c–1.6 Sampling techniques and sources for sampling digital audio are demonstrated for a defined outcome
- MM44c–1.7 MIDI technology is explored and its uses explained

MM44c–2  Use digital audio software
- MM44c–2.1 Appropriate digital audio software is assessed and selected for the job
- MM44c–2.2 Entering and exiting the selected software are demonstrated and the tools and features of the program used correctly
- MM44c–2.3 Editing and manipulating audio are demonstrated and the tools and features of the program used correctly
- MM44c–2.4 Sounds are saved and retrieved using the designated file formats

MM44c–3  Design and edit digital audio
- MM44c–3.1 The editing of single and multiple audio frames is demonstrated relevant to a defined outcome
- MM44c–3.2 Multiple tracks of digital audio are joined in accordance with specifications
- MM44c–3.3 Digital effects are employed to modify and integrate digital audio tracks in accordance with specifications
- MM44c–3.4 Time encoding is applied to single and multiple edited digital audio tracks in accordance with specifications
- MM44c–3.5 Storybook design is applied to the production of digital audio sequences to deliver a defined outcome
- MM44c–3.6 An audio track is inserted into a multimedia production sequence in accordance with specifications

MM44c–4  Construct a digital audio track
- MM44c–4.1 Techniques for hooking sounds are identified and correctly explained
- MM44c–4.2 Noise on sound recordings is eliminated at source and/or treated
- MM44c–4.3 Special effects and mixing techniques are used on an audio track in accordance with specifications
- MM44c–4.4 Sequencers are used to create digital audio tracks in accordance with specifications
MM44c–4.5 MIDI and sound cards are employed to create digital audio in accordance with specifications

MM44c–4.6 An audio track is produced using appropriate track construction software and hardware

MM44c–4.7 Audio tracks are saved into the appropriate file formats

**Range of Variables**

**Degree of autonomy**
Multimedia audio is undertaken in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

**Types of systems**
Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

**Evidence Guide**

**Context**
Competency should be assessed in the work environment using industry resources and software

**Critical aspects**
The underlying skills of multimedia audio should be transferable across the printing industry and associated sectors

**Required evidence**
Produce TWO different multimedia sequences incorporating audio elements according to job specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of
- the principles of analog and digital audio
- contemporary digital audio formats
- methods for saving and producing digital audio outputs
- the principles of editing audio tracks
- information sources

**Sample Questions for Underpinning Knowledge**

**These questions are only examples. They do not represent everything you need to know. Other questions may be asked.**

**Answers need to show the essential knowledge required when working in a wide range of circumstances**

**The principles of analog and digital audio**
- What are the distinguishing features of analog and digital audio?
- What is meant by amplitude, sound waves, frequency, mono and stereo?
- What are some contemporary digital audio formats?
- What data rates apply to selected digital sources?
- What is meant by sampling, sampling techniques and sources for sampling digital audio?
- What is MIDI technology?

**Contemporary digital audio formats**
- What are the distinguishing features of selected digital audio software?

**Methods for saving and producing digital audio outputs**
- What is an audio frame?
- How do you join multiple tracks of digital audio?
- What types of digital effects are used to modify and integrate digital audio tracks?
- What is the purpose of time encoding?
- What is a storybook design?
The principles of editing audio tracks
   Why are sequencers used to create digital audio tracks?
   What are the purposes of sound cards?

Information sources
   What manuals, safety documentation, etc are relevant to this task and where are they kept?
   What information is included in these documents?
   What other sources of information are available?
MM45c  Incorporate animation into multimedia presentations

**Elements and Performance Criteria**

**MM45c–1 Identify and describe formats of digital animation**

- **MM45c–1.1** A range of computer assisted animation techniques and software are identified and distinguishing features examined
- **MM45c–1.2** Contemporary digital animation software is selected appropriate to a range of given outcomes
- **MM45c–1.3** Single and multiple frame software for creating and editing digital animation are examined for a specified outcome
- **MM45c–1.4** Methods for joining multiple frames of animation are explained for a specified outcome
- **MM45c–1.5** Backgrounds (static and moving) for an animated sequence are examined and selected to be appropriate for the job
- **MM45c–1.6** Alpha channels for compositing digital animation are explained appropriate for the job to be undertaken
- **MM45c–1.7** The formats employed to create a given 2D animated sequence are analysed and discussed appropriate for the job to be undertaken

**MM45c–2 Use digital animation software**

- **MM45c–2.1** Appropriate digital animation software is assessed and selected for the job
- **MM45c–2.2** Entering and exiting the selected digital animation software are demonstrated and the tools and features of the program used correctly
- **MM45c–2.3** Editing and manipulating digital animation are demonstrated and the tools and features of the program used correctly
- **MM45c–2.4** Animation is saved and retrieved using the designated file formats

**MM45c–3 Design and edit digital animation**

- **MM45c–3.1** Digital animation software is selected appropriate to the required outcome
- **MM45c–3.2** Line and polygon constructions are created using the selected software
- **MM45c–3.3** Rigid and non–rigid objects are constructed and animated against a static background
- **MM45c–3.4** Rigid and non–rigid objects are combined into a single animated sequence
- **MM45c–3.5** Complex animated movements are created and joined in sequence
- **MM45c–3.6** Moving backgrounds are created and joined with rigid and non–rigid objects in sequence
- **MM45c–3.7** Techniques of animation are used including motion blur and object exaggeration
- **MM45c–3.8** Time stamping techniques are applied to the animation frames
- **MM45c–3.9** Digital animation is saved using the appropriate file techniques

**MM45c–4 Present a digital animation sequence**

- **MM45c–4.1** Digital animation is tested and combined with other digital imaging, sound and/or video to create a multimedia sequence
- **MM45c–4.2** The multimedia sequence including animation is saved and presented
Range of Variables

Degree of autonomy  Digital animation is undertaken in the workplace in consultation with
the supervisor to ensure that correct skills and procedures are used

Types of systems  Multimedia systems used in the pre–press sector and associated
sectors with which a pre–press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of digital animation should be transferable across the printing industry and associated
sectors

Required evidence
Produce TWO different multimedia sequences incorporating animation according to job specifications and
the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
• digital animation formats
• computer assisted animation techniques
• the principles of digital animation design
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances

Digital animation formats
What are the computer distinguishing features of selected animation software?
What is the difference between single and multiple frame digital animation?
What is the difference between static and moving backgrounds and when are they used?
When are alpha channels used?

Computer assisted animation techniques
How are multiple frames of animation joined?
What are the distinguishing tools and features of the selected animation program?
How are line and polygon constructions created?
How are rigid and non–rigid objects constructed and combined?

The principles of digital animation design
What is meant by motion blur and object exaggeration and why are they used?
Why is time stamping applied to animation frames?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM46c  Incorporate video into multimedia presentations

Elements and Performance Criteria

MM46c–1  Identify and describe formats of digital video

MM46c–1.1 A range of video software is identified and distinguishing features examined

MM46c–1.2 Contemporary video software is selected appropriate to a range of given outcomes

MM46c–1.3 Limiting factors of computer hardware on video production are identified for a specified job

MM46c–1.4 The digital medium for video is explained relevant to the industry sector

MM46c–1.5 Differences of image quality and image size are demonstrated to deliver the desired outcome

MM46c–1.6 Data input, processing and output are explained relevant to video

MM46c–1.7 The formats employed to create a given computer video sequence are analysed and discussed for a specified outcome

MM46c–2  Use digital video software

MM46c–2.1 Appropriate digital video software is assessed and selected for the job

MM46c–2.2 Entering and exiting the selected digital video software are demonstrated and the tools and features of the program used correctly

MM46c–2.3 Digital video editing software is used to combine given video assets

MM46c–2.4 Video is saved and retrieved using the designated file formats

MM46c–3  Design and edit digital video

MM46c–3.1 Digital video software is selected appropriate to the required outcome

MM46c–3.2 Video assets are combined using digital video editing software

MM46c–3.3 Variations in video frame rates are controlled appropriate for the job to be undertaken

MM46c–3.4 Time stamping techniques are applied to the video frames appropriate for the job to be undertaken

MM46c–3.5 Digital video is saved using the appropriate file techniques

MM46c–4  Present a digital video sequence

MM46c–4.1 Digital video is tested and combined with other digital imaging, sound and/or animation to create a multimedia sequence

MM46c–4.2 The multimedia sequence including video is saved and presented

Range of Variables

Degree of autonomy  Digital video is undertaken in the workplace in consultation with supervisor to ensure correct skills and procedures are used

Types of systems  Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work
Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of manipulating digital video should be transferable across the printing industry and associated sectors

Required evidence
Produce TWO different multimedia sequences incorporating video according to job specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of
- digital video formats
- contemporary video software
- principles of video production
- the digital medium for video
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances

Digital video formats
What are the distinguishing features of a selected video software program?
What are some of the limiting factors of video production on computer?
Why are differences of image quality and image size obtained?

Contemporary video software
What is involved in combining given video assets?
Describe the features of and differences between TWO current video software packages.

Principles of video production
How are variations in video frame rates controlled?
Why are time stamping techniques applied to video frames?

The digital medium for video
What needs to be considered when combing digital video with other digital imaging, sound and/or animation to create a multimedia sequence?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM47d  Incorporate 3D modeling into multimedia presentations

Elements and Performance Criteria

MM47d–1  Identify and describe formats of 3D Modeling
- MM47d–1.1  A range of 3D modeling software are identified and distinguishing features examined
- MM47d–1.2  Contemporary 3D modeling software is selected appropriate to a range of given outcomes
- MM47d–1.3  Limiting factors of computer hardware on 3D modeling production are identified
- MM47d–1.4  The digital medium for 3D is explained for a specified job
- MM47d–1.5  The formats employed to create a given 3D model are analysed and discussed for a specified job

MM47d–2  Use 3D modeling software
- MM47d–2.1  Appropriate 3D modeling software is assessed and selected for the job
- MM47d–2.2  Entering and exiting the selected 3D modeling software are demonstrated and the tools and features of the program used correctly
- MM47d–2.3  Editing and manipulating 3D models are demonstrated and the tools and features of the program used correctly
- MM47d–2.4  3D modeling editing software is used to combine given video assets
- MM47d–2.5  3D model is saved and retrieved using the designated file formats

MM47d–3  Design and edit a 3D model
- MM47d–3.1  3D modeling software is selected appropriate to the required outcome
- MM47d–3.2  3D object is created using software commands
- MM47d–3.3  3D virtual model space is created using software commands
- MM47d–3.4  Boolean operations and Vector based drawings are created relevant to a 3D model
- MM47d–3.5  Predefined textures are applied to a control model using texture mapping parameters
- MM47d–3.6  Visual mood and colour tones are used to control model and virtual space
- MM47d–3.7  Lighting and shadows are added to the 3D model to define texture
- MM47d–3.8  Camera control options are defined and manipulated to achieve the visual objective
- MM47d–3.9  Object motion hierarchies are demonstrated and used to achieve a motion effect

MM47d–4  Present a 3D modeling sequence
- MM47d–4.1  3D model motion is tested and combined with other digital imaging, sound and/or animation / video to create a multimedia sequence with regard for cross platform file transfers, digitised time coding and interface calibration
- MM47d–4.2  The multimedia sequence including 3D modeling is saved and presented with reference to file compression technology
Range of Variables

Degree of autonomy
Working independently but with some consultation as required

Types of systems
Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of 3D modeling should be transferable across the printing industry and associated sectors

Required evidence
Produce TWO different multimedia sequences incorporating 3D modeling according to job specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of
- 3D Modeling formats
- 3D modeling software
- the principles of 3D modeling design
- 3D modeling sequencing
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

3D modeling formats
What are some of the limiting factors of 3D modeling production on computer hardware?
What are the advantages of the digital medium for 3D over traditional design?

3D modeling software
What are some distinguishing features of TWO selected 3D modeling software programs?
Why have you chosen the software that you have?

The principles of 3D modeling design
What is meant by 3D virtual model space and when is it used?
When are Boolean operations and Vector based drawings used?
What are predefined textures and texture mapping parameters?
When are visual mood and colour tones used?
Why are lighting and shadows added to a 3D model?
What are object motion hierarchies and when are they used?

3D modeling sequencing
What is a cross platform file transfer?
Why is digitised time coding used?
What is meant by interface calibration and how is it used?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM61d  Prepare multimedia for different platforms

Elements and Performance Criteria

MM61d–1  Identify and describe multimedia delivery techniques

MM61d–1.1  A range of multimedia delivery platforms are identified and distinguishing features examined

MM61d–1.2  MPEG video, CD ROM and CDI formats are explained appropriate for the job to be undertaken

MM61d–1.3  Internet delivery options are defined and limitations and advantages detailed

MM61d–1.4  Emerging processes for delivering multimedia including DOS, Macintosh and other platforms (eg Sony Nintendo Sega) are identified relevant to the industry sector

MM61d–1.5  Printing platforms are identified and the suitability of digital data for a range of printing processes is assessed

MM61d–1.6  Conversion methods from one platform to another are identified to deliver the desired outcome

MM61d–2  Prepare data for multimedia platforms

MM61d–2.1  Suitability of digital data for delivery platform is assessed to deliver the desired outcome

MM61d–2.2  The appropriate multimedia delivery platform is selected to deliver the desired outcome

MM61d–2.3  Data is redesigned and/or adapted to suit selected platform

MM61d–2.4  Data is formatted or reformatted for selected platform

Range of Variables

Degree of autonomy  Working independently but consulting others as required

Types of systems  Multimedia systems used in the pre–press sector and associated sectors with which a pre–press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of multimedia delivery should be transferable across the printing industry and associated sectors

Required evidence
Produce THREE multimedia sequences which include a range of different elements, each on a different delivery platform according to job specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of

- multimedia delivery techniques
- principles of conversion from one platform to another
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances and being able to cope with the unexpected.

Multimedia delivery techniques
- What are the distinguishing features of a selected multimedia delivery platform?
- What are the features of MPEG video, CD ROM and CDI formats?
- What considerations need to be included for Internet delivery?
- What are the relative features of DOS, Macintosh and Sony Nintendo Sega platforms?
- What printing platforms are suitable for digital data?

Principles of conversion from one platform to another
- What conversion methods can be used from one delivery platform to another?
- What needs to be considered when assessing the suitability of digital data for a delivery platform?
- How do you determine that a particular element or sequence is suitable for a given delivery platform?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
MM63b  Access the Internet

Elements and Performance Criteria

MM63b–1  Identify and use local resources
  MM63b–1.1  Identify installed Internet software applications and state their purposes
  MM63b–1.2  Demonstrate how Internet software can be used off line
  MM63b–1.3  Use unarchiving (uncompressing/extracting) software and virus scanner on downloaded files
  MM63b–1.4  Define and correctly use relevant terms such as ISDN, PPP, TCP/IP, Java, JavaScript, HTML, download, WWW
  MM63b–1.5  Identify and explain the type of Internet connection in use
  MM63b–1.6  Be aware of potential security risks and avoid them

MM63b–2  Identify and use remote resources
  MM63b–2.1  Search for files and documents using the World Wide Web search engines
  MM63b–2.2  Browse the WWW to find related sites via links
  MM63b–2.3  Retrieve files from an FTP repository
  MM63b–2.4  Send, download, read and respond to e-mail
  MM63b–2.5  Retrieve files attached to incoming e-mail, and send attached files
  MM63b–2.6  Access newsgroups relevant to the industry
  MM63b–2.7  Demonstrate the use of AT LEAST ONE of: Telnet, Gopher, audio conferencing, video conferencing, chat (eg IRC), Archie

Range of Variables

Degree of autonomy
  Working under supervision

Types of systems
  Systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
  Competency should be assessed in the work environment using industry resources and software.

Critical aspects
  The underlying skills of exploring and assessing the Internet should be transferable across the printing industry and associated sectors.

Required evidence
  Access the Internet and retrieve data using WWW and e-mail and newsgroups.
  Send a simple e-mail or newsgroup posting.
  Perform a simple search and save the text of a web page to disk.
  Extract and virus-scan downloaded files.
  Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
  Demonstrate detailed knowledge of:
how to initiate and conclude an Internet connection
appropriate uses of different Internet protocols and data types (WWW, e–mail, etc)
privacy and security measures related to on line tasks
information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

How to initiate and conclude an Internet connection
   If a connection attempt fails, what could be the cause and what do you do?
   How do you know if you are still on line, and how do you log off?

Appropriate uses of different Internet protocols and data types (WWW, e–mail, etc)
   Name two WWW search engines
   What is a URL?
   Why might you sometimes use e–mail to respond to a newsgroup post?
   What is shareware?
   In which of these is maintaining (upper/lower) case important: URLs, file names, passwords?
   What are "zip" files and why are they used?
   What is the difference between Java and JavaScript?
   In what ways can you use the Internet to obtain product information and technical support?
   Approximately how long would it take to download one megabyte of data using a fast modem?

Privacy and security measures related to on line tasks
   What information would you refuse to provide when filling out a form on a web page?
   What are cookies?
   Why should you not leave the terminal unattended while on line?
   Which types of files can carry viruses?
   Why must you scan for viruses before and after extracting the files from a compressed archive?
   Who owns the copyright on the types of data you retrieve?

Information sources
   What manuals, safety documentation, etc are relevant to this task and where are they kept?
   What information is included in these documents?
MM65d  Create web pages with multimedia

Elements and Performance Criteria

MM65d–1  Identify the tools and parameters of web page design

MM65d–1.1  The uses of HTML on and off the Internet are described

MM65d–1.2  Principles of design and navigation are correctly applied to the context of web page viewing

MM65d–1.3  Differences between page layout languages versus document content description are outlined

MM65d–1.4  File types for images and other data are chosen to suit the intended viewing environment

MM65d–1.5  HTML specifications and extension types are named and a suitable HTML level or DTD is chosen for the current task

MM65d–1.6  Types of web authoring software are identified and selected in accordance with type of authoring task and workplace procedures

MM65d–2  Produce web pages

MM65d–2.1  Images, sound, and other referenced files are sourced and optimised for download and display

MM65d–2.2  Web–authoring, conversion, or text editing software is used to prepare pages incorporating text with images and video, sound, scripts or programming, according to design brief

MM65d–2.3  Completed HTML pages are saved to hard disk with appropriate file names

MM65d–2.4  Raw HTML is checked for obvious redundancies and omissions, and enhanced if necessary with recent HTML extensions, ALT tags, etc

MM65d–3  Validate and prepare for distribution

MM65d–3.1  Pages are validated with suitable syntax parsing and rules checking software

MM65d–3.2  HTML is corrected in response to validation reports until clean validation is achieved at chosen level

MM65d–3.3  Pages and associated files are uploaded to server or transferred to other media and prepared for access

MM65d–3.4  Internal and external links are checked for functionality in their final location

Range of Variables

Degree of autonomy  Working independently but consulting others as required

Types of systems  Multimedia systems used in the pre–press sector and associated sectors with which a pre–press organisation may be required to work

Distribution / display  World Wide Web public access, local intranet, CD–ROM, kiosk or specific purpose delivery methods as required

Level of HTML  Approved standards from HTML 2.0 to present and browser–specific extensions in common use

Validation procedures  SGML syntax parsers and "lint" or rules–based checkers, either accessed via the Internet or run from local disk

Software  Web authoring and/or conversion software as used in the workplace
Evidence Guide

Context
Competency should be assessed in the work environment. It is expected that special purpose tools and equipment (including industry software packages) would be used where appropriate.

Critical aspects
The underlying skills of web page creation should be transferable across sectors of the design and pre-press industries. It is important that the range of proposed viewing environments is identified and that the competencies be demonstrated with a clear identification of browser display processes.

Required evidence
Create and validate at least TWO linked web pages incorporating multimedia and prepare them for distribution on the Internet or other medium

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:
- software used for web authoring, how used and advantages and disadvantages
- types of adjustments required when converting printable artwork to web pages
- Internet-related issues such as bandwidth, platform-independence and screen types, and how they are resolved
- the purpose and process of validation and the role of standards and extensions
- hardware, software and configurations required to view completed work
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a broad range of circumstances and dealing with the unexpected.

Software used for web authoring, how used and advantages and disadvantages
How would you select the best software and techniques for a particular job?
What are the advantages and disadvantages of converting directly from printable artwork?
With modern software, how much do you really need to know about HTML?

Types of adjustments required when converting printable artwork to web pages
What graphics file types are most commonly used in web pages, and why?
What changes are made to graphics to make them viewable on a variety of systems?
How does the page layout of the original artwork relate to the Internet user's screen view?
What happens to the text if the image's dimensions are not specified?

Internet-related issues such as bandwidth, platform-independence and screen types, and how they are resolved
Why is important information placed in text rather than in graphics or sound?
Approximately how long would it take to load your page over a modem link?
What changes can be made at the browser end by a user with imperfect eyesight or a small, low-resolution screen?
How does designing web pages for distribution locally or on disk differ from Internet design?

The purpose and process of validation and the role of standards and extensions
Why do browsers conceal some HTML errors?
Which validation level have you chosen to use, and why?
How are issues of access for people with disabilities addressed in your work?
Give examples of browser-specific HTML extensions that are harmlessly ignored by other browsers, and explain how layout is affected when this happens.

Hardware, software and configurations required to view completed work
What is required to view your completed pages, in terms of computer hardware, operating systems, brands and versions of browsers, configuration, screen size and resolution?
What is lost by someone viewing your pages without those systems and settings?
Information sources

What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
MM67d  Plan interface design

Elements and Performance Criteria

MM67d–1 Identify the features of interface design
- MM67d–1.1 The plan, concept and visuals of an interface design are correctly described and distinguishing features are identified
- MM67d–1.2 The features and principles of interface design relevant to the specific multimedia outcomes are defined
- MM67d–1.3 The role of interface design interactive multimedia products is described for a range of specified outcomes

MM67d–2 Develop interface design strategies
- MM67d–2.1 An interface design plan is developed for five interactive screens in accordance with a design brief
- MM67d–2.2 Ideas, concept sketches, design strategies for an interface design brief are mapped for a specified outcome
- MM67d–2.3 The principles of interface design are explained and applied to the design brief
- MM67d–2.4 Interface designs are created for a specified outcome using 2D and 3D software
- MM67d–2.5 The navigation system to create the interface design for a specified outcome is defined including button design, nonlinearity and transitions
- MM67d–2.6 The interface designs are tested and presented to deliver the desired outcome

MM67d–3 Produce user documentation
- MM67d–3.1 Write documentation that enables user to enter, leave and navigate through presentation
- MM67d–3.2 Check that documentation is accurate, unambiguous and easily understood

Range of Variables

Degree of autonomy  Working independently but consulting others as required
Types of systems  Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of interface design planning should be transferable across the printing industry and associated sectors

Required evidence
Design and document interfaces for TWO multimedia interactive presentations according to job specifications and the listed performance criteria
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate a knowledge of
• the principles of interface design
• interface design strategies
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required in a wide range of circumstances and being able to cope with the unexpected

The principles of interface design
  What are the features of planning the concept and visuals of an interface design?
  How are various interactive multimedia products applied to interface design
  How can access for people with disabilities be incorporated into interface design?

Interface design strategies
  What is involved in mapping an interface design brief?
  What are the essential principles of interface design?
  What 2D and 3D software is relevant to interface design?
  What is the function of a navigation system to create an interface design?

Information sources
  What manuals, safety documentation, etc are relevant to this task and where are they kept?
  What information is included in these documents?
  What other sources of information are available?
MM81e  Manage multimedia production

Elements and Performance Criteria

MM81e–1 Design a production cycle for a multimedia product

MM81e–1.1 Management components of the production cycle are identified and coordinated to achieve a defined outcome

MM81e–1.2 Concepts for multimedia integration are posited and their sequence planned

MM81e–1.3 Prototype sequences are designed and tested in accordance with specifications

MM81e–1.4 Multimedia production is undertaken that conforms to product specifications

MM81e–1.5 The final product is tested for conformance to specifications and released to client

MM81e–2 Define the attributes of interactive multimedia products

MM81e–2.1 The attributes of hypermedia are defined and incorporated into a given production

MM81e–2.2 The attributes of hypertext are defined and incorporated into a given production

MM81e–2.3 Linear and interactive information structures are distinguished and incorporated into a given production

MM81e–3 Manage research

MM81e–3.1 Client specifications are researched and checked back with client to deliver the desired outcome

MM81e–3.2 Files, documents, images and footage relevant to project requirements are sourced and their function documented and sequenced

MM81e–3.3 Liaison with clients is undertaken, records of interviews kept, and specifications monitored within the management of the specific project to achieve the required outcomes

MM81e–3.4 Files, documents, images and footage relevant to specific projects are filed for future reference with regard for client confidentiality

MM81e–4 Manage the multimedia process

MM81e–4.1 The order of process procedure is determined and documented to deliver the desired outcome

MM81e–4.2 Costs are determined, checked with client, and documented to deliver the desired outcome

MM81e–4.3 Quality outcomes are determined and documented and a quality system is established to monitor the quality of the product

MM81e–4.4 The product outcome is produced fit for purpose

MM81e–4.5 The product is tested against specifications prior to client release

MM81e–4.6 Endorsement of the product by the client is gained to ensure specifications have been fulfilled

Range of Variables

Degree of autonomy  Managing multimedia production is undertaken in the workplace working independently and being able to cope with contingencies
Evidence Guide

Context
Competency should be assessed in the work environment using industry resources and software

Critical aspects
The underlying skills of managing multimedia production should be transferable across the printing industry and associated sectors

Required evidence
Produce a portfolio covering a period of THREE months that demonstrates establishing, monitoring and evaluating a production cycle including using attributes of specific multimedia interactivity. The portfolio should include material that covers: defined components of a production cycle; concepts for multimedia integration; prototype sequences and attributes; product testing and quality considerations.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- multimedia production cycle
- interactive multimedia product attributes
- the multimedia production process
- managing research

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a wide range of circumstances and being able to cope with the unexpected

Multimedia production cycle
- What are the management components of the production cycle?
- What considerations are involved in multimedia integration?
- What is involved in designing and testing prototype sequences?
- What is involved in multimedia product testing?

Interactive multimedia product attributes
- What are the attributes of hypermedia?
- What are the attributes of hypertext?
- What is the difference between linear and interactive information structures?

The multimedia production process
- What are the quality considerations of multimedia production?

Managing research
- How are files, documents, images and footage relevant to project requirements sourced?
- What steps are necessary to ensure good liaison with clients?
MM82e  Manage multimedia projects

**Elements and Performance Criteria**

**MM82e–1** Develop a project plan
  - MM82e–1.1 The elements of the project plan are identified in accordance with the principles of project management
  - MM82e–1.2 Planning tools are identified for application to the project
  - MM82e–1.3 Time and budget factors are identified and incorporated into the plan

**MM82e–2** Manage resources and time
  - MM82e–2.1 Hardware resources relevant to specific multimedia tasks are identified, evaluated and incorporated to achieve the required outcome
  - MM82e–2.2 Time management is integrated into project planning and monitoring
  - MM82e–2.3 Human resources are incorporated and supported within the project framework to achieve the required outcome
  - MM82e–2.4 Team work elements are identified and developed to achieve the required outcome

**MM82e–3** Identify legal issues
  - MM82e–3.1 Copyright principles and conventions relevant to digital data are identified and legal precedents noted
  - MM82e–3.2 The copyright issues relating to multimedia authoring, digital imaging and digital sound are explained and strategies are devised to account for relevant contingencies
  - MM82e–3.3 Copyright ownership of multimedia authoring, digital imaging and digital sound is established prior to commencing a brief and relevant documentation verified
  - MM82e–3.4 Applications of law with reference to multimedia product warranties, software licences, consultants, sponsors and distribution are determined appropriate for the job to be undertaken and relevant to the industry sector

**MM82e–4** Manage research
  - MM82e–4.1 Files, documents, images and footage relevant to project requirements are sourced and their function documented and sequenced
  - MM82e–4.2 Liaison with clients is undertaken, records of interviews kept, and specifications monitored within the management of the specific project to achieve the required outcomes
  - MM82e–4.3 Files, documents, images and footage relevant to specific projects are filed for future reference with regard for client confidentiality

**MM82e–5** Determine and manage multimedia budgets
  - MM82e–5.1 Estimation models of costs are identified and applied to a range of multimedia products
  - MM82e–5.2 Budget plans are established and checked against estimations to deliver accurate costings
  - MM82e–5.3 Tendering processes and costs are determined and implemented to deliver the required outcome within designated time frames and costs
  - MM82e–5.4 Project costs are determined, documented and monitored continuously to comply with business commitments and legal obligations
MM82e–5.5 Business transactions are undertaken ethically and in accordance with law
MM82e–5.6 Multimedia project budget estimates and expenditure are contrasted and documented to assist in future business dealings

**MM82e–6 Manage project outcomes**

- MM82e–6.1 Multimedia inputs are combined to form a definitive master
- MM82e–6.2 The master product is duplicated and distributed in accordance with client specifications
- MM82e–6.3 The project outcomes are refined to meet quality standards

**Range of Variables**

**Degree of autonomy**
Managing multimedia projects is undertaken in the workplace working independently and being able to cope with contingencies

**Types of systems**
Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

**Evidence Guide**

**Context**
Competency should be assessed in the work environment using industry resources and software

**Critical aspects**
The underlying skills of managing multimedia projects should be transferable across the printing industry and associated sectors

**Required evidence**
Produce a portfolio that demonstrates multimedia project management over TWO different completed projects. The portfolio should include material that covers: planning tools; time and budget factors; resource management; time management; human resources; team work; research management; a multimedia master; legal and copyright material; licences and warranties; distribution arrangements.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- developing a project plan
- managing resources and time
- managing research
- managing project outcomes
- legal issues
- multimedia budgets

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required in a wide range of circumstances and being able to cope with the unexpected

**Developing a project plan**
What elements need to be included in a multimedia project plan?
How are time and budget factors incorporated into a project plan?

**Managing resources and time**
What hardware resources are relevant to specific multimedia tasks?
How is time management integrated into project planning and monitoring?
How are human resources incorporated and supported within the project framework?
What team work elements should be implemented in a project plan?

**Managing research**
- How are files, documents, images and footage relevant to project requirements sourced?
- What steps are necessary to ensure good liaison with clients?

**Managing project outcomes**
- How is the multimedia master created?
- How is the master duplicated and distributed

**Legal issues**
- What legal issues apply to multimedia production?
- What copyright principles and conventions are relevant to digital data?
- What are the copyright issues relating to multimedia authoring, digital imaging and digital sound?
- Who owns copyright of multimedia authoring, digital imaging and digital sound?
- What laws apply to multimedia product warranties, software licences, consultants, sponsors and distribution?

**Multimedia budgets**
- What estimation models might be used in multimedia production?
- What constitutes a budget plan?
- What is involved in tendering processes?
- How are project costs calculated?
Printing Units

Printing covers flexography, gravure, lithography, pad printing, relief printing, electronic/digital printing, foil stamping and coating.

Printing machinists need units from this section as well as from the Support Units, and possibly Pre–press Units, Converting Binding and Finishing Units and National Generic Units.

Printing Units:
- PR11b Mount and proof flexographic plates for basic printing
- PR11d Mount and proof flexographic plates for complex printing
- PR13b Set up for basic flexographic printing
- PR13d Set up for complex flexographic printing
- PR14c Produce basic flexographic printed product
- PR14d Produce complex flexographic printed product
- PR21b Set up for basic gravure printing
- PR21d Set up for complex gravure printing
- PR22c Produce basic gravure printed product
- PR22d Produce complex gravure printed product
- PR31b Set up for basic lithographic printing
- PR31d Set up for complex lithographic printing
- PR32c Produce basic lithographic printed product
- PR32d Produce complex lithographic printed product
- PR41b Set up for basic pad printing
- PR41c Set up for complex pad printing
- PR42b Produce basic pad printed product
- PR42c Produce complex pad printed product
- PR51b Set up for basic relief printing
- PR51d Set up for complex relief printing
- PR52c Produce basic relief printed product
- PR52d Produce complex relief printed product
- PR61b Set up for foil stamping
- PR62b Produce foil stamped product
- PR71b Set up for coating (basic)
- PR71d Set up for coating (complex)
- PR72b Produce coated product (basic)
- PR72d Produce coated product (complex)
- PR81b Set up for electronic / digital printing (basic)
- PR81c Set up for electronic / digital printing (complex)
- PR82b Produce electronic / digital printed product (basic)
- PR82c Produce electronic / digital printed product (complex)

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
PR11b  Mount and proof flexographic plates for basic printing

Elements and Performance Criteria

PR11b–1  Read and interpret job requirements from job documentation or production control system

PR11b–1.1  Set up is carried out correctly in minimum time with minimum wastage

PR11b–2  Prepare flexographic plates

PR11b–2.1  Plate height is measured
PR11b–2.2  Plate(s) are trimmed and prepared according to mounting system requirements
PR11b–2.3  Mounting adhesive is selected to achieve correct PCD (Pitch Circle Diameter) of specified plate cylinder(s) and gear(s)

PR11b–3  Prepare plate cylinder

PR11b–3.1  Plate cylinder(s) are selected, cleaned and prepared and correct gear(s) are mounted OR
PR11b–3.2  Sleeves and correct gears on mandrels are selected, cleaned, prepared and mounted to meet job specifications
PR11b–3.3  TIR (Total Indicated Runout) is checked to be within specified tolerances on plate cylinders
PR11b–3.4  Selected mounting adhesive is applied to plate cylinders

PR11b–4  Mount and proof flexographic plate(s) on mounting / proofing machine

PR11b–4.1  Plates are prepared and mounted on cylinders or sleeves according to chart number / print direction OR
PR11b–4.2  Plate mounting sheet is prepared AND
PR11b–4.3  Plates are mounted to position on plate mounting sheet AND
PR11b–4.4  Plate mounting sheet is installed and tensioned onto plate cylinder to specified chart number / print direction
PR11b–4.5  Plates are proofed and each plate cylinder is checked for register
PR11b–4.6  Flexographic plates are trimmed and taped down according to printing press requirements

Range of Variables

Inks / coatings  Range of standard inks commonly used in 1–2 colour printing
Colour matching systems  Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions
Types of plates  Range of plate thicknesses used in flexography
Machines  Range of mounting adhesives
Range of stack, in-line and central impression flexographic printing machines with various plate cylinder drives and mounting systems
Design  Simple graphics and text. Minor variation in registration and position
Evidence Guide

Required evidence
Mount and proof flexographic plates on TWO occasions for basic jobs, according to enterprise requirements and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- job requirements
- flexographic printing plates and mounting systems
- flexographic plate cylinders or mandrels and sleeves or plate mounting sheets
- mounting, proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.
Answers need to show knowledge required when working in a limited range of circumstances.

Job requirements
What would you do if vital information was missing from the job ticket?
What checks were undertaken prior to set up (availability of materials etc.)?

Flexographic printing plates and mounting systems
What OH&S concerns are there when mounting and proofing plates?
How were the correct plates chosen for the job?
When would cushion type mounting material be used?
How can damage to the plate be avoided when mounting plates?
What options are available to seal the edges of plates when mounting?
Why is it important to measure plate height?
How can TIR affect press performance?

Proofing and adjustment
What procedures are followed to have the print approved?
What quality control measurements should be applied to the proof to test against known standards?
What do you check on the initial print prior to running?
How are the final results recorded for future reference?
How can you minimise registration errors?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR11d  Mount and proof flexographic plates for complex printing

Elements and Performance Criteria

PR11d–1  Read and interpret job requirements from job documentation or production control system

PR11d–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

PR11d–2  Prepare flexographic plates

PR11d–2.1  Plate height is measured
PR11d–2.2  Plates are trimmed and prepared according to mounting system requirements
PR11d–2.3  Mounting adhesive is selected to achieve correct PCD (Pitch Circle Diameter) of specified plate cylinder(s) and gear(s)

PR11d–3  Prepare plate cylinder

PR11d–3.1  Plate cylinders are selected, cleaned and prepared and correct gears are mounted OR
PR11d–3.2  Sleeves and correct gears on mandrels are selected, cleaned, prepared and mounted to meet job specifications
PR11d–3.3  TIR (Total Indicated Runout) is checked to be within specified tolerances on plate cylinders
PR11d–3.4  Selected mounting adhesive is applied to plate cylinders

PR11d–4  Mount and proof flexographic plate(s) on mounting / proofing machine

PR11d–4.1  Plates are prepared and mounted on cylinders or sleeves according to chart number / print direction OR
PR11d–4.2  Plate mounting sheet is prepared AND
PR11d–4.3  Plates are mounted to position on plate mounting sheet AND
PR11d–4.4  Plate mounting sheet is installed and tensioned onto plate cylinder to specified chart number / print direction
PR11d–4.5  Plates are proofed and each plate cylinder is checked for register
PR11d–4.6  Flexographic plates are trimmed and taped down according to printing press requirements

Range of Variables

Inks / coatings  Range of inks commonly used in 3 or more colour printing, including standard and special colours
Colours matching systems  Use of viscosity controls, densitometers and spectrophotometry
Types of plates  Range of plate types and thicknesses used in flexographic printing
Machines  Range of stack, in–line and central impression flexographic printing machines with manual, semi–automatic or fully automated process control
Design

Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work.

Jobs

Surface and reverse (lamination) prints

Degree of autonomy

Working independently in consultation with others

Evidence Guide

Context

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence

Mount and proof plates and install in a flexographic printing machine for a complex print on TWO occasions according to job and workplace specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- Interpreting job requirements
- Mounting and proofing flexographic plates
- Problem solving
- Information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Interpreting job requirements

Why is it necessary to ensure that the job requirements are read and properly understood?
What production problems could eventuate by not reading and understanding the job requirements?
Whom would you discuss any production problems with?

Mounting and proofing of flexographic plates

What OH&S concerns are there when mounting and proofing plates?
What is the most common cause of photopolymer plates crazing on the image side?
Why is resiliency of the printing plate important?
What is the main advantage of using thin photopolymer plates in process printing?
What faults may be detected on new plates?
What type of solvents should be used on photopolymer plates?
What does the term V–block mounting mean?
How is V–block mounting achieved?
What are the benefits of optical mounting?
What is the purpose of binding plates after mounting?
What possible print faults could eliminated by using cushion mount?
What is the result of air being trapped under plates?

Problem solving

How do you eliminate low spots?
What can be done to minimise press bounce in jobs that are mounted more than one across?
What are some possible causes of print slur?
How can you prevent or minimise plates lifting?
What can you place on the plates to make registering the job easier on the press?
What are the causes of moire patterns when printing by the flexographic process?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR13b  Set up for basic flexographic printing

**Elements and Performance Criteria**

**PR13b–1** Read and interpret job requirements from job documentation or production control system

- **PR13b–1.1** Set up is carried out correctly in minimum time with minimum wastage
- **PR13b–1.2** Proofed job is checked for conformance with job ticket

**PR13b–2** Set up reel transportation and delivery system on web-fed machine (OR PR13b–3)

- **PR13b–2.1** Reels are checked for treatment levels, coatings and printing side
- **PR13b–2.2** Unwind reels are secured on reel shaft
- **PR13b–2.3** Reels are correctly positioned on unwind stand
- **PR13b–2.4** Correctly cut cores are positioned and mounted securely on rewind shafts
- **PR13b–2.5** Press is webbed for single sided surface print
- **PR13b–2.6** Edge guide is centred and set
- **PR13b–2.7** Unwind tension is set to suit substrate
- **PR13b–2.8** Rewind tension is set to suit substrate
- **PR13b–2.9** Nip rollers are set
- **PR13b–2.10** PIV (Positively Infinitely Variable) drive is set for appropriate tensioning of substrate

**PR13b–3** Set up sheet transportation and delivery system on sheet-fed machine (OR PR13b–2)

- **PR13b–3.1** Feeder is set up and adjusted to suit job requirements
- **PR13b–3.2** Sheet pick up and transportation system is set up and adjusted to suit job requirements
- **PR13b–3.3** Transfer systems are set up and adjusted to suit job requirements
- **PR13b–3.4** Delivery is set up and adjusted to suit job requirements
- **PR13b–3.5** Substrate is removed from stacker according to job instructions
- **PR13b–3.6** Sheet transfer and control system is set up and adjusted to suit job requirements
- **PR13b–3.7** Set off / marking prevention devices are set up and adjusted to suit job requirements

**PR13b–4** Select and prepare inks and solvents

- **PR13b–4.1** Inks and solvents are selected in accordance with job requirements and end-user requirements
- **PR13b–4.2** Quality and suitability of inks and solvents are checked and appropriate action is taken
- **PR13b–4.3** Inks and solvents are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
- **PR13b–4.4** Correct colour and weight / volume of ink is mixed and viscosities checked and modified to suit the press and job specifications
- **PR13b–4.5** Ink formula and approved colour draw downs appropriately recorded
- **PR13b–4.6** Inks and solvents are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions and the relevant hazardous liquids storage regulations
PR13b–5  Set up machine for basic flexographic printing
  PR13b–5.1  Flexographic plate cylinders are installed and register adjustments centred OR
  PR13b–5.2  Sleeves are installed in press and register adjustments made OR
  PR13b–5.3  Plate mounting sheets are mounted on cylinders in press and register adjustments made
  PR13b–5.4  Plate cylinders are gauged up or pre-set to impression
  PR13b–5.5  Inking system is set up and roller nips / blade(s) are set correctly
  PR13b–5.6  Ink circulation is maintained at correct level
  PR13b–5.7  Viscosities are adjusted to suit job
  PR13b–5.8  Air volume and drier temperatures are selected to suit inks, substrate, solvents and job specifications
  PR13b–5.9  Air volume is adjusted between colours to maximise drying and minimise air overspill

PR13b–6  Set up in-line units for basic process(es)
  PR13b–6.1  Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  PR13b–6.2  Assistance is given in set up of major in-line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR13b–7  Conduct proof run
  PR13b–7.1  Material to be used for proof is organised correctly
  PR13b–7.2  Press is set up and operated in accordance with OH&S guidelines
  PR13b–7.3  Print impressions are set to minimum kiss impression
  PR13b–7.4  Web tensions are correctly set at unwind, between stations and rewind
  PR13b–7.5  The print is checked for register
  PR13b–7.6  Drying is checked as sufficient to key ink to the substrate
  PR13b–7.7  The viscosities are adjusted to obtain the correct colour at proof speed
  PR13b–7.8  The substrate is checked against job ticket

PR13b–8  Organise proof inspection and / or testing
  PR13b–8.1  Proof is visually inspected and / or tested or laboratory testing organised in accordance with enterprise procedures
  PR13b–8.2  Production does not commence without customer OK or authority where appropriate

PR13b–9  Readjust settings to production speed
  PR13b–9.1  Production speed print results are interpreted and appropriate adjustments are made to press, ink and substrate settings
  PR13b–9.2  Adjustments are made according to product specifications and press performance
  PR13b–9.3  Web is spliced at production speed and further samples are obtained for quality inspections at appropriate intervals

Range of Variables

Inks / coatings  Range of standard inks commonly used in 1–2 colour printing
Colour matching systems  Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions
Machines
A range of stack, in–line and central impression flexographic printing machines with manual, semi–automated, fully automated or computerised process control

Design
Simple graphics and text. Minor variation in registration and position

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel and small or large sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

**Evidence Guide**

**Required evidence**
Demonstrate all safety devices on the machine.

Set up a press on TWO occasions for basic flexographic printing (if possible including at least ONE in–line process), according to enterprise requirements, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- job requirements
- flexographic printing plates and cylinders or sleeves or plate mounting sheets
- reel in–feed OR
- sheet in–feed
- reel delivery system OR
- sheet delivery system
- selection and preparation of inks and additives
- machine set up
- basic in–line processes
- proofing and adjustment
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a limited range of circumstances.*

**Job requirements**
What would you do if vital information was missing from the job ticket?
What checks were undertaken prior to set up (availability of materials etc.)?

**Flexographic printing plates and cylinders or sleeves or plate mounting sheets**
What precautions should be taken to avoid damaging plates and cylinders

**Reel in–feed**
What OH&S factors need to be considered when operating the reel in feed and delivery system?
How was the printing side of the material chosen?
What would be the effect of low web tension on the print?
What other types of web splices could be used appropriate for the job?
Sheet in–feed

- What OH&S factors need to be considered when operating the sheet in feed and delivery system?
- Why is the sheet normally set up in the middle of the machine?
- What effect does side lay selection have on the job?
- How would the appropriate front lays be selected?
- What determines the position of the sheet before it is transported to the printing unit?
- How would a register check be carried out?
- Why is a two sheet cut used on most feeders?
- How does the machine know if a sheet is missing or late?

Reel delivery system

- What would be the effect of excessive web tension at the rewinding of the machine?
- How would you minimise three risks associated with the rewind of the machine?

Sheet delivery system

- Why is the application of spray powder sometimes advisable?
- What are the effects of too much spray powder?
- Why may slowdown devices be used in the delivery?
- What effect would excessive jogging have on the stack?

Selection and preparation of inks and additives

- What are the major environmental and OH&S concerns with regard to inks and additives?
- How is the suitability of ink matched to the particular job?
- What would happen if the ink were too viscous?
- How would an ink that was slightly light be modified to meet the needs of the job?
- What methods are available to check the ink for correct colour?
- Who passes the colour prior to running the job?

Machine set up

- What OH&S factors need to be considered when setting up the machine?
- How are the machine specifications determined, relating to the specific job?
- What steps should be taken to ensure that the inking system is adjusted correctly?
- Why is the inking system ink level maintained at a certain level?
- What precautions are necessary when handling doctor / chamber blades?
- What is the optimum make ready speed for the job?

Basic in–line processes

- What steps are taken to incorporate the in–line processes into the make ready?
- How is the equipment used in in–line processing protected against damage during set up?
- What precautions should be taken if UV drying is utilised to dry the ink film?

Proofing and adjustment

- What methods can be used to minimise waste during make ready?
- What procedures are followed to have the print approved?
- What quality control measurements should be applied to the proof to test against known standards?
- What do you check on the initial print prior to running?
- How are the settings to be adjusted determined?
- What processes are used to plot the success of the machine adjustment?
- How are the final results recorded for future reference?

Information sources

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR13d  Set up for complex flexographic printing

Elements and Performance Criteria

PR13d–1  Read and interpret job requirements from job documentation or production control system
   PR13d–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage
   PR13d–1.2  Proofed job is checked for conformance with job ticket

PR13d–2  Set up reel transportation and delivery system on web-fed machine
   PR13d–2.1  Reels are checked for treatment levels, coatings and printing side
   PR13d–2.2  Unwind reels are secured on reel shaft
   PR13d–2.3  Reels are correctly positioned on unwind stand
   PR13d–2.4  Press is webbed for surface or reverse or perfecting printing according to job specifications
   PR13d–2.5  Edge guide is centred and set
   PR13d–2.6  Unwind tension is set to suit substrate
   PR13d–2.7  Rewind tension is set to suit substrate
   PR13d–2.8  Nip rollers are set
   PR13d–2.9  PIV (Positively Infinitely Variable) drive is set for appropriate tensioning of substrate

PR13d–3  Select and prepare inks and solvents
   PR13d–3.1  Inks and solvents are selected in accordance with job requirements and end-user requirements
   PR13d–3.2  Quality and suitability of inks and solvents are checked and appropriate action is taken
   PR13d–3.3  Inks and solvents are prepared in accordance with OH&S requirements, and manufacturers’ / suppliers’ instructions with suitable precautions to minimise waste
   PR13d–3.4  Correct colour and weight / volume of ink is mixed and viscosities checked and modified to suit the press and job specifications
   PR13d–3.5  Ink formula and approved colour draw downs appropriately recorded
   PR13d–3.6  Inks and solvents are appropriately labelled, handled and stored in accordance with manufacturers’ / suppliers’ instructions and the relevant hazardous liquids storage regulations

PR13d–4  Set up machine for complex flexographic printing
   PR13d–4.1  Flexographic plate cylinders are installed and register adjustments centred OR
   PR13d–4.2  Sleeves are installed in press and register adjustments made OR
   PR13d–4.3  Plate mounting sheets are mounted on cylinders in press and register adjustments made
   PR13d–4.4  Plate cylinders are gauged up or pre-set to impression
   PR13d–4.5  Anilox rollers are selected to suit individual colour and plate reproduction requirements for each unit
   PR13d–4.6  Appropriate ink metering system is selected for each unit
   PR13d–4.7  Inking system is set up and roller nips / blade(s) are set correctly
PR13d–4.8 Ink circulation is maintained at correct level
PR13d–4.9 Viscosities are adjusted to suit job
PR13d–4.10 Air volume and drier temperatures are selected to suit inks, substrate, solvents and job specifications
PR13d–4.11 Air volume is adjusted between colours to maximise drying and minimise air overspill

**PR13d–5 Set up in-line units for basic process(es)**

PR13d–5.1 Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
PR13d–5.2 Assistance is given in set up of major in-line printing / converting / binding unit(s).
(NOTE: if entire set up is done refer to appropriate competency standards)

**PR13d–6 Conduct proof run**

PR13d–6.1 Material to be used for proof is organised correctly
PR13d–6.2 Press is set up and operated in accordance with OH&S guidelines
PR13d–6.3 Print impressions are set to minimum kiss impression
PR13d–6.4 Web tensions are correctly set at unwind, between stations and rewind
PR13d–6.5 The print is checked for register
PR13d–6.6 Drying is checked as sufficient to key ink to the substrate
PR13d–6.7 The viscosities are adjusted to obtain the correct colour at proof speed
PR13d–6.8 The substrate is checked against job ticket

**PR13d–7 Organise proof inspection and/or testing**

PR13d–7.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures
PR13d–7.2 Production does not commence without customer OK or authority where appropriate

**PR13d–8 Readjust settings to production speed**

PR13d–8.1 Production speed print results are interpreted and appropriate adjustments are made to press, ink and substrate settings
PR13d–8.2 Adjustments are made according to product specifications and press performance
PR13d–8.3 Web is spliced at production speed and further samples are obtained for quality inspections at appropriate intervals

**Range of Variables**

- **Inks / coatings**
  Range of inks commonly used in 3 or more colour printing, including standard and special colours

- **Colours matching systems**
  Use of viscosity controls, densitometers and spectrophotometry

- **Machines**
  Range of stack, in-line and central impression flexographic printing machines with manual, semi-automatic, fully automated or computerised process control

- **Design**
  Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

- **In-line processes**
  Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a
major in-line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide and narrow reel delivery systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Set up a flexographic printing machine for a complex job on TWO occasions (if possible using different substrates) (and if possible including at least TWO in-line process) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- interpreting job requirements
- mounting and proofing flexographic plates
- installation of printing cylinders or sleeves
- reel transportation system
- delivery system
- preparing inks and additives
- machine set-up
- in-line processes
- problem solving proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Interpreting job requirements
Why is it necessary to ensure that the job requirements are read and properly understood?
What production problems could eventuate by not reading and understanding the job requirements?
Whom would you discuss any production problems with?

Mounting and proofing of flexographic plates
What OH&S factors need to be considered when mounting and proofing flexographic plates?
What is the most common cause of photopolymer plates crazing on the image side?
Why is resiliency of the printing plate important?
What is the main advantage of using thin photopolymer plates in process printing?
What faults may be detected on new plates?
What type of solvents should be used on photopolymer plates?
What does the term V–block mounting mean?
How is V–block mounting achieved?
What are the benefits of optical mounting?
What is the purpose of binding plates after mounting?
What possible print faults could eliminated by using cushion mount?
Installation of printing cylinders or sleeves
What OH&S factors need to be considered when installing printing cylinders or sleeves?
What precautions should be taken to ensure that the plates and cylinders or sleeves are not damaged during installation?
What needs to be checked to ensure plates cylinders or sleeves have been installed correctly?

Reel transportation system
What OH&S precautions must be observed when webbing up the machine?
How do you determine the position of the reel?
How is the substrate pulled into the machine?
What is the result of insufficient unwind tension?
What is the result of excessive unwind tension?
What is the function of the “Dancer” roller on a web machine?
What is the function of the PIV unit?
What is the result of adjustments to the PIV?
What is the function of the lay–on roller?
What will be the effect of excessive lay–on roller pressure?
What can happen if the web is not spliced correctly?
How does the particular web viewing device work?

Delivery system
What OH&S precautions must be observed when setting up the delivery?
How is the web controlled in the rewind unit?
What is the result of incorrect re–wind tension?
What remedial steps can be taken if there is a possibility of the ink marking in the re–wind?
What function does the use of air blast play in the delivery of sheets?

Preparing inks and additives
What OH&S precautions must be observed when preparing inks and additives?
What details are necessary to check an ink's suitability for the printing process?
What special end use requirements may be necessary?
What is the main function of a pigmented extender used in flexographic printing?
Why are plasticisers added to flexographic inks?
Why are other additives used in flexographic inks?
What is the range in seconds for zahn cup measurements?
What effect does foaming have in a zahn cup when measuring the ink viscosity?
What is the recommended pH range when printing with aqueous inks?
What precautions do you observe to minimise waste when preparing the ink?
What is the shelf life of most inks?
What conditions are relevant to the storage of inks and additives?
What conventions should be adhered to when labelling mixed inks?

Machine set–up
What OH&S factors need to be considered when setting up the machine?
What is the advantage of centring all machine controls?
What checks should be made on cylinders and gears?
What checks should be performed prior to cylinder or sleeve installation?
What angle should the chamber blades be set?
What is the main advantage of gauging up and dry register prior to printing a job?
What cell count of the anilox roller is used when printing solids?
Why should water treatment additives be used in central impression drum and chill roller coolant system?
What are the advantages of laser engraved ceramic anilox rollers?
What are three things relating to the anilox roller that a roller scope will measure?
What could be the reasons for anilox wear?
What type of job would be printed using a hexagonal cell configuration?
What is the recommended web temperature when printing polypropylene film?
What method of drying is used when printing on polythene by the flexographic process?
What factors effect the drying rate of liquid inks?
What factors effect the drying of aqueous inks?
What is the operating range of UV lamps?

In–line processes
What OH&S precaution must be observed when slitting on the machine?
How is a cold seal formed?
What are the reasons for a printed product to be punched?
What do you need to consider when setting hole punching in relation to repeat length?
What would be the result of excessive pressure on the slitters?

Problem solving proofing and adjustment

- Why is it necessary to graduate the drying speeds of each progressive colour, so that first down colours dry faster the subsequent colours?
- Why is it that in flexographic printing as the press speed increases so does the colour strength?
- What could cause a decrease in web tension?
- What could be the result of increasing re–wind tension after the roll has been partially re–wound?
- What would be the major cause of a telescopic roll?
- What print characteristics are related to excessive printing pressure?
- What causes picking when printing multi–colour work?
- What are the print faults resulting from using an over reduced ink?
- What problems can cause lateral streaks showing up in uneven printing?
- What are the causes of moire patterns when printing by the flexographic process?
- What is the result air being trapped under mounted plates?
- What is the instrument used to identify retained solvent trapped in the print?
- What is the purpose of taking Dyne readings?
- What is the purpose of the crinkle test when testing an ink?
- What would be the result if excessive final drying temperature was used when printing polypropylene film?
- What property of ink, can be adjusted to reduce dot gain?
- When checking the viscosity for an ink whilst using ink pumps, why should the ink returning from the ink fountain not be used?
- What problems are the result of excessive use of slow solvents?
- How does the "yield value" of an ink affect the ink transfer of halftone dots?
- Why do laminating inks once printed appear dull and easy to scratch?
- What will be the result of excessive print area tension?
- What are some of the problems which the printer may associate with cold seals?

Information sources

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PR14c   Produce basic flexographic printed product

Elements and Performance Criteria

PR14c–1   Maintain operation of reel transportation system on web–fed machine (OR PR14c–2)
PR14c–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
PR14c–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
PR14c–1.3 Substrate is added to process according to job instructions

PR14c–2   Maintain operation of sheet transportation system on sheet–fed machine (OR PR14c–1)
PR14c–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
PR14c–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
PR14c–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
PR14c–2.4 Substrate is added to process according to job instructions

PR14c–3   Maintain operation of reel delivery system on web–fed machine (OR PR14c–4)
PR14c–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
PR14c–3.2 Substrate is removed from process according to job instructions
PR14c–3.3 Sheeting action is monitored and adjusted to ensure quality and efficient product delivery
PR14c–3.4 Set–off / marking prevention system is monitored and adjusted to ensure quality of printed product without set–off or marking meets the standard of approved proof

PR14c–4   Maintain operation of sheet delivery system on sheet–fed machine (OR PR14c–3)
PR14c–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery
PR14c–4.2 Set–off / marking prevention system is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR14c–5   Maintain basic flexographic printing process
PR14c–5.1 Flexographic plate and plate cylinder or sleeve condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof
PR14c–5.2 Flexographic impression roller condition is monitored to ensure the quality of printed product meets the standard of approved proof
PR14c–5.3 Flexographic inking system and doctor blade are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR14c–5.4 Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR14c–6   Maintain basic in–line process(es)
PR14c–6.1 Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR14c–7   Maintain production process
PR14c–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

PR14c–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

PR14c–7.3 Manual and/or automatic control is used as per specification

PR14c–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

PR14c–7.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run

PR14c–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

PR14c–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures

PR14c–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR14c–7.9 Waste is sorted according to enterprise procedures

PR14c–8 Liaise with customers

PR14c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR14c–9 Identify and investigate flexographic machine operating problem

PR14c–9.1 Problem in flexographic machine operation is identified and reported in accordance with enterprise requirements

PR14c–10 Rectify minor flexographic machine faults

PR14c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR14c–10.2 Flexographic machine operation is checked to ensure correct operation

PR14c–11 Conduct shut down of production process

PR14c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR14c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR14c–11.3 Reels and cores are removed from press if web fed

PR14c–11.4 Unused ink is drained back to containers and correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR14c–11.5 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR14c–11.6 All product is removed from operating area

PR14c–11.7 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR14c–11.8 Repair / adjustment is verified prior to resumption of operations

PR14c–12 Clean and wash up printing machine at end of print run

PR14c–12.1 Cylinders or sleeves, plate and roller surfaces are cleaned ready for next run

PR14c–12.2 Inking rollers and doctor blades or chamber blade systems are cleaned with correct solvents in accordance with OH&S guidelines

PR14c–12.3 Ink pumps, tanks and hoses are cleaned correctly

PR14c–12.4 Impression rollers / central impression and press rollers are cleaned
PR14c–12.5 In-line printing / converting / binding / finishing units are cleaned ready for next run
PR14c–12.6 Reel or sheet feed transportation and delivery systems are disengaged and cleaned ready for next run
PR14c–12.7 Press is lubricated and protected according to duration of shut down

**PR14c–13 Complete records and evaluation (eg team de–brief)**

PR14c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

### Range of Variables

- **Inks / coatings**: Range of standard inks commonly used in 1–2 colour printing
- **Colour matching systems**: Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions
- **Machines**: A range of stack, in-line and central impression flexographic printing machines with manual, semi–automated, fully automated or computerised process control
- **Design**: Simple graphics and text. Minor variation in registration and position
- **In–line processes**: Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
- **Substrate types**: Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
- **Substrate handling**: Wide or narrow reel or large or small sheet handling systems
- **Degree of autonomy**: Working to defined procedures under limited supervision

### Evidence Guide

**Context**
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

**Required evidence**
Produce TWO basic flexographic printing jobs (if possible including at least ONE in–line process) according to job and workplace specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- reel transportation and delivery OR
- sheet transportation and delivery
- flexographic printing operations
- in–line processes
- quality control and problem solving
- shutdown and wash up the press
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel transportation and delivery

What OH&S concerns are there when loading and handling heavy reels?
How is the printing side of the substrate determined?
What would be the effect on the print of excessive tension on the unwinding reel?
What can happen if the web is not spliced correctly?

Sheet transportation and delivery

What OH&S factors need to be considered when operating the sheet transportation and delivery systems?
Why are the sheets fanned before loading into the press?
Why is it important that the double sheet detector be set and checked during the print run?
What will happen if the web is not spliced correctly?
What components can be adjusted to ensure correct delivery?
What effect could excessive suction on the slow down wheels have?

Flexographic printing operations

How frequently should the quality of the product be assessed?
What could be done if the print was filling in when printing?
What effect would dirt under the doctor blade have on the print?
Why does the doctor blade oscillate?
What action can be taken if the ink in the duct is foaming?
What are the signs of wear in the image area of the plate?

In–line processes

What are the OH&S concerns for the in–line component of the press?
How frequently should the in–line components of the job be examined?

Quality control and problem solving

What should be monitored to ensure quality?
What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
How is printed material that is not of an acceptable standard identified?
How is product that is deemed unacceptable by the operator marked?
Who would be consulted if there were a problem with the print that was not able to be fixed by the operator?
Where can information concerning the correct operation of the machine be found?

Shutdown and wash up the press

What dangers exist from solvents and solutions used to clean the inking system, plate and the press?
What methods are used to ensure proper storage of the plates following printing?
What parts of the machine should be thoroughly cleaned following the print run?
What components are to be inspected for wear following the print run?
What records are important for following or repeat prints?

Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR14d  Produce complex flexographic printed product

Elements and Performance Criteria

PR14d–1  Maintain operation of reel transportation system on web–fed machine
  PR14d–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
  PR14d–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
  PR14d–1.3  Substrate is added to process according to job instructions

PR14d–2  Maintain operation of reel delivery system on web–fed machine
  PR14d–2.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
  PR14d–2.2  Substrate is removed from process according to job instructions
  PR14d–2.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery
  PR14d–2.4  Set–off / marking prevention system is monitored and adjusted to ensure quality of printed product without set–off or marking meets the standard of approved proof

PR14d–3  Maintain complex flexographic printing process
  PR14d–3.1  Flexographic plate and plate cylinder or sleeve condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof
  PR14d–3.2  Flexographic impression roller condition is monitored to ensure the quality of printed product meets the standard of approved proof
  PR14d–3.3  Flexographic inking system and doctor blade condition are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
  PR14d–3.4  Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR14d–4  Maintain operation of in–line processes
  PR14d–4.1  In–line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR14d–5  Maintain production process
  PR14d–5.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  PR14d–5.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
  PR14d–5.3  Manual and/or automatic control is used as per specification
  PR14d–5.4  Performance is monitored and verified using the process control system in accordance with company procedures
  PR14d–5.5  Ink performance, colour, register and position of print are monitored and adjusted throughout production run
  PR14d–5.6  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
  PR14d–5.7  Process adjustments to eliminate problems are reported in accordance with company procedures
PR14d–5.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR14d–5.9 Waste is sorted according to enterprise procedures

**PR14d–6 Liaise with customers**

PR14d–6.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

**PR14d–7 Identify and investigate flexographic machine operating problem**

PR14d–7.1 Problem in flexographic machine is identified and reported in accordance with enterprise requirements

**PR14d–8 Rectify minor flexographic machine faults**

PR14d–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

PR14d–8.2 Flexographic machine operation is checked to ensure correct operation

**PR14d–9 Conduct shut down of production process**

PR14d–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

PR14d–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR14d–9.3 Reels and cores are removed from press

PR14d–9.4 Unused ink is drained back to containers and correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR14d–9.5 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR14d–9.6 All product is removed from operating area

PR14d–9.7 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR14d–9.8 Repair / adjustment is verified prior to resumption of operations

**PR14d–10 Clean and wash up printing machine at end of print run**

PR14d–10.1 Cylinders or sleeves, plate and roller surfaces are cleaned ready for next run

PR14d–10.2 Inking rollers and doctor blades or chamber blade systems are cleaned with correct solvents in accordance with OH&S guidelines

PR14d–10.3 Ink pumps, tanks and hoses are cleaned correctly

PR14d–10.4 Impression rollers / central impression and press rollers are cleaned

PR14d–10.5 In–line printing / converting / binding / finishing units are cleaned ready for next run

PR14d–10.6 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR14d–10.7 Press is lubricated and protected according to duration of shut down

**PR14d–11 Complete records**

PR14d–11.1 Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

Inks / coatings
Range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems
Use of viscosity controls, densitometers and spectrophotometry

Machines
Range of stack, in–line and central impression flexographic printing machines with manual, semi–automatic, fully automated or computerised process control

Design
Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide and narrow reel delivery systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Monitor production output and make necessary adjustments to maintain print quality on a flexographic machine whilst producing a complex print on TWO occasions (if possible using different substrates) (and if possible including at least TWO in–line processes) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* reel transportation and web control
* reel delivery for rewinding and sheeting
* printing and drying units
* in–line processes
* maintaining production process
* customer liaison
* flexographic machine operating problems
* shut down procedures
* cleaning and washing up the printing unit
* cleaning feed, transportation, delivery and in–line section
* completing production records
* information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.
Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Reel transportation and web control
- What could cause the reel to wander?
- What could cause the web to break at the unwind unit?
- What is the difference between a "flying paster" and "zero speed" type reel–stand?
- What print fault would result from the reel being run out of centre?
- What possible faults in the unwind section could cause a web break?

Reel delivery for rewinding and sheeting
- What are the OH&S risks associated with rewinding and sheeting?
- What safety feature is in the delivery system if the web jams up?
- Why would the sheet cut–off wander?
- What is the effect of poorly adjusted nip rollers when rewinding and sheeting?

Printing and drying units
- What could be the result if the plate lifts on the leading edged during a print run?
- How could a build up of ink on the impression cylinder affect the printed product?
- What could cause the ink to foam in the ink tray?
- What action reduces wear of the doctor blade?
- Why is it necessary that all solvents be removed from the final ink film?
- What is the link between driers and set off and marking?
- What causes UV ink to dry?
- What could cause the substrate to distort?
- What would be the result if the drying temperature was too low?
- What is the effect of incorrect drying temperature on the finished product?
- Why is it not advisable to eat or drink near the machine when using UV inks?

In–line processes
- Why is it necessary to frequently examine the in–line components of the job?
- How was the consistency of the punching unit checked?
- What would be the result of excessive pressure on the slitters?

Maintaining production process
- What safety features within the organisation aid in maintaining effective production?
- Who would be held legally responsible for the removal of machine guards and/or disconnection of micro switches?
- What is the effect of inadequate communication within the work team on a flexographic printing machine?
- What are the ramifications if machine guards are removed and/or micro switches are disconnected on a machine?
- What other measurement besides optimum solid ink density can be measured to assess print quality?
- What is the most accurate method of checking register during a production run?
- Why is it necessary to take immediate action when production problems are anticipated?
- What action is taken to eliminate further processing of unacceptable printed product?
- What will be the result to the substrate if the relative humidity is increased in the pressroom?
- What is the procedure to care for a newly delivered substrate to the pressroom?
- Why should waste be sorted?
- What is the advantage of keeping reusable waste?

Customer liaison
- What industry standards can be applied to enhance effective communication with the customer?
- What are the necessary procedures that the customer should follow to “OK” a printed product?

Flexographic machine operating problems
- When would it be necessary to call service personnel to correct a machine problem?
- What enterprise processes are in place to report any machine operating problems?

Shut down procedures
- What would be the result if correct shut down procedures were not followed?
- Why is it necessary that correct shutdown procedures are conducted with fellow workers?
- What advantages results from proper labelling and storage of excess inks and materials?
- Why should the printed product be clearly labelled prior to removal from the press room?
- What further operations are required for printed reels upon removal from the printing machine?
How should the printed job be stored after removal from the printing machine?

Cleaning and washing up the printing unit
   What OH&S concerns should be observed when handling ink?
   What safety precautions should be observed when cleaning the printing cylinders?
   Why is it necessary to thoroughly clean and wash up the printing unit prior to the next print run?
   Why should the anilox cells be thoroughly cleaned?
   How can plates be stored so as to minimise damage?

Cleaning feed, transportation, delivery and in-line section
   What are the OH&S precautions to be observed when cleaning these sections of the machine?
   Why is it necessary to maintain a clean substrate handling section of the machine?

Completing production records
   How are completed records used in the final analysis of the job?
   What are the benefits of comprehensive records when considering the production of future jobs?

Information sources
   What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
   What information is included in these documents?
   What other sources of information are available?
PR21b  Set up for basic gravure printing

Elements and Performance Criteria

PR21b–1  Read and interpret job requirements from job documentation or production control system

PR21b–1.1  Set up is carried out correctly in minimum time with minimum wastage

PR21b–2  Install gravure cylinders into machine

PR21b–2.1  Appropriate gravure cylinders are selected and secured to the machine

PR21b–3  Set up reel transportation system on web-fed machine

PR21b–3.1  Unwind reel is set up and adjusted to suit job requirements
PR21b–3.2  Webbing procedures are carried out to suit job requirements
PR21b–3.3  Web-control system is set up and adjusted to suit job requirements
PR21b–3.4  Reels are spliced / joined to suit job requirements
PR21b–3.5  Printed web viewing devices are set up and adjusted to suit job requirements

PR21b–4  Set up reel delivery system on web-fed machine

PR21b–4.1  Rewind reel is set up and adjusted to suit job requirements
PR21b–4.2  Folder is set up and adjusted to suit job requirements
PR21b–4.3  Sheeter is set up and adjusted to suit job requirements
PR21b–4.4  Set off / marking prevention devices are set up and adjusted to suit job requirements

PR21b–5  Select and prepare inks and additives (basic)

PR21b–5.1  Inks, dyes or additives are selected in accordance with job requirements and end-user requirements
PR21b–5.2  Quality and suitability of inks, dyes or additives are checked and appropriate action is taken
PR21b–5.3  Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
PR21b–5.4  Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
PR21b–5.5  Formulation of the ink, colour match and the approved colour is appropriately recorded
PR21b–5.6  Inks, dyes and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

PR21b–6  Set up machine for basic gravure printing

PR21b–6.1  Gravure cylinders are set up and adjusted to suit job requirements
PR21b–6.2  Impression roller is set up and adjusted to suit job requirements
PR21b–6.3  Inking system / doctor blade is set up and adjusted to suit gravure process and job requirements
PR21b–6.4  Drying system is set up and adjusted to suit job requirements

PR21b–7  Set up in-line units for basic process(es)
PR21b–7.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR21b–7.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR21b–8 Conduct proof run

PR21b–8.1 Material to be used for proof is organised correctly

PR21b–8.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR21b–9 Organise proof inspection and/or testing

PR21b–9.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR21b–9.2 Production does not commence without customer OK or authority where appropriate

PR21b–10 Readjust settings

PR21b–10.1 Results are interpreted to determine adjustment requirements

PR21b–10.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Inks / coatings: Range of standard inks commonly used in 1–2 colour printing
Colour matching systems: Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions
Machines: A range of in–line gravure printing machines with manual, semi–automated, fully automated or computerised process control
Design: Simple graphics and text. Minor variations in registration and position
In–line processes: Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types: Range of substrates within the major categories of paper, board, or plastics or metal
Substrate handling: Wide or narrow reel handling systems
Degree of autonomy: Working to defined procedures under limited supervision

Evidence Guide

Required evidence

Demonstrate all safety devices on the machine.

Set up a press on TWO occasions for basic gravure printing (if possible including at least ONE in–line process) according to enterprise requirements, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* job requirements
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Job requirements
What would you do if vital information was missing from the job ticket?
What checks were undertaken prior to set up (availability of materials etc.)?

Cylinders
How were the correct cylinders chosen for the job?
Name three important considerations when handling gravure cylinders?
What parts of the unit need to be checked to ensure the cylinder is correctly installed?

Reel in–feed on the machine
What OH&S factors need to be considered when operating the reel in–feed and delivery systems?
How was the printing side of the material chosen?
What would be the effect of low web tension on the print?
What other types of web splices could be used appropriate for the job?

Delivery system on the machine
Name THREE risks associated with the rewind of the machine
What would be the effect of excessive web tension at the rewind of the machine?

Selection and preparation of inks and additives
What are the environmental and OH&S concerns with regard to inks and additives?
How is the suitability of ink matched to the particular job?
What would happen if the ink were too viscose?
How would an ink that was slightly light be modified to meet the needs of the job?
Who passes the colour prior to running the job?

Machine set up
What precautions are necessary when handling doctor blades?
How are the machine specifications determined, relating to the specific job?
What steps should be taken to ensure that the inking system was adjusted correctly?
Why is the inking system ink level maintained at a certain level?
What is the optimum make ready speed for the job?

Basic in–line processes
What steps are taken to incorporate the in–line processes into the make ready?
How is the equipment used in in–line processing protected against damage during set up?

Proofing and adjustment
What methods can be used to minimise waste during make ready?
What procedures are undertaken to have the print approved?
What quality control measurements should be applied to the proof to test against know standards?
What do you check on the initial print prior to running?
How are the settings to be adjusted determined?
What process is used to plot the success of the machine adjustment?
How are the final results recorded for future reference?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR21d  Set up for complex gravure printing

Elements and Performance Criteria

PR21d–1  Read and interpret job requirements from job documentation or production control system
PR21d–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

PR21d–2  Install gravure plates / cylinders into machine
PR21d–2.1  Appropriate gravure plates / cylinders are selected and secured to the machine

PR21d–3  Set up reel transportation system on web-fed machine
PR21d–3.1  Unwind reel is set up and adjusted to suit job requirements
PR21d–3.2  Webbing procedures are carried out
PR21d–3.3  Web-control system is set up and adjusted to suit job requirements
PR21d–3.4  Reels are spliced / joined to suit job requirements
PR21d–3.5  Printed web viewing devices are set up and adjusted to suit job requirements

PR21d–4  Set up reel delivery system on web-fed machine
PR21d–4.1  Rewind reel is set up and adjusted to suit job requirements
PR21d–4.2  Folder is set up and adjusted to suit job requirements
PR21d–4.3  Sheet is set up and adjusted to suit job requirements
PR21d–4.4  Set off / marking prevention devices are set up and adjusted to suit job requirements

PR21d–5  Select and prepare inks and additives
PR21d–5.1  Inks, dyes or additives are selected in accordance with job requirements and end-user requirements
PR21d–5.2  Quality and suitability of inks, dyes or additives are checked and appropriate action is taken
PR21d–5.3  Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
PR21d–5.4  Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
PR21d–5.5  Formulation of the ink, colour match and the approved colour is appropriately recorded
PR21d–5.6  Inks, dyes and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

PR21d–6  Set up machine for complex gravure printing
PR21d–6.1  Gravure cylinders are set up and adjusted to suit job requirements
PR21d–6.2  Impression roller is set up and adjusted to suit job requirements
PR21d–6.3  Inking system / doctor blade is set up and adjusted to suit gravure process and job requirements
PR21d–6.4  Drying system is set up and adjusted to suit job requirements

PR21d–7  Set up in-line unit(s)
PR21d–7.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR21d–7.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR21d–8 Conduct proof run

PR21d–8.1 Material to be used for proof is organised correctly

PR21d–8.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR21d–9 Organise proof inspection and/or testing

PR21d–9.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR21d–9.2 Production does not commence without customer OK or authority where appropriate

PR21d–10 Readjust settings

PR21d–10.1 Results are interpreted to determine adjustment requirements

PR21d–10.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Inks / coatings Range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems Use of viscosity controls, densitometers and spectrophotometry

Machines Range of stack, in–line and central impression printing machines with manual, semi–automated, fully automated or computerised process control

Design Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types Range of substrates within the major categories of paper, board, plastics and related films, or metal

Substrate handling Wide and narrow reel handling systems

Degree of autonomy Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Set up a gravure printing machine for a complex job on TWO occasions (if possible using different substrates) (and if possible including at least TWO in–line process) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- job requirements
- printing cylinders
- reel transportation system
- delivery system
- inks and additives
- in–line units
- problem solving proofing and adjustment
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

**Job requirements**

- Why is it necessary to ensure that the job requirements are read and properly understood?
- What production problems could eventuate by not reading and understanding the job requirements?
- Who would you discuss any production problems with?

**Printing cylinders**

- What OH&S precaution must be observed when installing printing cylinders on the machine?
- How should you determine the optimum print sequence?
- What visual aid on the cylinder identifies the colour of ink to be used?
- What precautions were taken to ensure that the cylinders were not damaged during installation?

**Reel transportation system**

- What OH&S precautions must be observed when webbing up the machine?
- How should you determine the position of the reel?
- What can happen if the brake tension is not set correctly?
- What is the function of the "Dancer" roller on a web machine?
- What can happen if the web is not spliced correctly?
- How does the particular web viewing device work?
- What is the principle of ESA roller operation on the gravure printing machine?
- On what type of substrate should the ESA roller be used?

**Delivery system**

- What OH&S precautions must be observed when setting up the delivery?
- How is the web controlled in the rewind unit?
- What is the result of incorrect re–wind tension?
- What remedial steps can be taken if there is a possibility of the ink marking in the re–wind?
- What would be the problems attributed to a blunt knife when sheeting?
- What function does the use of air blast play in the delivery of sheets?

**Inks and additives**

- What OH&S precautions must be observed when preparing inks and additives?
- What details are necessary to check an ink's suitability to the printing process?
- What special end use requirements may be necessary?
- Why are additives used in gravure inks?
- What is the range in seconds for zahn cup measurements?
- What effect does foaming have in a zahn cup when measuring the ink viscosity?
- Why should pigmented ink be brought to operating temperature before correcting the viscosity?
- Why are these checks essential?
- What is the advantage of using automatic viscosity controllers?
- What precautions do you observe to minimise waste when preparing the ink?
- What is the shelf life of most inks?
- What conditions are relevant to the storage of inks and additives?
What conventions should be adhered to when labelling mixed inks?

Machine set-up
  - What OH&S factors need to be considered when setting up the machine?
  - What is the function of chill rollers on a machine?
  - What is the main advantage of gauging up and dry register prior to printing a job?
  - What would be result of excess printing pressure
  - How was the pressure to be applied to the doctor blade determined?
  - What print faults could be caused by excessive overspill of air from the inter-colour drier?
  - What is the recommended air ratio for efficient inter-colour drying?
  - What are the advantages of using high velocity air in the drying system?

In-line units
  - What OH&S precaution must be observed when slitting on the machine?
  - What is the pre-heat web temperature required for lamination?
  - What are the reasons for a printed product to be punched?
  - What do you need to consider when setting hole punching in relation to repeat length?
  - What is the purpose of the dwell when cutting and creasing in-line
  - How is the ratio of print to in-line speed controlled?
  - What would be the result of excessive pressure on the slitters?

Problem solving, proofing and adjustment
  - What will cause the doctor blade to wear on a gravure printing unit?
  - How can the wear of the doctor blade be reduced?
  - How was the optimum make ready speed determined for the job?
  - How were the steps involved in make ready communicated to other team members
  - Why is it necessary to graduate the drying speeds of each progressive colour, so that first down colours dry faster the subsequent colours?
  - What could cause a decrease in web tension?
  - What could be the result of increasing re-wind tension after the roll has been partially re-wound
  - What would be the major cause of a telescopic roll?
  - How would you test metallised film to find out which is the correct side on which to print?
  - How is the metallised surface measured for coating thickness?
  - How does annealing affect aluminium foil?
  - What is the purpose of using thermal imaging face stocks?
  - How are substrates metallised?
  - What are the customer requirements for bar codes?
  - What print characteristics are related to excessive printing pressure?
  - What causes picking when printing multi-colour work?
  - What are the print faults resulting from using an over reduced ink?
  - What are the causes of moire patterns when printing by the gravure process?
  - What is the instrument used to identify retained solvent trapped in the print?
  - What is the purpose of taking Dyne readings?
  - What is the purpose of the crinkle test when testing an ink?
  - What would be the print faults resulting from a worn doctor blade?
  - When checking the viscosity for an ink whilst using ink pumps, why should the ink returning from the ink fountain not be used?
  - What problems are the result of excessive use of slow solvents?
  - Why are laminating inks once printed appear dull and easy to scratch?
  - What will be the result of excessive print area tension?
  - What are some of the problems which the printer may associate with cold seals?
  - Who has the final say in the "OK" of the job?

Information sources
  - What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
  - What information is included in these documents?
  - What other sources of information are available?
PR22c  Produce basic gravure printed product

Elements and Performance Criteria

PR22c–1  Maintain operation of reel transportation system on web-fed machine
PR22c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
PR22c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
PR22c–1.3  Substrate is added to process according to job instructions

PR22c–2  Maintain operation of reel delivery system on web-fed machine
PR22c–2.1  Reel rewind is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
PR22c–2.2  Substrate is removed from process according to job instructions
PR22c–2.3  Sheetling section is monitored and adjusted to ensure quality and efficient product delivery
PR22c–2.4  Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof

PR22c–3  Maintain basic gravure printing process
PR22c–3.1  Gravure cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof
PR22c–3.2  Gravure impression roller condition is monitored and maintained to ensure the quality of printed product meets the standard of approved proof
PR22c–3.3  Gravure inking system and doctor blade are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR22c–3.4  Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR22c–4  Maintain basic in-line process(es)
PR22c–4.1  Basic in-line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR22c–5  Maintain production process
PR22c–5.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR22c–5.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
PR22c–5.3  Manual and/or automatic control is used as per specification
PR22c–5.4  Performance is monitored and verified using the process control system in accordance with company procedures
PR22c–5.5  Ink performance, colour, register and position of print are monitored and adjusted throughout production run
PR22c–5.6  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR22c–5.7  Process adjustments to eliminate problems are reported in accordance with company procedures
PR22c–5.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR22c–5.9 Waste is sorted according to enterprise procedures

PR22c–6 Identify and investigate gravure machine operating problem

PR22c–6.1 Problem in gravure machine operation is identified and reported in accordance with enterprise requirements

PR22c–7 Rectify minor gravure machine faults

PR22c–7.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

PR22c–7.2 Gravure machine operation is checked to ensure correct operation

PR22c–8 Liaise with customers

PR22c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR22c–9 Conduct shut down of production process

PR22c–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

PR22c–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR22c–9.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR22c–9.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR22c–9.5 All product is removed from operating area

PR22c–9.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR22c–9.7 Repair / adjustment is verified prior to resumption of operations

PR22c–10 Clean and wash up printing machine at end of print run

PR22c–10.1 Cylinders and roller surfaces are cleaned ready for next run

PR22c–10.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR22c–10.3 In–line printing / converting / binding / finishing units are cleaned ready for next run

PR22c–10.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR22c–11 Complete records

PR22c–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings  Range of standard inks commonly used in 1–2 colour printing

Colour matching systems  Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions

Machines  A range of in–line gravure printing machines with manual, semi–automated, fully automated or computerised process control

Design  Simple graphics, minor variations in registration and position
In–line processes

Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such.

Substrate types

Range of substrates within the major categories of paper, board, plastics and related films, or metal.

Substrate handling

Wide or narrow reel handling systems.

Degree of autonomy

Working to defined procedures under limited supervision.

Evidence Guide

Required evidence

Produce TWO basic gravure printing jobs (if possible including at least ONE in–line process) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel transportation and delivery
- gravure printing operations
- in–line processes
- quality control and problem solving
- shutdown and wash up the press
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel transportation and delivery

What OH&S concerns are there when loading and handling heavy reels?
How is the printing side of the substrate determined?
What would be the effect on the print of excessive tension on the rewinding reel?
What will happen if the web is not spliced correctly?

Gravure printing operations

How frequently should the quality of the product be assessed?
What could be done if the print was filling in when printing?
What effect would dirt under the doctor blade have on the print and the cylinder?
Why does the doctor blade oscillate?
How would a nick in the doctor blade be addressed?
What action can be taken if the ink in the duct is foaming?
What are the signs of wear in the image area of the plate?
At what level should the ink level be maintained?

In–line processes

What are the OH&S concerns for the in–line component of the press?
How frequently should the in–line components of the job be examined?

Quality control and problem solving

What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
How is printed material that is not of an acceptable standard identified?
What should be monitored to ensure quality?
How is product that is deemed unacceptable by the operator marked?
Who would be consulted if there were a problem with the print that was not able to be fixed by the operator?
Where can information concerning the correct operation of the machine be found?

**Shutdown and wash up the press**
- What dangers exist from solvents and solutions used to clean the inking system, cylinder and the press?
- What methods are used to ensure proper storage of the cylinders following printing?
- What parts of the machine should be thoroughly cleaned following the print run?
- What components are to be inspected for wear following the print run?
- What records are important for following or repeat prints?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR22d  Produce complex gravure printed product

Elements and Performance Criteria

PR22d–1  Maintain operation of reel transportation system on web-fed machine
PR22d–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
PR22d–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
PR22d–1.3  Substrate is added to process according to job instructions

PR22d–2  Maintain operation of reel delivery system on web-fed machine
PR22d–2.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
PR22d–2.2  Substrate is removed from process according to job instructions
PR22d–2.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery
PR22d–2.4  Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof

PR22d–3  Maintain complex gravure printing process
PR22d–3.1  Gravure cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the sample sheet
PR22d–3.2  Gravure impression roller condition is monitored and maintained to ensure the quality of printed product meets the standard of sample sheet
PR22d–3.3  Gravure inking system and doctor blade are monitored and adjusted to ensure quality of printed product meets the standard of sample sheet
PR22d–3.4  Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR22d–4  Maintain operation of in-line processes
PR22d–4.1  In-line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR22d–5  Maintain production process
PR22d–5.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR22d–5.2  Production is maintained within OH&S requirements and company and manufacturer’s specifications
PR22d–5.3  Manual and/or automatic control is used as per specification
PR22d–5.4  Performance is monitored and verified using the process control system in accordance with company procedures
PR22d–5.5  Ink performance, colour, register and position of print are monitored and adjusted throughout production run
PR22d–5.6  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR22d–5.7  Process adjustments to eliminate problems are reported in accordance with company procedures
PR22d–5.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR22d–5.9 Waste is sorted according to enterprise procedures

PR22d–6 Liaise with customers

PR22d–6.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR22d–7 Identify and investigate gravure machine operating problem

PR22d–7.1 Problem in gravure machine is identified and reported in accordance with enterprise requirements

PR22d–8 Rectify minor gravure machine faults

PR22d–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR22d–8.2 Gravure machine operation is checked to ensure correct operation

PR22d–9 Conduct shut down of production process

PR22d–9.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR22d–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR22d–9.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR22d–9.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR22d–9.5 All product is removed from operating area

PR22d–9.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR22d–9.7 Repair / adjustment is verified prior to resumption of operations

PR22d–10 Clean and wash up printing machine at end of print run

PR22d–10.1 Cylinders, plate and roller surfaces are cleaned ready for next run

PR22d–10.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR22d–10.3 In-line printing / converting / binding / finishing units are cleaned ready for next run

PR22d–10.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR22d–10.5 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

PR22d–11 Complete records

PR22d–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
Range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems
Use of viscosity controls, densitometers and spectrophotometry
Machines
Range of stack, in–line and central impression printing machines with manual, semi–automated, fully automated or computerised process control

Design
Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive materials, board, plastics and related films, or metal

Substrate handling
Wide and narrow reel handling systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Monitor production output and make necessary adjustments to maintain print quality on a gravure machine whilst producing a complex print on TWO occasions (if possible using different substrates) (and if possible including at least TWO in–line processes) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel transportation and web control
- reel delivery for rewinding and sheeting
- printing and drying unit
- in–line processes
- maintaining production process
- customer liaison
- gravure machine operating problems
- shut down procedures
- cleaning and washing up the printing unit
- cleaning feed, transportation, delivery and in–line section
- completing production records
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Reel transportation and web control
- What could cause the reel to wander?
- What could cause the web to break at the unwind unit?
- What is the difference between a "flying pastel" and "zero speed" type reelstand?
What print fault would result from the reel being run out of centre?
What possible faults in the unwind section could cause a web break?

Reel delivery for rewinding and sheeting
What are the OH&S risks associated with rewinding and sheeting?
What safety feature is in the delivery system if the web jams up?
Why would the sheet cut–off wander?
What is the effect of poorly adjusted nip rollers when rewinding and sheeting?

Printing and drying unit
How could a build up of ink on the impression cylinder effect the printed product?
What could cause the ink to foam in the ink tray?
What is the effect of too much reducer in the ink?
What action reduces wear of the doctor blade?
Why is it necessary that all solvents be removed from the final ink film?
What is the link between driers and set off and marking?
What could cause the substrate to distort?
What would the effect in the chillers if the drying temperature was too low?
What is the effect of incorrect drying temperature on the finished product?

In–line processes
Why is it necessary to frequently examine the in–line components of the job?
How was the consistency of the punching unit checked?
What would be the result of excessive pressure on the slitters?
What is the benefit of identification numbers on jobs with multiple similar images?
How is the ratio of print to in–line speed controlled?

Maintaining production process
What is the effect of inadequate communication within the work team on a gravure printing machine?
What safety features within the organisation aid in maintaining effective production?
What are the ramifications if machine guards are removed and/or micro switches are disconnected on a machine?
Who would be held legally responsible for the removal of machine guards and/or disconnection of micro switches?
What is the most accurate method of checking register during a production run?
Why is it necessary to take immediate action when production problems are anticipated?
What action is taken to eliminate further processing of unacceptable printed product?
What will be the result to the substrate if the relative humidity is increased in the pressroom?
What is the procedure to care for a newly delivered substrate to the pressroom?
Why should waste be sorted?
What is the advantage of keeping reusable waste?

Customer liaison
What industry standards can be applied to enhance effective communication with the customer?
What are the necessary procedures that the customer should follow to "OK" a printed product?

Gravure machine operating problems
When would it be necessary to call service personnel to correct a machine problem?
What enterprise processes are in place to report any machine operating problems?

Shut down procedures
What would be the result if correct shut down procedures were not followed?
Why is it necessary that correct shutdown procedures are conducted with fellow workers?
What advantages results from proper labelling and storage of excess inks and materials?
Why should the printed product be clearly labelled prior to removal from the pressroom?
What further operations are required for printed reels upon removal from the printing machine?
How should the printed job be stored after removal from the printing machine?

Cleaning and washing up the printing unit
What OH&S concerns should be observed when handling ink?
What safety precautions should be observed when cleaning the printing cylinders?
Why is it necessary to thoroughly clean and wash up the printing unit prior to the next print run?
Why should the doctor blades be thoroughly cleaned?
Why should doctor blades be handled with extreme care?
How can printing cylinders be stored so as to minimise damage?

Cleaning feed, transportation, delivery and in–line section
What are the OH&S precautions to be observed when cleaning these sections of the machine?
Why is it necessary to maintain a clean substrate handling section of the machine?

Completing production records
- How are completed records used in the final analysis of the job?
- What are the benefits of comprehensive records when considering the production of future jobs?

Information sources
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PR31b  Set up for basic lithographic printing

Elements and Performance Criteria

PR31b–1  Read and interpret job requirements from job documentation or production control system

PR31b–1.1  Set up is carried out correctly in minimum time with minimum wastage

PR31b–2  Attach lithographic plates to machine

PR31b–2.1  Appropriate lithographic plates are selected and secured to the machine in a safe manner

PR31b–3  Set up reel transportation system on web-fed machine (OR PR31b–4)

PR31b–3.1  Unwind reel is set up and adjusted to suit job requirements
PR31b–3.2  Webbing procedures are carried out
PR31b–3.3  Web-control system is set up and adjusted to suit job requirements
PR31b–3.4  Reels are spliced / joined to suit job requirements
PR31b–3.5  Printed web viewing devices are set up and adjusted to suit job requirements

PR31b–4  Set up sheet transportation system on sheet-fed machine (OR PR31b–3)

PR31b–4.1  Feeder is set up and adjusted to suit job requirements
PR31b–4.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
PR31b–4.3  Transfer systems are set up and adjusted to suit job requirements

PR31b–5  Set up reel delivery system on web-fed machine (OR PR31b–6)

PR31b–5.1  Rewind reel is set up and adjusted to suit job requirements
PR31b–5.2  Folder is set up and adjusted to suit job requirements
PR31b–5.3  Sheeter is set up and adjusted to suit job requirements

PR31b–6  Set up sheet delivery system on sheet-fed machine (OR PR31b–5)

PR31b–6.1  Delivery is set up and adjusted to suit job requirements
PR31b–6.2  Substrate is removed from process according to job instructions
PR31b–6.3  Sheet transfer and control system is set up and adjusted to suit job requirements

PR31b–7  Select and prepare inks and additives (basic)

PR31b–7.1  Inks, dyes or additives are checked and appropriate action is taken and end-user requirements
PR31b–7.2  Quality and suitability of inks, dyes or additives are selected in accordance with job requirements and end-user requirements
PR31b–7.3  Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
PR31b–7.4  Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
PR31b–7.5  Formulation of the ink, colour match and the approved colour is appropriately recorded
PR31b–8 Set up machine for basic offset lithographic printing
- PR31b–8.1 Lithographic plate and plate cylinder are set up and adjusted to suit job requirements
- PR31b–8.2 Blanket and blanket cylinder are set up and adjusted to suit job requirements
- PR31b–8.3 Impression cylinder is set up and adjusted to suit job requirements
- PR31b–8.4 Inking system is set up and adjusted to suit lithographic process and job requirements
- PR31b–8.5 Dampening system is set up and adjusted to suit job requirements

PR31b–9 Set up in–line units for basic process(es)
- PR31b–9.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
- PR31b–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR31b–10 Conduct proof run
- PR31b–10.1 Material to be used for proof is organised correctly
- PR31b–10.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR31b–11 Organise proof inspection and / or testing
- PR31b–11.1 Proof is visually inspected and / or tested or laboratory testing organised in accordance with enterprise procedures
- PR31b–11.2 Production does not commence without customer OK or authority where appropriate

PR31b–12 Readjust settings
- PR31b–12.1 Results are interpreted to determine adjustment requirements
- PR31b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

<table>
<thead>
<tr>
<th>Inks / coatings</th>
<th>Range of standard inks commonly used in 1–2 colour printing</th>
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<tr>
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<tr>
<td>Machines</td>
<td>A range of single sheet, stream and reel fed machines with manual, semi–automated, fully automated or computerised process control</td>
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<tr>
<td>Design</td>
<td>Simple graphics and text. Minor variation in registration and position</td>
</tr>
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<tr>
<td>Substrate handling</td>
<td>Wide or narrow reel or large or small sheet handling systems</td>
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<tr>
<td>Degree of autonomy</td>
<td>Working to defined procedures under limited supervision</td>
</tr>
</tbody>
</table>
Evidence Guide

Context

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence

Demonstrate all safety devices on the machine.

Set-up for TWO basic lithographic printing jobs (if possible including at least ONE in-line process) in accordance with specific enterprise requirements, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- interpreting job requirements
- preparing and fitting plates
- reel in-feed OR
- sheet in-feed and transfer
- reel delivery system OR
- sheet delivery system
- preparation of inks and additives
- machine set-up
- basic in-line processes
- proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Interpreting job requirements

What would you do if vital information was missing from the job ticket?
What checks should be undertaken prior to set-up (availability of materials etc)?

Preparing and fitting plates

What problem can result from the cylinder not being cleaned prior to plate fitting?
How is the grip edge of the plate identified?
What would be the effect of over packing the printing plate cylinder?
How could pitch lines be used to assist in plate installation?
What tools or actions are likely to damage the plate?
Why should plates be consistently tensioned?

Reel in-feed

What OH&S precautions must be observed when webbing up the machine?
How do you determine the printing side of the material?
What would be the effect of low web tension on the print?
What is the purpose of nip rollers?
What other types of web splices could be used appropriate for the job?

Sheet in-feed and transfer

What OH&S factors need to be considered when setting up the sheet in-feed and transfer systems?
Why is the sheet normally set up in the middle of the machine?
What effect does side lay selection have on the job?
How would the appropriate front lays be selected?
What determines the position of the sheet before it is transported to the printing unit?
How would a register check be carried out?
Why is a two sheet cut used on most feeders?
How does the machine know if a sheet is missing or late?

Reel delivery system
What would be the effect of excessive web tension at the rewind of the machine?
Name three risks associated with the rewind of the machine

Sheet delivery system
Why is the application of spray powder sometimes advisable?
What are the effects of too much spray powder?
Why may slowdown devices be used in the delivery?
What effect would excessive jogging have on the stack?

Preparation of inks and additives
What are the main OH&S and environmental concerns of inks and additives?
What details are necessary to check the suitability of an ink for a job?
What would happen if the ink were too tacky?
How would an ink that was slightly light be modified to meet the needs of the job?
What methods are available to check the ink for correct colour?
Who passes the colour prior to running the job?

Machine set-up
What OH&S factors need to be considered when setting up the machine?
How are the cylinder (plate, blanket and impression) specifications determined, for the specific job?
What effects may an incorrectly set dampening system have on the job?
Why does the ink profile vary across the machine?
What is the optimum ink duct sweep?

Basic in-line processes
In what machine position should you engage in-line processing units?
What precautions are necessary when setting up in-line processing units?
What precautions were taken if UV drying was utilised to dry the ink film?

Proofing and adjustment
What methods can be used to minimise waste during make ready?
What do you check on the initial print prior to running?
The testing of the machine proof?
What are the ideal conditions for inspecting the proof?
What methods are available to check and adjust ink colour and consistency?
What adjustments may have caused misregister?
What adjustments are made to position the image laterally?
What adjustments are made to position the image circumferentially?
Who has the final say in the "OK" of the job?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR31d Set up for complex lithographic printing

Elements and Performance Criteria

PR31d–1 Read and interpret job requirements from job documentation or production control system
  PR31d–1.1 Set up is planned and carried out correctly in minimum time with minimum wastage

PR31d–2 Attach lithographic plates into machine
  PR31d–2.1 Appropriate lithographic plates are selected and secured to the machine in a safe manner

PR31d–3 Set up reel transportation system on web–fed machine (OR PR31d–4)
  PR31d–3.1 Unwind reel is set up and adjusted to suit job requirements
  PR31d–3.2 Webbing procedures are carried out
  PR31d–3.3 Web–control system is set up and adjusted to suit job requirements
  PR31d–3.4 Reels are spliced / joined to suit job requirements
  PR31d–3.5 Printed web viewing devices are set up and adjusted to suit job requirements

PR31d–4 Set up sheet transportation system on sheet–fed machine (OR PR31d–3)
  PR31d–4.1 Feeder is set up and adjusted to suit job requirements
  PR31d–4.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
  PR31d–4.3 Transfer systems are set up and adjusted to suit job requirements

PR31d–5 Set up reel delivery system on web–fed machine (OR PR31d–6)
  PR31d–5.1 Rewind reel is set up and adjusted to suit job requirements
  PR31d–5.2 Folder is set up and adjusted to suit job requirements
  PR31d–5.3 Sheeter is set up and adjusted to suit job requirements
  PR31d–5.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR31d–6 Set up sheet delivery system on sheet–fed machine (OR PR31d–5)
  PR31d–6.1 Delivery is set up and adjusted to suit job requirements
  PR31d–6.2 Substrate is removed from process according to job instructions
  PR31d–6.3 Sheet transfer and control system is set up and adjusted to suit job requirements
  PR31d–6.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR31d–7 Select and prepare inks and additives
  PR31d–7.1 Inks, dyes or additives are selected in accordance with job requirements and end–user requirements
  PR31d–7.2 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken
  PR31d–7.3 Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers’ / suppliers’ instructions with suitable precautions to minimise waste
PR31d–7.4 Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process

PR31d–7.5 Formulation of the ink, colour match and the approved colour is appropriately recorded

PR31d–7.6 Inks, dyes and additives are appropriately labelled, handled and stored in accordance with manufacturers’ / suppliers’ instructions to prevent damage and hazards to personnel and prolong shelf life

PR31d–8 Set up machine for complex lithographic printing

PR31d–8.1 Lithographic plate and plate cylinder are set up and adjusted to suit job requirements

PR31d–8.2 Blanket and blanket cylinder are set up and adjusted to suit job requirements

PR31d–8.3 Impression cylinder is set up and adjusted to suit job requirements

PR31d–8.4 Inking system is set up and adjusted to suit lithographic process and job requirements

PR31d–8.5 Dampening system is set up and adjusted to suit job requirements

PR31d–8.6 Drying system is set up and adjusted to suit job requirements

PR31d–9 Set up in–line unit(s)

PR31d–9.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR31d–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR31d–10 Conduct proof run

PR31d–10.1 Material to be used for proof is organised correctly

PR31d–10.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR31d–11 Organise proof inspection and/or testing

PR31d–11.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR31d–11.2 Production does not commence without customer OK or authority where appropriate

PR31d–12 Readjust settings

PR31d–12.1 Results are interpreted to determine adjustment requirements

PR31d–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Inks / coatings
Wide range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems
Use of densitometers and spectrophotometry

Machines
Range of single sheet, stream fed or reel fed printing machines with manual, semi–automated, fully automated or computerised process control. Includes machines with digitally imaged plates.

Design
Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not
in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such.

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal.

Substrate handling
Wide and narrow reel, and large and small sheet handling systems.

Degree of autonomy
Working independently in consultation with others.

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Set up a lithographic printing machine for a complex job on TWO occasions (if possible using different substrates and sheet sizes if sheet–fed) (and if possible including at least TWO in–line process) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- job requirements
- preparing and fitting plates
- reel transportation system on a web–fed machine OR
- sheet transportation system on a sheet–fed machine
- reel delivery system on a web–fed machine OR
- sheet delivery system on a sheet–fed machine
- inks and additives
- machine set–up
- in–line processes
- problem solving proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Job requirements
Why is it necessary to ensure that the job requirements are read and properly understood?
What production problems could eventuate by not reading and understanding the job requirements?
Whom would you discuss any production problems with?

Preparing and fitting plates
What problem can result from the plate cylinder not being cleaned prior to plate fitting?
What could happen if the plate is over tensioned during fitting?
What faults could result from a plate being under tensioned?
Why is accurate plate bending necessary on a web–fed machine?
What considerations would have to be made when deciding the colour sequence?
What visual aid on the plate identifies the colour of ink to be used?

Reel transportation system on a web–fed machine
What OH&S precaution must be observed when webbing up the machine?
How should you determine the position of the reel?
What can happen if the brake tension is not set correctly?
What is the function of the "Dancer" roller on a web machine?
How should you determine the position of the bustle wheels?
What can happen if the web is not spliced correctly?
How does the particular web viewing device work?

Sheet transportation system on a sheet–fed machine
What OH&S factors need to be considered when setting up the sheet transportation and delivery systems?
What could cause more than one sheet to picked up in the feeder?
Why is accurate feeder set up essential?
What determines the position of the sheet prior to being transferred to the printing unit?
How should you determine which front lays to use?
What type of substrate would require additional front lays to be engaged?
Why would additional front lays be necessary when printing this type of substrate?

Reel delivery system on a web–fed machine
What OH&S precaution must be observed when setting up the delivery?
How is the web controlled in the rewind unit?
What is the function of a slitter on a web machine?
What could cause the web to jam up in the folder?
Why is it necessary to disengage the folder if sheeting?
What would be the problems attributed to a blunt knife when sheeting?
What safety feature is in the delivery system if the web jams up?
Which fold is always made with the grain of the web?
What type of folds, folds the web in half in the direction of the web grain?
What remedial steps can be taken if there is a possibility of the ink marking in the folder?
What is the main reason for having a silicone applicator on a web machine?

Sheet delivery system on a sheet–fed machine
What OH&S precaution must be observed when removing sheets from the delivery?
What could cause sheets not to be delivered correctly?
What adjustments would be necessary if changing from light weight to heavy weight stocks?
What determines the sheet release into the delivery?
What are the problems resulting from the excessive use of anti set off spray powder?
What could cause printed sheets to set off in the delivery?
What remedial steps can be taken if there is a possibility of the ink marking in the folder?
What fault may be created if there is excess vacuum on the slow down wheels?

Inks and additives
What are the OH&S concerns related to the preparation of inks and additives?
What details are necessary to check an ink's suitability to the printing process?
What special end use requirements may be necessary?
Why may it be necessary to mix an additive into the ink?
Explain how a spectrophotometer can be used to assess the colour of an ink?
Describe the formula for calculating the correct quantity of lithographic ink?
What print fault will occur if excessive driers are mixed into the ink?
What precautions do you observe to minimise waste when preparing the ink?
What is the shelf life of most inks?
What conditions are relevant to the storage of inks and additives?
What conventions should be adhered to when labelling mixed inks?

Machine set–up
What OH&S factors need to be considered when setting up the machine?
What checks should be made on the plate prior to fitting?
How much plate packing was required?
What is the normal printing pressure required between plate and blanket?
How should you determine the correct printing pressure between blanket and stock?
What is the ideal blanket surface condition?
How is the correct blanket tension achieved when fitting a new blanket?
What print faults can occur if the impression cylinder is not maintained?
In what order should eccentric or concentric roller adjustments be made?
When setting the rollers, what should be the width of the contact stripe between two rollers?
How should you determine the ink duct setting?
What is the ideal ink duct sweep setting?
What is the recommended degrees shore hardness for bare back and conventional dampeners?
What should be the conductivity of the fountain solution?
Why is it necessary to constantly check the conductivity of the fountain solution?
How could you change the amount of fountain solution across the plate surface?
Why may it be necessary to adjust the fountain solution laterally?
Why could you not engage the perfecting unit on the run?
What is the main reason for blistering on a heatset machine?
What does the oven evaporate from the ink?
What is the function of chill rollers on a web machine?
What are the types of ink drying / curing systems?

In-line processes
What OH&S precaution must be observed when slitting on the machine?
What operations can be performed with in-line units?
In what machine position should you engage in-line processing units?
What precautions are necessary when setting up in-line processing units?
What are the reasons for a printed product to be punched?
What do you need to consider when setting hole punching in relation to repeat length?
What would be the result of excessive pressure on the slitters?

Problem solving proofing and adjustment
Describe the operation of the true inch function fitted to some machines?
What problems may cause the machine to keep stopping?
What checks are necessary prior to engaging the impression?
What checks were performed when running the machine?
What effect will the position of certain guards have on the operation of the machine?
How were the steps involved in operating the machine, communicated to other team members?
What aids are available for the testing of the machine proof?
What tests are necessary for this job?
Where should the testing take place?
What is the function of a polarisation filter in a densitometer?
What are the ideal conditions for inspecting the proof?
Why is it necessary to use visual aids on the printed sheets?
What is the acceptable wet trap value range for lithographic inks?
What could be used as an indication of optimum solid ink density in the absence of a proof?
What would be the result of low solid ink density and excessive dot gain?
What methods are available to check and adjust ink colour and consistency?
What adjustments may have caused misregister?
What adjustments are made to position the image laterally?
What adjustments are made to position the image circumferentially?
What adjustments are made to position the image diagonally?
How can changing the colour sequence effect the wet trap value?
What is the procedure to lengthen the print length on this type of press?
What is the procedure to shorten the print length on this type of press?
What is the difference between mechanical and optical dot gain?
What can cause excessive mechanical dot gain?
Who has the final say in the “OK” of the job?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR32c  Produce basic lithographic printed product

Elements and Performance Criteria

PR32c–1  Maintain operation of reel transportation system on web–fed machine (OR PR32c–2)
  PR32c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
  PR32c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
  PR32c–1.3  Substrate is added to process according to job instructions

PR32c–2  Maintain operation of sheet transportation system on sheet–fed machine (OR PR32c–1)
  PR32c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
  PR32c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
  PR32c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
  PR32c–2.4  Substrate is added to process according to job instructions

PR32c–3  Maintain operation of reel delivery system on web–fed machine (OR PR32c–4)
  PR32c–3.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks or blemishes to finished product
  PR32c–3.2  Substrate is removed from process according to job instructions
  PR32c–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

PR32c–4  Maintain operation of sheet delivery system on sheet–fed machine (OR PR32c–3)
  PR32c–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

PR32c–5  Maintain basic lithographic printing process
  PR32c–5.1  Lithographic plate and plate cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof
  PR32c–5.2  Lithographic blanket and blanket cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of approved proof
  PR32c–5.3  Lithographic impression cylinder condition is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
  PR32c–5.4  Lithographic inking condition is checked and maintained to ensure quality of printed product meets the standard of approved proof
  PR32c–5.5  Lithographic dampening system condition is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR32c–6  Maintain basic in–line process(es)
  PR32c–6.1  Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR32c–7  Maintain production process
  PR32c–7.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR32c–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
PR32c–7.3 Manual and/or automatic control is used as per specification
PR32c–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
PR32c–7.5 In performance, colour, register and position of print are monitored and adjusted throughout production run
PR32c–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR32c–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures
PR32c–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures
PR32c–7.9 Waste is sorted according to enterprise procedures

PR32c–8 Liaise with customers
PR32c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR32c–9 Identify and investigate lithographic machine operating problem
PR32c–9.1 Problem is lithographic machine operation is identified and reported in accordance with enterprise requirements

PR32c–10 Rectify minor lithographic machine faults
PR32c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
PR32c–10.2 Lithographic machine operation is checked to ensure correct operation

PR32c–11 Conduct shut down of production process
PR32c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
PR32c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
PR32c–11.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures
PR32c–11.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
PR32c–11.5 All product is removed from operating area
PR32c–11.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person
PR32c–11.7 Repair / adjustment is verified prior to resumption of operations

PR32c–12 Clean and wash up printing machine at end of print run
PR32c–12.1 Cylinders, plate and roller surfaces are cleaned ready for next run
PR32c–12.2 Inking system and dampening system are washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
PR32c–12.3 In-line printing / converting / binding / finishing units are cleaned ready for next run
PR32c–12.4 Reef feed, transportation and delivery systems are disengaged and cleaned ready for next run
PR32c–12.5 Sheet feed, transport and delivery system are disengaged and cleaned ready for next run
PR32c–13 Complete records

PR32c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
Range of standard inks commonly used in 1–2 colour printing

Colour matching systems
Use of visual colour assessment and matching under controlled lighting conditions

Machines
A range of single sheet, stream and reel fed machines with manual, semi–automated, fully automated or computerised process control

Design
Simple graphics and text. Minor variation in registration and position

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Produce TWO basic lithographic printing jobs (if possible including at least ONE in–line process) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

• reel or sheet transportation and delivery
• lithographic printing operations
• in–line processes
• quality control and problem solving
• shutdown and wash up of the press
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel or sheet transportation and delivery

What OH&S concerns are there when loading and handling heavy reels?
Why are the sheets fanned before loading into the press?
Why is it important that the double sheet detector be set and checked during the print run?
What would be the effect on the print of excessive tension on the rewinding reel?
What will happen if the web is not spliced correctly?
If sheeted, what components can be adjusted to ensure correct delivery?
What effect could excessive suction on the slow down wheels have?

Lithographic printing operations
What could be done if the non image area of the print was scumming when printing?
What could cause emulsification while printing on a lithographic printing press?
What are the signs of wear in the image area of the plate?
At what level should the ink level be maintained?

In–line processes
What are the OH&S concerns for the in–line components of the press?
How frequently should the in–line components of the job be examined?

Quality control and problem solving
What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
How is printed material that is not of an acceptable standard identified?
How frequently should the quality of the product be assessed?
How is product that is deemed unacceptable by the operator marked?
What should be monitored to ensure quality?
Who would be consulted if there were a problem with the print that was not able to be fixed by the operator?
Where can information concerning the correct operation of the machine be found?

Shutdown and wash up of the press
What dangers exist from solvents and solutions used to clean the inking system, plates, cylinders and the press?
What effect could excessive gum have on the plate image?
What parts of the machine should be thoroughly cleaned following the print run?
What components are to be inspected for wear following the print run?
What records are important for following or repeat prints?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR32d Produce complex lithographic printed product

**Elements and Performance Criteria**

**PR32d–1 Maintain operation of reel transportation system on web-fed machine (OR PR32d–2)**

- PR32d–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation.
- PR32d–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation.
- PR32d–1.3 Substrate is added to process according to job instructions.

**PR32d–2 Maintain operation of sheet transportation system on sheet-fed machine (OR PR32d–1)**

- PR32d–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine.
- PR32d–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation.
- PR32d–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation.
- PR32d–2.4 Substrate is added to process according to job instructions.

**PR32d–3 Maintain operation of reel delivery system on web-fed machine (OR PR32d–4)**

- PR32d–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemished or damage to finished product.
- PR32d–3.2 Substrate is removed from process according to job instructions.
- PR32d–3.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery.
- PR32d–3.4 Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof.

**PR32d–4 Maintain operation of sheet delivery system on sheet-fed machine (OR PR32d–3)**

- PR32d–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery.
- PR32d–4.2 Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof.

**PR32d–5 Maintain complex lithographic printing process**

- PR32d–5.1 Lithographic plate and plate cylinder condition are monitored and adjusted to ensure the quality of printed product meets the standard of the sample sheet.
- PR32d–5.2 Lithographic blanket and blanket cylinder condition are monitored and adjusted to ensure the quality of printed product meets the standard of sample sheet.
- PR32d–5.3 Lithographic impression cylinder condition is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet.
- PR32d–5.4 Lithographic inking system is checked and maintained to ensure quality of printed product meets the standard of sample sheet.
- PR32d–5.5 Lithographic dampening system condition is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet.
- PR32d–5.6 Set off / marking prevention and drying system is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet.
- PR32d–5.7 Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof.
PR32d–6 Maintain operation of in-line processes

PR32d–6.1 In-line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR32d–7 Maintain production process

PR32d–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

PR32d–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

PR32d–7.3 Manual and/or automatic control is used as per specification

PR32d–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

PR32d–7.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run

PR32d–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

PR32d–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures

PR32d–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR32d–7.9 Waste is sorted according to enterprise procedures

PR32d–8 Liaise with customers

PR32d–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR32d–9 Identify and investigate lithographic machine operating problem

PR32d–9.1 Problem in lithographic machine operation is identified and reported in accordance with enterprise requirements

PR32d–10 Rectify minor lithographic machine faults

PR32d–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR32d–10.2 Lithographic machine operation is checked to ensure correct operation

PR32d–11 Conduct shut down of production process

PR32d–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR32d–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR32d–11.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR32d–11.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR32d–11.5 All product is removed from operating area

PR32d–11.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR32d–11.7 Repair / adjustment is verified prior to resumption of operations

PR32d–12 Clean and wash up printing machine at end of print run

PR32d–12.1 Cylinders, plate and roller surfaces are cleaned ready for next run
PR32d–12.2 Inking system and dampening system are washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR32d–12.3 In–line printing / converting / binding / finishing units are cleaned ready for next run

PR32d–12.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR32d–12.5 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

PR32d–13 Complete records

PR32d–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

### Range of Variables

**Inks / coatings**
- Wide range of inks commonly used in 3 or more colour printing, including standard and special colours

**Colour matching systems**
- Use of densitometers and spectrophotometry

**Machines**
- Range of single sheet, stream fed or reel fed printing machines with manual, semi–automated, fully automated or computerised process control. Includes machines with digitally imaged plates.

**Design**
- Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

**In–line processes**
- Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**
- Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

**Substrate handling**
- Wide and narrow reel, and large and small sheet handling systems

**Degree of autonomy**
- Working independently in consultation with others

### Evidence Guide

**Context**
- Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

**Required evidence**
- Monitor production output and make necessary adjustments to maintain print quality on a lithographic machine whilst producing a complex print on TWO occasions (if possible using different types and sizes of substrates) (and if possible including at least TWO in–line processes) according to job and workplace specifications and the listed performance criteria.
- Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
- Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
- Demonstrate detailed knowledge of:
  - reel transportation and web control OR
  - sheet transportation and transfer
  - reel delivery for rewinding and sheeting OR
  - sheet delivery
  - printing unit
  - drying unit
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Reel transportation and web control
- What OH&S concerns are there when operating the reel transportation system?
- What could cause the reel to wander?
- What could cause the web to break at the unwind unit?
- What is the difference between a "flying paster" and "zero speed" type reelstand?
- What print fault would result from the reel being run out of centre?
- What possible faults in the unwind section could cause a web break?

Sheet transportation and transfer
- What OH&S concerns are there when operating the sheet transportation system?
- What would be result of worn suckers at the feeder suction head?
- What type of two sheet detection is on this machine?
- How much movement should the sheet have when being registered by the side lay?
- What could cause misregister of the sheet at the feeder?
- What are the visible signs of the sheet being registered in the feeder?
- How can gripper malfunction effect sheet control and transfer?
- When would sheet transfer mechanisms require adjusting?
- What would cause the feeder stack to become uneven?
- What would be the result of the feeder stack not being loaded level?
- How can any unevenness of the feeder stack be rectified?

Reel delivery for rewinding and sheeting
- What are the OH&S risks associated with rewinding and sheeting?
- What safety feature is in the delivery system if the web jams up?
- Why would the sheet cut-off wander?
- What is the effect of poorly adjusted nip rollers when rewinding and sheeting?
- What further operations are required for printed reels upon removal from the printing machine?
- How should the printed job be stored after removal from the printing machine?
- Why is it necessary to label each printed reel?

Sheet delivery
- What effect will machine speed have on sheet delivery?
- What is the advantage of spraying moving sheets with anti set off powder in the delivery?
- What items in the delivery could cause marking of the printed image?
- What remedial steps may be necessary to eliminate marking of the printed image?
- What is the function of a sheet decurler fitted to the delivery of some machines?
- What faults could result from incorrectly set grippers in the transfer section of a machine?
- How should the printed job be stored after removal from the printing machine?

Printing unit
- What could be the result if the plate develops a crack at the grip edge during a print run?
- What would be the effect of a sticky blanket surface?
- What print faults would result from the blanket not being tensioned correctly?
- What would be the cause of blanket packing creep during printing?
- How could a build up of ink on the impression cylinder effect the printed product?
What could cause the ink to lay back in the duct?
What could cause ink stripping on the inking rollers?
What print faults would result from excessive use of fountain solution on the plate?
What is the recommended pH range for fountain solutions?
What could cause the conductivity of the fountain solution to change over an eight hour shift?
What problems can be caused by excessive conductivity of the fountain solutions?

**Drying unit**
- Why is it not advisable to eat or drink near the machine when using UV inks?
- What is the link between driers and set off and marking?
- What causes UV ink to dry?
- What could cause the substrate to blister?
- What would the effect in the chillers if the drying temperature was too low?
- What is the effect of incorrect drying temperature on the finished product?

**In–line processes**
- How is the consistency of the punching unit checked?
- What would be the result of excessive pressure on the slitters?
- What would be the result of a dirty former?
- What would be the result of defective pins in the folder?
- What is the result of adjusting the rollers at the base of the former?
- What could cause the web to jam up in the folder?

**Maintaining production process**
- What is the effect of inadequate communication within the work team on a lithographic printing machine?
- What safety features within the organisation aid in maintaining effective production?
- What are the ramifications if machine guards are removed and/or micro switches are disconnected on a machine?
- Who would be held legally responsible for the removal of machine guards and/or disconnection of micro switches?
- What is the disadvantage of using a closed looped system for automatic control of the printed product?
- What other measurement besides optimum solid ink density can be measured to assess print quality?
- What is the most accurate method of checking register during a production run?
- Why is it necessary to take immediate action when production problems are anticipated?
- What action is taken to eliminate further processing of unacceptable printed product?
- What will be the result to a stack of paper if the relative humidity is increased in the pressroom?
- What is the procedure to care for a newly delivered skid of paper to the pressroom?
- Why should waste be sorted?
- What is the advantage of keeping reusable waste?

**Customer liaison**
- What industry standards can be applied to enhance effective communication with the customer?
- What are the necessary procedures that the customer should follow to "OK" a printed product?
- Lithographic machine operating problems
- When would it be necessary to call service personnel to correct a machine problem?
- What enterprise processes are in place to report any machine operating problems?

**Shut down procedures**
- What would be the result if correct shut down procedures were not followed?
- Why is it necessary that correct shutdown procedures are conducted with fellow workers?
- What advantages results from proper labelling and storage of excess inks and materials?
- Why should the printed product be clearly labelled prior to removal from the press room?

**Cleaning and washing up the printing unit**
- What OH&S concerns should be observed when handling ink?
- What safety precautions should be observed when cleaning the printing cylinders?
- Why is it necessary to thoroughly clean and wash up the printing unit prior to the next print run?
- Why should the offset rubber blanket be washed with water as well as some other form of solvent?
- How can plates be stored so as to minimise damage?

**Cleaning feed, transportation, delivery and in–line sections**
- What are the OH&S precautions to be observed when cleaning these sections of the machine?
- Why is it necessary to maintain a clean substrate handling section of the machine?

**Completing production records**
How are completed records used in the final analysis of the job?
What are the benefits of comprehensive records when considering the production of future jobs?

**Information sources**

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PR41b  Set up for basic pad printing

**Elements and Performance Criteria**

**PR41b–1**  Read and interpret job requirements from job documentation or production control system

- **PR41b–1.1**  Set up is carried out correctly in minimum time with minimum wastage

**PR41b–2**  Install printing plate (cliche) into plate holder

- **PR41b–2.1**  Appropriate plate and plate holder are selected and plate is secured into plate holder

**PR41b–3**  Install tampon(s) (printing pads) into machine

- **PR41b–3.1**  Appropriate tampon(s) are selected according to job specifications / requirements
- **PR41b–3.2**  Tampon(s) are secured into machine

**PR41b–4**  Set up fixture(s) onto machine bed

- **PR41b–4.1**  Appropriate fixtures are selected and secured to xy table
- **PR41b–4.2**  Adjust height of machine bed to suit size of object to be printed
- **PR41b–4.3**  Adjust xy table of machine bed to suit position of image on object

**PR41b–5**  Select and prepare inks and additives (basic)

- **PR41b–5.1**  Inks, and additives are selected in accordance with job requirements and end–user requirements
- **PR41b–5.2**  Quality and suitability of inks and additives are checked and appropriate action is taken
- **PR41b–5.3**  Inks and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
- **PR41b–5.4**  Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
- **PR41b–5.5**  Formulation of the ink, colour match and the approved colour is appropriately recorded
- **PR41b–5.6**  Inks and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

**PR41b–6**  Set up machine for basic pad printing

- **PR41b–6.1**  Plate holder is set up and adjusted to suit job requirements
- **PR41b–6.2**  Tampon(s) are set up and adjusted to suit job requirements
- **PR41b–6.3**  Spatula and doctor blade are set up and adjusted to suit pad printing process and job requirements OR
- **PR41b–6.4**  Ink cup is set up and adjusted to suit job requirements

**PR41b–7**  Set up manual pre– and post–treatment processes

- **PR41b–7.1**  Manual loading is set up to suit object and job requirements
- **PR41b–7.2**  Manual pre–treatment is set up to suit object and job requirements
- **PR41b–7.3**  Drying racks are set up to suit object and job requirements

**PR41b–8**  Conduct proof run
PR41b–8.1 Material to be used for proof is organised correctly
PR41b–8.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR41b–9 Organise proof inspection and / or testing
PR41b–9.1 Proof is visually inspected and / or tested or laboratory testing organised in accordance with enterprise procedures
PR41b–9.2 Production does not commence without customer OK or authority where appropriate

PR41b–10 Readjust settings
PR41b–10.1 Results are interpreted to determine adjustment requirements
PR41b–10.2 Adjustment changes are carried out in accordance with product and machine specifications

### Range of Variables

- **Inks / coatings**: Range of standard inks commonly used in single colour printing
- **Colour matching systems**: Use of visual colour assessment to match basic standard colours under controlled lighting conditions
- **Machines**: A range of pad printing machines with manual, semi–automated or computerised operation
- **Design**: Simple graphics and text. Minor variations in registration and position
- **Pre and post treatment processes**: Range of pre– and post treatment process commonly used in pad printing
- **Substrate types**: Range of substrates within the major categories of paper, wood, glass (ceramics), plastics, metal
- **Substrate handling**: Manual handling
- **Degree of autonomy**: Working to defined procedures under limited supervision

### Evidence Guide

**Required evidence**
Demonstrate all safety devices on the machine.
Set up a machine for basic pad printing on TWO occasions (if possible on different substrates) to meet job requirements and specifications, manufacturer's specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:

- substrate identification
- ink selection
- pad selection
- plate selection
- doctor blades
- pre– and post–treatment requirements
- print problem identification and correction
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Substrate identification
  What class of substrate does this (given) object come from?

Ink selection
  How do you determine if an ink will suit a particular substrate?
  How do you determine if an ink is mixed to the correct viscosity?
  What is the pot life of a two component ink?

Pad selection
  How do you determine the correct pad shape for these TWO (given) applications?
  What effect does pad shape and hardness have on print quality?
  What are the ideal storage conditions for pads?

Plate selection
  How do you determine correct plate type for these THREE (given) applications?

Doctor blades
  What OH&S concerns are there when setting presses and doctor blades?
  How do you adjust the machine so that doctor blade is operating correctly?
  What is the effect of a damaged doctor blade?

Pre– and post–treatment requirements
  What OH&S concerns are there when pre– and post–treating substrates?
  How would you pre–treat an oily surface to ensure it is ready for printing?

Print problem identification and correction
  What are the causes and solutions for FOUR common print problems (eg. hairlines around image, loss of density in the centre of a solid image, fine lines of ink running through image, distortion of image)?

Information sources
  What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
  What information is included in these documents?
PR41c  Set up for complex pad printing

Elements and Performance Criteria

PR41c–1  Read and interpret job requirements from job documentation or production control system

  PR41c–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

PR41c–2  Install printing plates (cliches) into plate holders

  PR41c–2.1  Appropriate plates and plate holders are selected and plates are secured into plate holders

PR41c–3  Install tampons (printing pads) into machine

  PR41c–3.1  Appropriate tampons are selected according to job specifications / requirements
  PR41c–3.2  Tampons are secured into machine

PR41c–4  Set up fixture(s) onto machine bed or conveyor

  PR41c–4.1  Appropriate fixtures are selected and secured to xy table or conveyor jig plates
  PR41c–4.2  Adjust height of machine bed to suit size of object to be printed
  PR41c–4.3  Adjust xy table of machine bed to suit position of image on object

PR41c–5  Select and prepare inks and additives

  PR41c–5.1  Inks, and additives are selected in accordance with job requirements and end–user requirements
  PR41c–5.2  Quality and suitability of inks and additives are checked and appropriate action is taken
  PR41c–5.3  Inks and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
  PR41c–5.4  Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
  PR41c–5.5  Formulation of the ink, colour match and the approved colour is appropriately recorded
  PR41c–5.6  Inks and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

PR41c–6  Set up machine for complex pad printing

  PR41c–6.1  Plate holders are set up and adjusted for register etc to suit job requirements
  PR41c–6.2  Tampons are set up and adjusted to suit job requirements
  PR41c–6.3  Spatula and doctor blade are set up and adjusted to suit pad printing process and job requirements OR
  PR41c–6.4  Ink cups are set up and adjusted to suit job requirements

PR41c–7  Set up pre– and post–treatment in–line processes

  PR41c–7.1  In–line loading is set up to suit object and job requirements
  PR41c–7.2  In–line pre–treatment is set up to suit object and job requirements
  PR41c–7.3  In–line drying is set up to suit object and job requirements
PR41c–7.4 In–line ejection is set up to suit object and job requirements

**PR41c–8 Conduct proof run**

PR41c–8.1 Material to be used for proof is organised correctly
PR41c–8.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

**PR41c–9 Organise proof inspection and/or testing**

PR41c–9.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures
PR41c–9.2 Production does not commence without customer OK or authority where appropriate

**PR41c–10 Readjust settings**

PR41c–10.1 Results are interpreted to determine adjustment requirements
PR41c–10.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

- **Inks / coatings**: Range of standard inks commonly used in multi–colour printing
- **Colour matching systems**: Use of visual colour assessment to match basic standard colours and/or Pantone shades under controlled lighting conditions
- **Machines**: A range of pad printing machines with manual, semi–automated, fully automated or computerised operation
- **Design**: Complex graphics and text. Critical tight registration, fit and position
- **Pre and post treatment processes**: Range of pre– and post treatment techniques used in pad printing
- **Substrate types**: Range of substrates within the major categories of paper, wood, glass (ceramics), plastics, metal
- **Substrate handling**: Manual handling
- **Degree of autonomy**: Working independently under limited supervision

**Evidence Guide**

**Required evidence**

Set–up a machine for complex pad printing on TWO occasions (if possible on different substrates) to meet job requirements and specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- substrate identification
- ink selection
- pad selection
- plate selection
- registration
- doctor blades
- pre– and post–treatment requirements
- print problem identification and correction
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Substrate identification
Identify FOUR different substrate groups and suggest the correct ink type for each group.
For the purpose of ink selection the plastics can be broken down into a number of sub–groups, identify THREE of these.

Ink selection
How do you adjust process colour inks for correct colour balance?
Describe TWO methods of improving opacity of a light coloured ink on a dark substrate.

Pad selection
How do you determine the correct pad shape for these FOUR (given) applications?
What effect does pad shape and hardness have on print quality?
What effect can commonly be seen at the contact point of the nipple of a pad in a large solid print, and how can it be avoided?
How is a new pad prepared for its first printing?

Plate selection
How do you determine correct plate type for these THREE (given) applications?
Explain the difference between steel and photopolymer plates for process printing

Registration
What are THREE reasons for misregistered images, and how can they be corrected?

Doctor blades
What OH&S concerns are there when setting presses and doctor blades?
How do you adjust the machine so that doctor blade is operating correctly?
What is the effect of a damaged doctor blade?
Name two types of doctor blades and explain their applications.

Pre– and post–treatment requirements
What OH&S concerns are there when pre– and post–treating substrates?
What are the common pre– and post–treatment methods for TWO different substrates?
Why are these treatments important?

Print problem identification and correction
What are the causes and solutions for SIX common print problems (eg. hairlines around image, loss of density in the centre of a solid image, fine lines of ink running through image, distortion of image, picking up ink from substrate by subsequent pads, washed out images, loss of fine lines in images, inconsistent colour)?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR42b  Produce basic pad printed product

Elements and Performance Criteria

PR42b–1  Maintain correct loading and unloading of objects to fixtures
PR42b–1.1 Location of objects into fixtures is monitored and adjusted if necessary

PR42b–2  Maintain basic pad printing process
PR42b–2.1 Printing plate condition is monitored to ensure the quality of printed product meets the standard of the approved proof
PR42b–2.2 Printing pad condition is monitored and maintained to ensure the quality of printed product meets the standard of approved proof
PR42b–2.3 Spatula and doctor blade are monitored and adjusted to ensure quality of printed product meets the standard of approved proof OR
PR42b–2.4 Ink cup is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42b–2.5 Printing ink viscosity is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR42b–3  Maintain manual pre– and post–treatments
PR42b–3.1 Manual loading is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42b–3.2 Manual pre–treatment is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42b–3.3 Drying racks are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR42b–4  Maintain production process
PR42b–4.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR42b–4.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
PR42b–4.3 Manual and/or automatic control is used as per specification
PR42b–4.4 Performance is monitored and verified using the process control system in accordance with company procedures
PR42b–4.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run
PR42b–4.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR42b–4.7 Process adjustments to eliminate problems are reported in accordance with company procedures
PR42b–4.8 Faulty performance of equipment is identified and reported in accordance with company procedures
PR42b–4.9 Waste is sorted according to enterprise procedures

PR42b–5  Identify and investigate pad printing machine operating problem
PR42b–5.1 Problem in pad printing machine operation is identified and reported in accordance with enterprise requirements
PR42b–6 Rectify minor pad printing machine faults

PR42b–6.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR42b–6.2 Pad printing machine operation is checked to ensure correct operation

PR42b–7 Liaise with customers

PR42b–7.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR42b–8 Conduct shut down of production process

PR42b–8.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR42b–8.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR42b–8.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR42b–8.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR42b–8.5 All product is removed from operating area

PR42b–8.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR42b–8.7 Repair / adjustment is verified prior to resumption of operations

PR42b–9 Clean and wash up printing machine at end of print run

PR42b–9.1 Plates and pads are cleaned ready for next run

PR42b–9.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR42b–9.3 Pre- and post- treatment units are cleaned ready for next run

PR42b–10 Complete records

PR42b–10.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
Range of standard inks commonly used in single colour printing

Colour matching systems
Use of visual colour assessment to match basic standard colours under controlled lighting conditions

Machines
A range of pad printing machines with manual, semi-automated or computerised operation

Design
Simple graphics and text. Minor variations in registration and position

Pre and post treatment processes
Range of pre- and post treatment process commonly used in pad printing

Substrate types
Range of substrates within the major categories of paper, wood, glass (ceramics), plastics, metal

Substrate handling
Manual handling

Degree of autonomy
Working to defined procedures under limited supervision
Evidence Guide

Required evidence
Produce TWO basic pad printing jobs (if possible on different substrates) to meet job requirements and specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- different machine cycle modes
- inks
- pads
- pre– and post–treatment requirements
- print problem identification and correction
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

OH&S
What are the major OH&S concerns when operating this machine?
Where are the MSDS stored and what information do they contain?

Different machine cycle modes
Explain how the colour density of a light image on a dark substrate can be improved by selection of a different machine cycle mode.
How do you select the appropriate machine cycle mode to provide the highest production output for a particular product?

Inks
How do you determine that an ink has been mixed to the correct viscosity?
How do you correct ink viscosity during production?
What are TWO causes of unreleased ink remaining on the printing pad, and how do you identify them?

Pads
How do you recognise a damaged pad?
What is the correct method of cleaning a pad during production?

Pre– and post–treatment requirements
What simple pre–treatment is commonly required for injection moulded objects?
How long should the ink on this job take to cure before scratch and adhesion tests can be performed?

Print problem identification and correction
Describe FOUR effects that will be visible in the image if the ink viscosity is incorrect.
How do you adjust the machine to correct a shift in the image position on the product?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR42c  Produce complex pad printed product

Elements and Performance Criteria

PR42c–1  Maintain correct loading and unloading of objects to fixtures
PR42c–1.1  Location of objects into fixtures is monitored and adjusted if necessary

PR42c–2  Maintain complex pad printing process
PR42c–2.1  Printing plates condition is monitored to ensure the quality of printed product meets the standard of approved proof
PR42c–2.2  Printing pads condition is monitored and maintained to ensure the quality of printed product meets the standard of approved proof
PR42c–2.3  Spatulas and doctor blades are monitored and adjusted to ensure quality of printed product meets the standard of approved proof OR
PR42c–2.4  Ink cups are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42c–2.5  Printing ink viscosity is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR42c–3  Maintain in-line systems
PR42c–3.1  In-line loading is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42c–3.2  In-line pre-treatment is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42c–3.3  In-line drying is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR42c–3.4  In-line ejection is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR42c–4  Maintain production process
PR42c–4.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR42c–4.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
PR42c–4.3  Manual and/or automatic control is used as per specification
PR42c–4.4  Performance is monitored and verified using the process control system in accordance with company procedures
PR42c–4.5  Ink performance, colour, register and position of print are monitored and adjusted throughout production run
PR42c–4.6  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR42c–4.7  Process adjustments to eliminate problems are reported in accordance with company procedures
PR42c–4.8  Faulty performance of equipment is identified and reported in accordance with company procedures
PR42c–4.9  Waste is sorted according to enterprise procedures

PR42c–5  Identify and investigate pad printing machine operating problem
PR42c–5.1 Problem in pad printing machine operation is identified and reported in accordance with enterprise requirements

PR42c–6 Rectify minor pad printing machine faults
   PR42c–6.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
   PR42c–6.2 Pad printing machine operation is checked to ensure correct operation

PR42c–7 Liaise with customers
   PR42c–7.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR42c–8 Conduct shut down of production process
   PR42c–8.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
   PR42c–8.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
   PR42c–8.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures
   PR42c–8.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
   PR42c–8.5 All product is removed from operating area
   PR42c–8.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person
   PR42c–8.7 Repair / adjustment is verified prior to resumption of operations

PR42c–9 Clean and wash up printing machine at end of print run
   PR42c–9.1 Plates and pads are cleaned ready for next run
   PR42c–9.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
   PR42c–9.3 Pre– and post–treatment units are cleaned ready for next run

PR42c–10 Complete records
   PR42c–10.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
   Range of standard inks commonly used in multi–colour printing

Colour matching systems
   Use of visual colour assessment to match basic standard colours and/or Pantone shades under controlled lighting conditions

Machines
   A range of pad printing machines with manual, semi–automated, fully automated or computerised operation

Design
   Complex graphics and text. Critical tight registration, fit and position

Pre and post treatment processes
   Range of pre– and post treatment techniques used in pad printing

Substrate types
   Range of substrates within the major categories of paper, wood, glass (ceramics), plastics, metal

Substrate handling
   Manual handling

Degree of autonomy
   Working independently under limited supervision
Evidence Guide

Required evidence
Produce TWO complex pad printing jobs (if possible on different substrates) to meet job requirements and specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
+ OH&S
+ different machine cycle modes
+ inks
+ pads
+ pre– and post–treatment requirements
+ print problem identification and correction
+ information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

OH&S
What are the major OH&S concerns when operating this machine?
Where are the MSDS stored and what information do they contain?

Different machine cycle modes
Explain how the colour density of a light image on a dark substrate can be improved by selection of a different machine cycle mode.
How do you select the appropriate machine cycle mode to provide the highest production output for a particular product?
Describe TWO special cycle modes that are available on your machine and their application.

Inks
How do you determine that an ink has been mixed to the correct viscosity?
How do you correct ink viscosity during production?
What are TWO causes of unreleased ink remaining on the printing pad, and how do you identify them?
How does the addition of a catalyst affect the pot life of ink and what other factors affect pot life?

Pads
How do you recognise a damaged pad?
What is the correct method of cleaning a pad during production?
In multi–colour printing what can be the effect of different pad shapes for different colours?

Pre– and post–treatment requirements
How do you determine the time the ink should take to cure before scratch and adhesion tests can be performed?
What method can be used to check for correct pre–treatment of polypropylene during production?
How do ensure that drying conditions are correct for the product?

Print problem identification and correction
Describe FOUR effects that will be visible in the image if the ink viscosity is incorrect.
How do you identify the cause of incorrect registration and prevent its recurrence?
What would cause a fine coating of ink over the whole cliche surface?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR51b Set up for basic relief printing

Elements and Performance Criteria

PR51b–1 Read and interpret job requirements from job documentation or production control system
   PR51b–1.1 Set up is carried out correctly in minimum time with minimum wastage

PR51b–2 Mount relief plates to machine
   PR51b–2.1 Appropriate relief plates are selected and secured to the machine

PR51b–3 Set up reel transportation system on web–fed machines (OR PR51b–4)
   PR51b–3.1 Unwind reel is set up and adjusted to suit job requirements
   PR51b–3.2 Webbing procedures are carried out
   PR51b–3.3 Web–control system is set up and adjusted to suit job requirements
   PR51b–3.4 Reels are spliced / joined to suit job requirements
   PR51b–3.5 Printed Web viewing devices are set up and adjusted to suit job requirements

PR51b–4 Set up sheet transportation system on sheet–fed machine (OR PR51b–3)
   PR51b–4.1 Feeder is set up and adjusted to suit job requirements
   PR51b–4.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
   PR51b–4.3 Transfer systems are set up and adjusted to suit job requirements

PR51b–5 Set up reel system on web–fed machine (OR PR51b–6)
   PR51b–5.1 Rewind reel is set up and adjusted to suit job requirements
   PR51b–5.2 Folder is set up and adjusted to suit job requirements
   PR51b–5.3 Sheeter is set up and adjusted to suit job requirements
   PR51b–5.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR51b–6 Set up sheet delivery system on sheet–fed machine (OR PR51b–5)
   PR51b–6.1 Delivery is set up and adjusted to suit job requirements
   PR51b–6.2 Substrate is removed from process according to job instructions
   PR51b–6.3 Sheet transfer and control system is set up and adjusted to suit job requirements
   PR51b–6.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR51b–7 Select and prepare inks and additives (basic)
   PR51b–7.1 Quality and suitability of inks, dyes or additives are selected in accordance with job requirements and end–user requirements
   PR51b–7.2 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken
   PR51b–7.3 Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
   PR51b–7.4 Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
PR51b–7.5 Formulation of the ink, colour match and the approved colour is appropriately recorded

PR51b–7.6 Inks, dyes and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

PR51b–8 Set up machine for basic relief printing

PR51b–8.1 Relief plates are positioned or fomes or cylinders and set up and adjusted to suit job requirements (platen and rotary)

PR51b–8.2 Impression is set up and adjusted to suit job requirements (platen and rotary)

PR51b–8.3 Inking system is set up and adjusted to suit relief process and job requirements (platen and rotary)

PR51b–8.4 Drying system is set up and adjusted to suit job requirements

PR51b–9 Set up in–line units for basic process(es)

PR51b–9.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR51b–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR51b–10 Conduct proof run

PR51b–10.1 Material to be used for proof is organised correctly

PR51b–10.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR51b–11 Organise proof inspection and / or testing

PR51b–11.1 Proof is visually inspected and / or tested or laboratory testing organised in accordance with enterprise procedures

PR51b–11.2 Production does not commence without customer OK or authority where appropriate

PR51b–12 Readjust settings

PR51b–12.1 Results are interpreted to determine adjustment requirements

PR51b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

- **Inks / coatings**: Range of standard inks commonly used in 1–2 colour printing
- **Colour matching systems**: Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions
- **Machines**: A range of platen, cylinder and rotary printing machines with manual, semi–automated, fully automated or computerised process control
- **Design**: Simple graphics and text. Minor variation in registration and position
- **In–line processes**: Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
- **Substrate types**: Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
- **Substrate handling**: Wide or narrow reel or large or small sheet handling systems
Degree of autonomy Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Demonstrate all safety devices on the machine.
Set-up for TWO basic relief printing jobs (if possible including at least ONE in-line process) in accordance with specific enterprise requirements, manufacturer's specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- interpreting job requirements
- relief plates
- reel in-feed OR
- sheet in-feed
- reel delivery system OR
- sheet delivery system
- preparation of inks and additives
- machine set up
- basic in-line processes
- proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Interpreting job requirements
What would you do if vital information was missing from the job ticket?
What checks should be undertaken prior to setup (availability of materials etc.)?

Relief plates
What would be the effect of plates with poor relief?
Why is the calliper of the mounting material important?
How is the position of the plate on the mount determined?
What techniques could be used to ensure the edges of the plate do not lift?

Reel in-feed
What are the major OH&S concerns when setting up the reel in-feed?
How do you determine the printing side of the material?
What would be the effect of low web tension on the print?
What other types of web splices could be used appropriate for the job?

Sheet in-feed
What are the major OH&S concerns when setting up the sheet in-feed?
How is the sheet position determined for the job?
What effect does side lay selection have on the job?
How would the appropriate front lays be selected?
How would a register check be carried out?
Why is a two sheet cut used on most feeders?
How does the machine know if a sheet is missing or late?

Reel delivery system
What would be the effect of excessive web tension at the rewind of the machine?
Name three risks associated with the rewind of the machine

Sheet delivery system
Why is the application of spray powder sometimes advisable?
What are the effects of too much spray powder?
Why may slowdown devices be used in the delivery?
What effect would excessive jogging have on the stack?

Preparation of inks and additives
What are the main environmental and OH&S concerns about inks and additives?
How was the suitability of ink matched to the particular job?
What would happen if the ink were too tacky?
How would an ink that was slightly light be modified to meet the needs of the job?
What methods are available to check the ink for correct colour?
Who passes the colour prior to running the job?

Machine set up
What are the major OH&S concerns when setting up the machine?
How were the specifications determined, relating to the specific job?
What effects may an incorrectly set inking rollers have on the print?
Why may the ink profile vary across the machine?
What is the optimum ink duct sweep?

Basic in–line processes
What precautions should be taken if UV drying was utilised to dry the ink film?
What steps should be taken to incorporate the in–line processes into the makeready?
How can the equipment used in in–line processing be protected against damage during set–up?

Proofing and adjustment
What methods can be used to minimise waste during make ready?
What procedures are adopted to have the print approved?
What quality control measurements were applied to the print to test against known standards?
What do you check on the initial print prior to running?
How are the settings to be adjusted determined?
What process is used to plot the success of the machine adjustment?
How are the final results recorded for future reference?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR51d Set up for complex relief printing

Elements and Performance Criteria

PR51d–1 Read and interpret job requirements from job documentation or production control system

PR51d–1.1 Set up is planned and carried out correctly in minimum time with minimum wastage

PR51d–2 Mount and install relief plates to machine

PR51d–2.1 Appropriate relief plates are selected and secured to the machine

PR51d–3 Set up reel transportation system on web-fed machine (OR PR51d–4)

PR51d–3.1 Unwind reel is set up and adjusted to suit job requirements
PR51d–3.2 Webbing procedures are carried out
PR51d–3.3 Web-control system is set up and adjusted to suit job requirements
PR51d–3.4 Reels are spliced / joined to suit job requirements
PR51d–3.5 Printed web viewing devices are set up and adjusted to suit job requirements

PR51d–4 Set up sheet transportation system on sheet-fed machine (OR PR51d–3)

PR51d–4.1 Feeder is set up and adjusted to suit job requirements
PR51d–4.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
PR51d–4.3 Transfer systems are set up and adjusted to suit job requirements

PR51d–5 Set up reel delivery system on web-fed machine (OR PR51d–6)

PR51d–5.1 Rewind reel is set up and adjusted to suit job requirements
PR51d–5.2 Folder is set up and adjusted to suit job requirements
PR51d–5.3 Sheeter is set up and adjusted to suit job requirements
PR51d–5.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR51d–6 Set up sheet delivery system on sheet-fed machine (OR PR51d–5)

PR51d–6.1 Delivery is set up and adjusted to suit job requirements
PR51d–6.2 Substrate is removed from process according to job instructions
PR51d–6.3 Sheet transfer and control system is set up and adjusted to suit job requirements
PR51d–6.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR51d–7 Select and prepare inks and additives

PR51d–7.1 Inks, dyes or additives are selected in accordance with job requirements and end-user requirements
PR51d–7.2 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken
PR51d–7.3 Inks, dyes and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
PR51d–7.4 Correct colour and weight / volume of ink is mixed and prepared to match the requirements of the job specification and the printing process
PR51d–7.5 Formulation of the ink, colour match and the approved colour is appropriately recorded

PR51d–7.6 Inks, dyes and additives are appropriately labelled, handled and stored in accordance with manufacturers' / suppliers' instructions to prevent damage and hazards to personnel and prolong shelf life

PR51d–8 Set up machine for complex relief printing

PR51d–8.1 Relief polymer plates / forme are set up and adjusted to suit job requirements (platen)

PR51d–8.2 Relief polymer cylinders are set up and adjusted to suit job requirements (platen)

PR51d–8.3 Impression is set up and adjusted to suit job requirements (platen and rotary)

PR51d–8.4 Inking system is set up and adjusted to suit relief process and job requirements (platen and rotary)

PR51d–8.5 Drying system is set up and adjusted to suit job requirements

PR51d–9 Set up in–line unit(s)

PR51d–9.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR51d–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR51d–10 Conduct proof run

PR51d–10.1 Material to be used for proof is organised correctly

PR51d–10.2 Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR51d–11 Organise proof inspection and/or testing

PR51d–11.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR51d–11.2 Production does not commence without customer OK or authority where appropriate

PR51d–12 Readjust settings

PR51d–12.1 Results are interpreted to determine adjustment requirements

PR51d–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Inks / coatings
Range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems
Use of densitometers and spectrophotometry

Machines
Range of platen, cylinder and rotary machines with manual, semi–automated, fully automated or computerised process control

Design
Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide and narrow reel, and large and small sheet handling systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Set up a relief printing machine for complex printing on TWO occasions (if possible using different substrates) (and if possible including at least TWO in–line processes) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- job requirements
- relief plates
- reel transportation system on a web–fed machine OR
- sheet transportation system on a sheet–fed machine
- reel delivery system on a web–fed machine OR
- sheet delivery system on a sheet–fed machine
- inks and additives
- machine set–up
- in–line processes
- problem solving proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Job requirements
Why is it necessary to ensure that the job requirements are read and properly understood?
What production problems could eventuate by not reading and understanding the job requirements?
Whom would you discuss any production problems with?

Relief plates
Why is hardness of the printing plate important?
What faults may be detected on new plates?
What type of solvents should be used on photopolymer plates?
What does the term V–block mounting mean?
How is V–block mounting achieved?
What is the purpose of binding plates after mounting?
What checks were performed prior to cylinder installation?
Why should machine frames and unit slides be kept cleaned?
What OH&S precaution must be observed when installing printing cylinders in the machine?
How should you determine the optimum print sequence?
What visual aid on the plate identifies the colour of ink to be used?
What precautions were taken to ensure that the plate / cylinders were not damaged during installation?
Reel transportation system on a web-fed machine
What OH&S precaution must be observed when webbing up the machine?
How should you determine the position of the reel?
What can happen if the brake tension is not set correctly?
What is the function of the "Dancer" roller on a web machine?
What is the function of nip rollers?
What can happen if the web is not spiced correctly?

Sheet transportation system on a sheet-fed machine
What are the major OH&S concerns when setting up the sheet transportation system?
What could cause more than one sheet to be picked up in the feeder?
Why is accurate feeder set up essential?
What determines the position of the sheet prior to being transferred to the printing unit?
How should you determine which front lays to use?
What type of substrate would require additional front lays to be engaged?
Why would additional front lays be necessary when printing this type of substrate?

Reel delivery system on a web-fed machine
What OH&S precaution must be observed when setting up the delivery?
How is the web controlled in the rewind unit?
What is the function of a slitter on a web machine?
What would be the problems attributed to a blunt knife when sheeting?
What remedial steps can be taken if there is a possibility of the ink marking in the rewind?

Sheet delivery system on a sheet-fed machine
What OH&S precaution must be observed when removing sheets from the delivery?
What could cause sheets not to be delivered correctly?
What adjustments would be necessary if changing from light weight to heavy weight stocks?
What determines the sheet release into the delivery?
What are the problems resulting from the excessive use of anti set-off spray powder?
What could cause printed sheets to set off in the delivery?
How can the possibility of set off in the delivery be reduced?
How does air blast assist sheet delivery?

Inks and additives
What are the OH&S concerns related to the preparation of inks and additives?
What details are necessary to check an ink's suitability to the printing process?
What special end use requirements may be necessary?
Why may it be necessary to mix an additive into the ink?
Explain how a spectrophotometer can be used to assess the colour of an ink?
Describe the formula for calculating the correct quantity of ink in relief printing?
What print fault will occur if excessive driers are mixed into the ink?
What precautions do you observe to minimise waste when preparing the ink?
What is the shelf life of most inks?
What conditions are relevant to the storage of inks and additives?
What conventions should be adhered to when labelling mixed inks?

Machine set-up
What are the major OH&S concerns when setting up the machine?
How much packing was required in the tympan?
How is the amount of printing pressure determined?
What is the ideal condition of the tympan?
How is the correct top sheet tension achieved when fitting a new tympan?
What print faults can occur if the tympan is not tensioned correctly?
In what order should eccentric or concentric roller adjustments be made?
When setting the rollers, what should be the width of the contact stripe between two rollers?
How should you determine the ink duct setting?
What is the ideal ink duct sweep setting?
What is the recommended degrees shore hardness for forme rollers?
What is the main reason for blistering on a heatset machine?
What are the types of ink drying/curing systems?
How does the drying unit cure the ink?

In-line processes
What OH&S precaution must be observed when slitting on the machine?
What operations can be performed with in-line units
In what machine position should you engage in–line processing units?
What precautions are necessary when setting up in–line processing units?
What are the reasons for a printed product to be top cut?
What are the benefits of embossing in–line?
What would be the result of excessive pressure when top cutting?
What would be the result of excessive pressure when cutting and creasing?
What effect will differing tooth counts have on perforated products?

Problem solving proofing and adjustment
Describe the operation of the true inch function fitted to some machines?
What problems may cause the machine to keep stopping?
What checks are necessary prior to engaging the impression?
What checks were performed when running the machine?
What effect will the position of certain guards have on the operation of the machine?
How were the steps involved in operating the machine, communicated to other team members?
What aids are available for the testing of the machine proof?
What tests are necessary for this job?
Where should the testing take place?
What is the function of a polarisation filter in a densitometer?
What are the ideal conditions for inspecting the proof?
Why is it necessary to use visual aids on the printed substrate?
What could be the cause of a halo effect on the image?
What methods are available to check and adjust ink colour and consistency?
What adjustments may have caused misregister?
What adjustments are made to position the image laterally?
What adjustments are made to position the image circumferentially?
How can changing the colour sequence effect the final colour cast?
What is the procedure to lengthen the print length on this type of press?
What is the procedure to shorten the print length on this type of press?
What is the difference between mechanical and optical dot gain?
What can cause excessive mechanical dot gain?
Who has the final say in the "OK" of the job?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR52c  Produce basic relief printed product

Elements and Performance Criteria

PR52c–1  Maintain operation of reel transportation system on web–fed machine (OR PR52c–2)

PR52c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
PR52c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
PR52c–1.3  Substrate is added to process according to job instructions

PR52c–2  Maintain operation of sheet transportation system on sheet–fed machine (OR PR52c–1)

PR52c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
PR52c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
PR52c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
PR52c–2.4  Substrate is added to process according to job instructions

PR52c–3  Maintain operation of reel delivery system on web–fed machine (OR PR52c–4)

PR52c–3.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks or blemishes to finished product
PR52c–3.2  Substrate is removed from process according to job instructions
PR52c–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery
PR52c–3.4  Set off / marking prevention system is monitored and adjusted to ensure quality of printed product meets the standard of the approved proof

PR52c–4  Maintain operation of sheet delivery system on sheet–fed machine (OR PR52c–3)

PR52c–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery
PR52c–4.2  Set off / marking prevention system is monitored and adjusted to ensure quality of printed product meets the standard of the approved proof

PR52c–5  Maintain basic relief printing process

PR52c–5.1  Relief forme or plate cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof
PR52c–5.2  Relief impression surface condition is monitored and adjusted to ensure the quality of printed product meets the standard of approved proof
PR52c–5.3  Relief inking system is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR52c–6  Maintain basic in–line process(es)

PR52c–6.1  Basic in–line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR52c–7  Maintain production process

PR52c–7.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
PR52c–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

PR52c–7.3 Manual and/or automatic control is used as per specification

PR52c–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

PR52c–7.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run

PR52c–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

PR52c–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures

PR52c–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR52c–7.9 Waste is sorted according to enterprise procedures

PR52c–8 Liaise with customers

PR52c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR52c–9 Identify and investigate relief machine operating problem

PR52c–9.1 Problem in relief machine operation is identified and reported in accordance with enterprise requirements

PR52c–10 Rectify minor relief machine faults

PR52c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR52c–10.2 Relief machine operation is checked to ensure correct operation

PR52c–11 Conduct shut down of production process

PR52c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR52c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR52c–11.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR52c–11.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR52c–11.5 All product is removed from operating area

PR52c–11.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR52c–11.7 Repair / adjustment is verified prior to resumption of operations

PR52c–12 Clean and wash up printing machine at end of print run

PR52c–12.1 Cylinders, plate and roller surfaces are cleaned ready for next run

PR52c–12.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR52c–12.3 In-line printing / converting / binding / finishing units are cleaned ready for next run

PR52c–12.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR52c–12.5 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run
PR52c–13 Complete records

PR52c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
Range of standard inks commonly used in 1–2 colour printing

Colour matching systems
Use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions

Machines
A range of platen, cylinder and rotary printing machines with manual, semi–automated, fully automated or computerised process control

Design
Simple graphics and text. Minor variation in registration and position

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Produce TWO basic relief printing jobs (if possible including at least ONE in–line process) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel or sheet transportation and delivery
- relief printing operations
- in–line processes
- quality control and problem solving
- shutdown and wash up the press
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel or sheet transportation and delivery

What OH&S concerns are there when loading and handling heavy reels?
Why are the sheets fanned before loading into the press?
Why is it important that the double sheet detector be set and checked during the print run?
Why is the tracking of the web important to position and register?
What will happen if the web is not spliced correctly?
If sheeted, what components can be adjusted to ensure correct delivery?
What effect could excessive suction on the slow down wheels have?

Relief printing operations
- How frequently should the quality of the product be assessed?
- What would be the possible cause of a halo effect on the relief print?
- What are the signs of wear in the image area of the plate?
- How is product that is deemed unacceptable by the operator marked?
- At what level should the ink level be maintained?

In–line processes
- What are the OH&S concerns for the in–line components of the press?
- How frequently should the in–line components of the job be examined?

Quality control and problem solving
- What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
- How is printed material that is not of an acceptable standard identified?
- What should be monitored to ensure quality?
- What action could be taken if mild set off was found on the back of the print?
- Who would be consulted if there were a problem with the print that was not able to be fixed by the operator?
- Where can information concerning the correct operation of the machine be found?

Shutdown and wash up the press
- What dangers exist from solvents and solutions used to clean the inking system, plates, cylinders and the press?
- How should plates be stored following printing?
- What parts of the machine should be thoroughly cleaned following the print run?
- What components should be inspected for wear following the print run?
- What records are important for following or repeat prints?

Information sources
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR52d  Produce complex relief printed product

Elements and Performance Criteria

PR52d–1  Maintain operation of reel transportation system on web–fed machine (OR PR52d–2)

PR52d–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
PR52d–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
PR52d–1.3  Substrate is added to process according to job instructions

PR52d–2  Maintain operation of sheet transportation system on sheet–fed machine (OR PR52d–1)

PR52d–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
PR52d–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
PR52d–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
PR52d–2.4  Substrate is added to process according to job instructions

PR52d–3  Maintain operation of reel delivery system on web–fed machine (OR PR52d–4)

PR52d–3.1  Reel rewind section monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
PR52d–3.2  Substrate is removed from process according to job instructions
PR52d–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery
PR52d–3.4  Set–off / marking prevention system is monitored and adjusted to ensure quality of printed product without set–off or marking meets the standard of approved proof

PR52d–4  Maintain operation of sheet delivery system on sheet–fed machine (OR PR52d–3)

PR52d–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery
PR52d–4.2  Set–off / marking prevention system is monitored and adjusted to ensure quality of printed product without set–off or marking meets the standard of approved proof

PR52d–5  Maintain complex relief printing process

PR52d–5.1  Relief polymer forme or plate cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the sample sheet
PR52d–5.2  Relief polymer impression surface condition is monitored and adjusted to ensure the quality of printed product meets the standard of sample sheet
PR52d–5.3  Relief polymer inking system is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet
PR52d–5.4  Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR52d–6  Maintain operation of in–line processes

PR52d–6.1  In–line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR52d–7  Maintain production process
PR52d–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

PR52d–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

PR52d–7.3 Manual and/or automatic control is used as per specification

PR52d–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

PR52d–7.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run

PR52d–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

PR52d–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures

PR52d–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures

PR52d–7.9 Waste is sorted according to enterprise procedures

PR52d–8 Liaise with customers

PR52d–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR52d–9 Identify and investigate relief machine operating problem

PR52d–9.1 Problem in relief machine operation is identified and reported in accordance with enterprise requirements

PR52d–10 Rectify minor relief machine faults

PR52d–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR52d–10.2 Relief machine operation is checked to ensure correct operation

PR52d–11 Conduct shut down of production process

PR52d–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR52d–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

PR52d–11.3 Unused ink is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR52d–11.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR52d–11.5 All product is removed from operating area

PR52d–11.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR52d–11.7 Repair / adjustment is verified prior to resumption of operations

PR52d–12 Clean and wash up printing machine at end of print run

PR52d–12.1 Cylinders, plate and roller surfaces are cleaned ready for next run

PR52d–12.2 Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

PR52d–12.3 In–line printing / converting / binding / finishing units are cleaned ready for next run

PR52d–12.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
PR52d–12.5 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

PR52d–13 Complete records

PR52d–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
Range of inks commonly used in 3 or more colour printing, including standard and special colours

Colour matching systems
Use of densitometers and spectrophotometry

Machines
Range of platen, cylinder and rotary machines with manual, semi–automated, fully automated or computerised process control

Design
Complex graphics and text. Critical 'tight' registration, fit and position, registration should be at least that required for four colour process work

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide and narrow reel, and large and small sheet handling systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Monitor production output and make necessary adjustments to maintain print quality on a relief printing machine whilst producing a complex print on TWO occasions (if possible using different substrates) (and if possible including at least TWO in–line processes) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* reel transportation and web control OR
* sheet transportation and transfer at the feeder
* reel delivery for rewinding and sheeting OR
* sheet delivery
* printing unit
* drying unit
* in–line processes
* maintaining production process
* customer liaison
* relief printing machine operating problems
* shut down procedures
* cleaning and washing up the printing unit
* cleaning feed, transportation, delivery and in–line sections
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Reel transportation and web control
What are the major OH&S concerns when setting up the reel transportation system?
What could cause the reel to wander?
What could cause the web to break at the unwind unit?
What print fault would result from the reel being run out of centre?
What possible faults in the unwind section could cause a web break?

Sheet transportation and transfer at the feeder
What are the major OH&S concerns when setting up the sheet transportation system?
What would be result of worn suckers at the feeder suction head?
What type of two sheet detection is on this machine?
How much movement should the sheet have when being registered by the side lay?
What could cause misregister of the sheet at the feeder?
What are the visible signs of the sheet being registered in the feeder?
How can gripper malfunction effect sheet control and transfer?
When would sheet transfer mechanisms require adjusting?
What would cause the feeder stack to become uneven?
What would be the result of the feeder stack not being loaded level?
How can any unevenness of the feeder stack be rectified?

Reel delivery for rewinding and sheeting
What are the OH&S risks associated with rewinding and sheeting?
What safety feature is in the delivery system if the web jams up?
Why would the sheet cut–off wander?
What is the effect of poorly adjusted nip rollers when rewinding and sheeting?

Sheet delivery
What effect will machine speed have on sheet delivery?
What is the advantage of spraying moving sheets with anti set off powder in the delivery?
What items in the delivery could cause marking of the printed image?
What remedial steps may be necessary to eliminate marking of the printed image?
What faults could result from incorrectly set grippers in the transfer section of a machine?
What devices were adjusted to maintain sheet control in the delivery?

Printing unit
What could be the result if the plate lifts at the grip edge during a print run?
How could a build up of ink on the impression cylinder effect the printed product?
What could cause the ink to lay back in the duct?
How could the problem of paper surface picking be rectified?
What could cause diminished impression during the print run?
What could cause the plate surface to prematurely wear during production?

Drying unit
Why is it not advisable to eat or drink near the machine when using UV inks?
What is the link between driers and set off and marking?
What causes UV ink to dry?
What could cause the substrate to blister?
What is the effect of incorrect drying temperature on the finished product?

In–line processes
What are the major OH&S concerns when operating cutting devices?
How was the consistency of the cutting and creasing unit checked?
What would be the result of excessive pressure on the slitters?
What is the benefit of die cutting using a rotary die?
What are the advantages of using a perforation wheel to perforate

Maintaining production process
What is the effect of inadequate communication within the work team on a relief printing machine?
What safety features within the organisation aid in maintaining effective production?
What are the ramifications if machine guards are removed and/or micro switches are disconnected on a machine?
Who would be held legally responsible for the removal of machine guards and/or disconnection of micro switches?
What other measurement besides optimum solid ink density can be measured to assess print quality?
What is the most accurate method of checking register during a production run?
Why is it necessary to take immediate action when production problems are anticipated?
What action is taken to eliminate further processing of unacceptable printed product?
What will be the result to a stack of paper if the relative humidity is increased in the pressroom?
What is the procedure to care for a newly delivered skid of paper to the pressroom?
Why should waste be sorted?
What is the advantage of keeping reusable waste?

Customer liaison
What industry standards can be applied to enhance effective communication with the customer?
What are the necessary procedures that the customer should follow to "OK" a printed product?

Relief printing machine operating problems
When would it be necessary to call service personnel to correct a machine problem?
What enterprise processes are in place to report any machine operating problems?

Shut down procedures
What would be the result if correct shut down procedures were not followed?
Why is it necessary that correct shutdown procedures are conducted with fellow workers?
What advantages results from proper labelling and storage of excess inks and materials?
Why should the printed product be clearly labelled prior to removal from the press room?

Cleaning and washing up the printing unit
What OH&S concerns should be observed when handling ink?
What safety precautions should be observed when cleaning the printing cylinders?
Why is it necessary to thoroughly clean and wash up the printing unit prior to the next print run?
How can plates be stored so as to minimise damage?

Cleaning feed, transportation, delivery and in–line sections
What are the OH&S precautions to be observed when cleaning these sections of the machine?
What is it necessary to maintain a clean substrate handling section of the machine?

Completing production records
How are completed records used in the final analysis of the job?
What are the benefits of comprehensive records when considering the production of future jobs?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR61b Set up for foil stamping

Elements and Performance Criteria

PR61b–1 Read and interpret job requirements from job documentation or production control system

PR61b–1.1 Set up is carried out correctly in minimum time with minimum wastage

PR61b–2 Lock up and mount die or block

PR61b–2.1 Die or block is selected and checked against job ticket
PR61b–2.2 Die or block is locked into chase and checked for correct positioning
PR61b–2.3 Chase is mounted in press

PR61b–3 Set up reel transportation system on web-fed machine (OR PR61b–4 OR PR61b–5)

PR61b–3.1 Unwind reel is set up and adjusted to suit job requirements
PR61b–3.2 Webbing procedures are carried out
PR61b–3.3 Web-control system is set up and adjusted to suit job requirements
PR61b–3.4 Reels are spliced / joined to suit job requirements
PR61b–3.5 Printed web viewing devices are set up and adjusted to suit job requirements

PR61b–4 Set up sheet transportation system on sheet-fed machine (OR PR61b–3 OR PR61b–5)

PR61b–4.1 Feeder is set up and adjusted to suit job requirements
PR61b–4.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
PR61b–4.3 Transfer systems are set up and adjusted to suit job requirements

PR61b–5 Set up product jigs onto machine table (OR PR61b–3 OR PR61b–4)

PR61b–5.1 Jig(s) are selected to suit product to be stamped
PR61b–5.2 Jig(s) are fitted to machine table
PR61b–5.3 Table height is adjusted to suit product

PR61b–6 Set up reel delivery system on web-fed machine (OR PR61b–7 OR PR61b–8)

PR61b–6.1 Rewind reel is set up and adjusted to suit job requirements
PR61b–6.2 Folder is set up and adjusted suit job requirements
PR61b–6.3 Sheeter is set up and adjusted to suit job requirements
PR61b–6.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR61b–7 Set up sheet delivery system on sheet-fed machine (OR PR61b–6 OR PR61b–8)

PR61b–7.1 Delivery is set up and adjusted to suit job requirements
PR61b–7.2 Substrate is removed from process according to job instructions
PR61b–7.3 Sheet transfer and control system is set up and adjusted to suit job requirements
PR61b–7.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR61b–8 Set up in-line loading and ejection (OR PR61b–6 OR PR61b–7)
PR61b–8.1 In–line loading and ejection units are set up up for basic processes and adjusted to suit machine and job requirements

PR61b–9 Select foils

PR61b–9.1 Foils are selected in accordance with job requirements and end–user requirements
PR61b–9.2 Quality and suitability of foils are checked and appropriate action is taken
PR61b–9.3 Foils are selected according to suitability of substrate, physical and chemical performance and properties
PR61b–9.4 Foils are prepared in accordance with OH&S requirements, and manufacturer’s / supplier’s instructions with suitable precautions to minimise waste
PR61b–9.5 Foils are appropriately labelled, handled and stored in accordance with manufacturer’s / supplier’s instructions to prevent damage and hazards to personnel and prolong shelf life

PR61b–10 Set up machine for foil stamping

PR61b–10.1 Foil transfer or feed system is set up and adjusted to suit image size and job requirements

PR61b–11 Set up in–line units for basic process(es) (Not applicable to 3D objects)

PR61b–11.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
PR61b–11.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR61b–12 Conduct proof run

PR61b–12.1 Material to be used for proof is organised correctly
PR61b–12.2 Machine is operated in accordance with manufacturer’s and enterprise requirements to produce a specified proof

PR61b–13 Organise proof inspection and / or testing

PR61b–13.1 Proof is visually inspected and / or tested or laboratory testing organised in accordance with enterprise procedures
PR61b–13.2 Production does not commence without customer OK or authority where appropriate

PR61b–14 Readjust settings

PR61b–14.1 Results are interpreted to determine adjustment requirements
PR61b–14.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

- **Foil**
  Range of foils used in gold blocking and hot foil stamping

- **Colour matching systems**
  Use of visual colour assessment and matching under controlled lighting conditions

- **Machines**
  A range of foil stamping machines, including machines with computerised monitoring and/or control

- **Design**
  Simple graphics and text. Minor variation in registration and position

- **In–line processes**
  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, wood, plastics and related films, metal injection moulded plastics, moulded plastics, lacquered substrates

Substrate handling
Wide or narrow reel or large or small sheet or 3D object handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Demonstrate all safety devices on the machine.

Set-up for foil stamping on TWO occasions (if possible including at least ONE in-line process if relevant) according to job and workplace specifications, manufacturer’s specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
• interpreting job requirements
• web or sheet or product transportation (as relevant)
• foils and substrates
• machine set-up
• proofing and adjusting
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Interpreting job requirements
What would you do if vital information was missing from the job ticket?
What checks should be undertaken prior to set-up (availability of materials etc)?

Web or sheet or product transportation (as relevant)
What are the major OH&S concerns when setting up transportation systems?
How do you determine the printing side of the material?
What may happen if a previously printed reel is not dry?
What is the purpose of nip rollers?
How is the sheet position determined for the job?
Why is the same side lay used in both print and foil stamping?
How are the appropriate front lays selected?
How high should the side and front lays be set?
Why should a register check be carried out?
How do you determine appropriate product jigs?
How do you determine correct table height?

Foils and substrates
What characteristics must be considered when selecting foil for foil stamped product?
What type of foil would be required for foiling on plastic films?
List THREE products and the foils that are appropriate for them.

Machine set-up
What are the OH&S concerns related to the set up?
What would the image be positioned to when setting up?
What effect would a soft packing have on the foil stamped product?
What methods can be used to create a harder packing?
What effect does a higher dwell time have on the foil stamped product?
What temperature would be the starting point when setting up?
What could happen if the temperature was set too high?
At what height should the die be mounted?
How should the required pressure be determined?

**Proofing and adjusting**
- What precautions should be taken to protect from burns?
- Why wouldn't the first sheet or object printed be used a proof during set up?
- What is the cause of an uneven print (top to bottom)?
- If the foil was not sticking to the substrate what action could be taken?
- How long do temperature adjustments take to become effective?
- What are the signs of a temperature setting that is too high?
- How much should the foil draw through the press on each pass?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
### PR62b Produce foil stamped product

#### Elements and Performance Criteria

**PR62b–1 Maintain operation of reel transportation system on web-fed machine (OR PR62b–2 OR PR62b–3)**

- **PR62b–1.1** Reel stand is monitored and adjusted to ensure efficient continuous operation
- **PR62b–1.2** Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web and efficient operation
- **PR62b–1.3** Substrate is added to process according to job instructions

**PR62b–2 Maintain operation of sheet transportation system on sheet-fed machine (OR PR62b–1 OR PR62b–3)**

- **PR62b–2.1** Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- **PR62b–2.2** Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
- **PR62b–2.3** Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- **PR62b–2.4** Substrate is added to process according to job instructions

**PR62b–3 Maintain correct loading and unloading of products to fixtures (OR PR62b–1 OR PR62b–2)**

- **PR62b–3.1** Location of objects into fixtures / jigs is monitored and adjusted if necessary


- **PR62b–4.1** Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
- **PR62b–4.2** Substrate is removed from process according to job instructions
- **PR62b–4.3** Sheeting section is monitored and adjusted to ensure quality and efficient product delivery
- **PR62b–4.4** Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof


- **PR62b–5.1** Delivery is monitored and adjusted to ensure quality and efficient product delivery
- **PR62b–5.2** Set-off / marking prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof


- **PR62b–6.1** In-line loading is monitored and adjusted to ensure quality and efficient product delivery
- **PR62b–6.2** In-line ejection is monitored and adjusted to ensure quality and efficient product delivery

**PR62b–7 Maintain foil stamping process**

- **PR62b–7.1** Foil transfer system is monitored and adjusted to ensure quality of printed product meets the standard of approved proof
PR62b–8 Maintain basic in–line process(es) (not relevant for 3D products)
   PR62b–8.1 Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR62b–9 Maintain production process
   PR62b–9.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
   PR62b–9.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
   PR62b–9.3 Manual and/or automatic control is used as per specification
   PR62b–9.4 Performance is monitored and verified using the process control system in accordance with company procedures
   PR62b–9.5 Foil performance and position of print are monitored and adjusted throughout production run
   PR62b–9.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
   PR62b–9.7 Process adjustments to eliminate problems are reported in accordance with company procedures
   PR62b–9.8 Faulty performance of equipment is identified and reported in accordance with company procedures
   PR62b–9.9 Waste is sorted according to enterprise procedures

PR62b–10 Liaise with customers
   PR62b–10.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR62b–11 Identify and investigate foil stamping machine operating problem
   PR62b–11.1 Problem in foil stamping machine operation is identified and reported in accordance with enterprise requirements

PR62b–12 Rectify minor foil stamping machine faults
   PR62b–12.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
   PR62b–12.2 Foil stamping machine operation is checked to ensure correct operation

PR62b–13 Conduct shut down of production process
   PR62b–13.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
   PR62b–13.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
   PR62b–13.3 Unused foil is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures
   PR62b–13.4 Waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
   PR62b–13.5 All product is removed from operating area
   PR62b–13.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person
   PR62b–13.7 Repair / adjustment is verified prior to resumption of operations

PR62b–14 Clean printing machine at end of print run
   PR62b–14.1 In–line printing / converting / binding / finishing units are cleaned ready for next run
PR62b–14.2 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run OR
PR62b–14.3 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run OR
PR62b–14.4 Jig and conveyors are disengaged and cleaned ready for next run

PR62b–15 Complete records
PR62b–15.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

**Foils**
Range of foils used in gold blocking and hot foil stamping

**Colour matching systems**
Use of visual colour assessment and matching under controlled lighting conditions

**Machines**
A range of foil stamping machines, including machines with computerised monitoring and/or control

**Design**
Simple graphics and text. Minor variation in registration and position

**In–line processes**
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**
Range of substrates within the major categories of paper, pressure sensitive material, board, wood, plastics and related films, metal injection moulded plastics, moulded plastics, lacquered substrates

**Substrate handling**
Wide or narrow reel or large or small sheet or 3D object handling systems

**Degree of autonomy**
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

**Required evidence**
Produce TWO foil stamped products (if possible including at least ONE in–line process if relevant) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- maintaining in–feed and delivery of reel or sheet or 3D object transportation section
- maintaining the foil stamping process
- shutdown and cleaning the press
- information sources

Sample Questions for Underpinning Knowledge

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*
Answers need to show knowledge required when working in a limited range of circumstances.

**Maintaining in–feed and delivery of reel or sheet or 3D object transportation section**

- What are the major OH&S concerns when operating a transportation system?
- Why are the sheets fanned before loading into the press?
- What effect would the printing of double sheets have on the foil stamped product?
- Why is the tracking of the web important to position and register?
- What will happen if the web is not spliced correctly?
- What identification should be used for web splices?
- What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
- If sheeted, what components can be adjusted to ensure correct delivery?
- How is printed material that is not of an acceptable standard identified?
- What aspects of loading and ejection need to be monitored?

**Maintaining the foil stamping process**

- What are the major OH&S concerns when foil stamping?
- What considerations will contribute to determining the ideal press speed?
- At what interval should the product be checked for consistency?
- What could be the cause of the non image areas of the print filling in?
- What remedial action cold be taken if the edges of the print were jagged?
- Why is the use of anti set off spray not recommended when foil stamping?
- How do you adjust the machine to correct a shift in the image position on the object?

**Shutdown and cleaning the press**

- What dangers exist from solvents and solutions used to clean the press and printing dies?
- How should dies be stored following printing?
- What is the effect of poorly stored dies?
- What parts of the machine should be thoroughly cleaned following the print run?
- What components are to be inspected for wear following the print run?
- What records are important for following or repeat prints?

**Information sources**

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR71b  Set up for coating (basic)

Elements and Performance Criteria

PR71b–1  Read and interpret job requirements from job documentation or production control system

PR71b–1.1  Set up is carried out correctly in minimum time with minimum wastage

PR71b–2  Install rollers / cylinders into machine

PR71b–2.1  Appropriate rollers / cylinders are selected and secured to the machine and set

PR71b–3  Set up reel transportation system on web-fed machine (OR PR71b–4)

PR71b–3.1  Unwind reel is set up and adjusted to suit job requirements
PR71b–3.2  Webbing procedures are carried out
PR71b–3.3  Web–control system is set up and adjusted to suit job requirements
PR71b–3.4  Reels are spliced / joined to suit job requirements
PR71b–3.5  Printed web viewing devices are set up and adjusted to suit job requirements

PR71b–4  Set up sheet transportation system on sheet–fed machine (OR PR71b–3)

PR71b–4.1  Feeder is set up and adjusted to suit job requirements
PR71b–4.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
PR71b–4.3  Transfer systems are set up and adjusted to suit job requirements

PR71b–5  Set up reel delivery system on web–fed machine (OR PR71b–6)

PR71b–5.1  Rewind reel is set up and adjusted to suit job requirements
PR71b–5.2  Set off / marking prevention devices are set up and adjusted to suit job requirements

PR71b–6  Set up sheet delivery system on sheet–fed machine (OR PR71b–5)

PR71b–6.1  Delivery is set up and adjusted to suit job requirements
PR71b–6.2  Substrate is removed from process according to job instructions
PR71b–6.3  Sheet transfer and control system is set up and adjusted to suit job requirements
PR71b–6.4  Set off / marking prevention devices are set up and adjusted to suit job requirements

PR71b–7  Select and prepare coating

PR71b–7.1  Coating is selected in accordance with job requirements and end–user requirements
PR71b–7.2  Quality and suitability of coating is checked and appropriate action is taken
PR71b–7.3  Coatings and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste
PR71b–7.4  Correct weight / volume of coating is prepared to match the requirements of the job specification and the coating process
PR71b–7.5  Check the viscosity of coating is correct for the job
PR71b–7.6  Formulation of the coating is appropriately recorded

PR71b–8  Set up in–line units
PR71b–8.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR71b–8.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

PR71b–9 Set up machine for coating

PR71b–9.1 Application system is set up and adjusted to suit job requirements

PR71b–9.2 Coating delivery system is set up with correct flow and return flow determined by air pressure or pump speeds and adjusted to suit job requirements

PR71b–9.3 Cut a coating blanket or install a plate for non–image areas

PR71b–9.4 Check that blanket or plate packing is suitable to the job

PR71b–9.5 Check that the coating temperature is suitable for the job

PR71b–9.6 Drying system is set up and adjusted to suit job requirements

PR71b–10 Conduct proof run

PR71b–10.1 Material to be used for proof is organised correctly

PR71b–10.2 Machine is set up and operated in accordance with OH&S requirements, manufacturer's and enterprise requirements to produce a specified proof

PR71b–11 Organise proof inspection and/or testing

PR71b–11.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR71b–11.2 Production does not commence without customer OK or authority where appropriate

PR71b–12 Readjust settings

PR71b–12.1 Results are interpreted to determine adjustment requirements

PR71b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Coatings
A range of aqueous coatings, UV varnishes and machine varnishes

Colour matching systems
Use of visual colour assessment and densitometry to match basic standard tints under controlled lighting conditions

Machines
A range of printing machines or dedicated coating machines with manual, semi–automated, fully automated or computerised process control

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Paper and paper board and other substrates as appropriate

Substrate handling
Narrow or wide reel handling, and small and large sheet systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

**Required evidence**

Demonstrate all safety devices on the machine.

Set-up for TWO basic coating operations (one spot coating and one overall coating) (if possible including at least ONE in-line process) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- interpreting job requirements
- sheet or reel transportation
- sheet or reel delivery
- coating preparation
- machine set-up
- proofing and adjustments
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

**Answers need to show knowledge required when working in a limited range of circumstances.**

**Interpreting job requirements**

Where on the work ticket is the information listing the type of coating required?
What would you do if vital information was missing from the job ticket?
What checks should be undertaken prior to set-up (availability of materials etc)?

**Sheet or reel transportation**

What are the major OH&S concerns when setting up the sheet or reel transportation system?
How is the coating side of the material chosen?
What would be the effect of low web tension on the print?
What is the effect of inefficient web splices?
How was the sheet or reel position determined for the job?
What effect does side lay selection have on the job?
How would the appropriate front lays be selected?
How would a register check be carried out?
Why is a two sheet cut out used on most feeders (sheet)?
How does the machine know if a sheet is missing or late?
How does the machine know if there has been a web break?

**Sheet or reel delivery**

List THREE safety risks associated with the rewind of the machine.
What would be the effect of excessive web tension at the rewind of the machine?
What effect will too much vacuum on the slow down wheels have on the job?
What determines the position of register or bustle wheels?
What effect would excessive jogging have on the stack?

**Coating preparation**

What OH&S concerns are relevant to the use of coatings?
List three types of coatings.
How is the suitability of the coating determined for the job?
How is the ability of the coat to adhere to the product be determined?
How do you determine the amount of coating required?
What range of viscosities should you run with on an aqueous coating?
What is the effect of incorrect viscosity?
How do you adjust the viscosity of a coating?

**Machine set-up**
What method(s) is the coating using to solidify?
What is required to dry UV coating?
What printing principle is being utilised to apply aqueous coating?
Why is it important that gluing tabs are not coated?
What temperature is the drier set at to dry aqueous coating?
How do you determine which image carrier (plate or blanket) to use?

Proofing and adjustments
How is the position of the coating checked against the print?
What effect could skeleton wheels have on the surface of the coating?
How can the amount of gloss on the surface be measured?
Who is responsible for the final OK on the job?
What effect do you get when you don't have enough coating on a sheet?
What effect would a UV coating have on a wet print?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR71d Set up for coating (complex)

Elements and Performance Criteria

PR71d–1 Read and interpret job requirements from job documentation or production control system

PR71d–1.1 Set up is planned and carried out correctly and in minimum time

PR71d–2 Install rollers / cylinders into machine

PR71d–2.1 Appropriate rollers / cylinders are selected and secured to the machine and set

PR71d–3 Set up reel transportation system on web-fed machine (OR PR71d–4)

PR71d–3.1 Unwind reel is set up and adjusted to suit job requirements

PR71d–3.2 Webbing procedures are carried out

PR71d–3.3 Web-control system is set up and adjusted to suit job requirements

PR71d–3.4 Reels are spliced / joined to suit job requirements

PR71d–3.5 Printed web viewing devices are set up and adjusted to suit job requirements

PR71d–4 Set up sheet transportation system on sheet-fed machine (OR PR71d–3)

PR71d–4.1 Feeder is set up and adjusted to suit job requirements

PR71d–4.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements

PR71d–4.3 Transfer systems are set up and adjusted to suit job requirements

PR71d–5 Set up reel delivery system on web-fed machine (OR PR71d–6)

PR71d–5.1 Rewind reel is set up and adjusted to suit job requirements

PR71d–5.2 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR71d–6 Set up sheet delivery system on sheet-fed machine (OR PR71d–5)

PR71d–6.1 Delivery is set up and adjusted to suit job requirements

PR71d–6.2 Substrate is removed from process according to job instructions

PR71d–6.3 Sheet transfer and control system is set up and adjusted to suit job requirements

PR71d–6.4 Set off / marking prevention devices are set up and adjusted to suit job requirements

PR71d–7 Select and prepare coating

PR71d–7.1 Coating is selected in accordance with job requirements and end-user requirements

PR71d–7.2 Quality and suitability of coating is checked and appropriate action is taken

PR71d–7.3 Coatings and additives are prepared in accordance with OH&S requirements, and manufacturers' / suppliers' instructions with suitable precautions to minimise waste

PR71d–7.4 Correct weight / volume of coating is prepared to match the requirements of the job specification and the coating process

PR71d–7.5 Check the viscosity of coating is correct for the job

PR71d–7.6 Formulation of the coating is appropriately recorded

PR71d–8 Set up in-line units
PR71d–8.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR71d–8.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

**PR71d–9 Set up machine for coating**

PR71d–9.1 Application system is set up and adjusted to suit job requirements

PR71d–9.2 Choose appropriate anilox roller and ensure it is installed to manufacturer’s specifications

PR71d–9.3 Set doctor blades to manufacturer’s specifications

PR71d–9.4 Coating delivery system is set up with correct flow and return flow determined by air pressure or pump speeds and adjusted to suit job requirements

PR71d–9.5 Cut a coating blanket or install a plate for non–image areas

PR71d–9.6 Check that blanket or plate packing is suitable to the job

PR71d–9.7 Check that the coating temperature is suitable for the job

PR71d–9.8 Drying system is set up and adjusted to suit job requirements

**PR71d–10 Conduct proof run**

PR71d–10.1 Material to be used for proof is organised correctly

PR71d–10.2 Machine is set up and operated, and roller and pressure settings are checked, in accordance with OH&S requirements, manufacturer’s and enterprise requirements to produce a specified proof

**PR71d–11 Organise proof inspection and/or testing**

PR71d–11.1 Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR71d–11.2 Production does not commence without customer OK or authority where appropriate

**PR71d–12 Readjust settings**

PR71d–12.1 Results are interpreted to determine adjustment requirements

PR71d–12.2 Adjustment changes are carried out in accordance with product and machine specifications

### Range of Variables

**Coatings**
A range of carbon, carbonless, latex, wax, resin and metallic coatings, aqueous and UV varnishes and machine varnishes

**Colour matching systems**
Use of visual colour assessment and densitometry to match basic standard tints under controlled lighting conditions

**Machines**
A range of dedicated coating machines with manual, semi–automated, fully automated or computerised process control

**Design**
Spot coating, overall coating and fine detail coating

**In–line processes**
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**
Full range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

**Substrate handling**
Narrow or wide reel handling, and small and large sheet systems
Degree of autonomy
Working independently consulting as required

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Set-up for THREE complex coating operations (one spot coating, one overall coating and one fine detail, using three different coatings of which one must be metallic) (if possible including at least ONE in-line process) according to job and workplace specifications, manufacturer’s specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- interpreting job requirements
- sheet or reel transportation
- sheet or reel delivery
- coating preparation
- machine set-up
- proofing and adjustments
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Interpreting job requirements
Where on the work ticket is the information listing the type of coating required? What would you do if vital information was missing from the job ticket? What checks should be undertaken prior to set-up (availability of materials etc)?

Sheet or reel transportation
What are the major OH&S concerns when setting up the sheet or reel transportation system? How is the coating side of the material chosen? What would be the effect of low web tension on the print? What is the effect of inefficient web splices? How was the sheet or reel position determined for the job? What effect does side lay selection have on the job? How would the appropriate front lays be selected? How would a register check be carried out? Why is a two sheet cut out used on most feeders (sheet)? How does the machine know if a sheet is missing or late? How does the machine know if there has been a web break?

Sheet or reel delivery
List THREE safety risks associated with the rewind of the machine. What would be the effect of excessive web tension at the rewind of the machine? What effect will too much vacuum on the slow down wheels have on the job? What determines the position of register or bustle wheels? What effect would excessive jogging have on the stack?

Coating preparation
What OH&S concerns are relevant to the use of coatings? List FOUR types of coatings and their applications.
How is the suitability of the coating determined for the job?
How is the ability of the coat to adhere to the product be determined?
How do you determine the amount of coating required?
What range of viscosities should you run with on an aqueous coating?
What is the effect of incorrect viscosity?
How do you adjust the viscosity of a coating?

Machine set-up
What method(s) is the coating using to solidify?
What is required to dry UV coating?
What printing principle is being utilised to apply aqueous coating?
Why is it important that gluing tabs are not coated?
What temperature is the drier set at to dry aqueous coating?
How do you determine which image carrier (plate or blanket) to use?

Proofing and adjustments
How is the position of the coating checked against the print?
What effect could skeleton wheels have on the surface of the coating?
How can the amount of gloss on the surface be measured?
Who is responsible for the final OK on the job?
What effect do you get when you don't have enough coating on a sheet?
What effect would a UV coating have on a wet print?
What effect would excessive temperature have on the sheet?
What effect would you get if the viscosity is too high or too low?
What effect would you get if ink coverage is excessive, i.e., over 250%?

Information sources
What machine manuals, safety documentation, etc. are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR72b Produce coated product (basic)

Elements and Performance Criteria

PR72b–1 Maintain operation of reel transportation system on web–fed machine (OR PR72b–2)
- PR72b–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
- PR72b–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
- PR72b–1.3 Substrate is added to process according to job instructions

PR72b–2 Maintain operation of sheet transportation system on sheet–fed machine (OR PR72b–1)
- PR72b–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- PR72b–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
- PR72b–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- PR72b–2.4 Substrate is added to process according to job instructions

PR72b–3 Maintain operation of reel delivery system on web–fed machine (OR PR72b–4)
- PR72b–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks or blemishes to finished product
- PR72b–3.2 Substrate is removed from process according to job instructions
- PR72b–3.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

PR72b–4 Maintain operation of sheet delivery system on sheet–fed machine (OR PR72b–3)
- PR72b–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

PR72b–5 Maintain coating process
- PR72b–5.1 Roller condition is monitored and adjusted to ensure the quality of printed product meets the standard of approved proof
- PR72b–5.2 Coating system is monitored and adjusted to ensure quality of product meets the standard of approved proof
- PR72b–5.3 Drying systems are monitored and adjusted to ensure quality of product meets the standard of approved proof
- PR72b–5.4 Quality and viscosity of varnish are monitored and adjusted as necessary to ensure quality of product

PR72b–6 Maintain operation of in–line processes
- PR72b–6.1 Basic or complex in–line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR72b–7 Maintain production process
- PR72b–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- PR72b–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
PR72b–7.3 Manual and/or automatic control is used as per specification
PR72b–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
PR72b–7.5 Coating performance, register and position of coating are monitored and adjusted throughout production run
PR72b–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR72b–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures
PR72b–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures
PR72b–7.9 Waste is sorted according to enterprise procedures

**PR72b–8 Identify and investigate coating machine operating problems**

PR72b–8.1 Problems in coating machine are identified and reported in accordance with enterprise requirements

**PR72b–9 Rectify minor coating machine faults**

PR72b–9.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
PR72b–9.2 Coating machine operation is checked to ensure correct operation

**PR72b–10 Conduct shut down of production process**

PR72b–10.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
PR72b–10.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
PR72b–10.3 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
PR72b–10.4 All product is removed from operating area
PR72b–10.5 Machine faults requiring repair are identified and reported, according to company procedures to designated person
PR72b–10.6 Repair / adjustment is verified prior to resumption of operations

**PR72b–11 Clean and wash up coating machine at end of print run**

PR72b–11.1 Cylinders, plate and roller surfaces are cleaned ready for next run
PR72b–11.2 Coating delivery system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
PR72b–11.3 In–line slitting units are cleaned ready for next run
PR72b–11.4 Reef feed, transportation and delivery systems are disengaged and cleaned ready for next run

**PR72b–12 Complete records**

PR72b–12.1 Production records or other documentation are accurately completed where required by enterprise procedures

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**Range of Variables**

Coatings

A range of aqueous coatings, UV varnishes and machine varnishes
Colour matching systems  Use of visual colour assessment and densitometry to match basic standard tints under controlled lighting conditions

Machines  A range of printing machines or dedicated coating machines with manual, semi–automated, fully automated or computerised process control

In–line processes  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types  Paper and paper board and other substrates as appropriate

Substrate handling  Narrow or wide reel handling, and small and large sheet systems

Degree of autonomy  Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Produce TWO basic coating jobs (one spot coating and one overall coating) (if possible including at least ONE in–line process) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- interpreting job information
- reel or sheet transportation and delivery
- maintaining coating operations
- washup and shutdown of machine
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Interpreting job information
What should you do if vital information was missing from the job ticket?
What checks should be undertaken prior to set–up (availability of materials etc.)?

Reel or sheet transportation and delivery
What OH&S concerns are there related to loading and handling heavy reels?
Why are the sheets fanned before loading into the press?
Why is it important that the double sheet detector be set and checked during the print run?
What would be the effect on the print of excessive tension on the rewinding reel?
What will happen if the web is not spliced correctly?
What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
If sheeted, what components can be adjusted to ensure correct delivery?
How is printed material that is not of an acceptable standard identified?

Maintaining coating operations
What are the major OH&S concerns when coating?
What action could be taken if the aqueous coating was smudging on the delivery section of the machine?
What effects could anti set off spray have on the finished job?
At what level should the coating be maintained in the pan?
What effect does the UV lamp have on the UV coating?

Wash up and shutdown of machine
What dangers exist from solvents and solutions used to clean the coating system, plates, cylinders and the press?
What parts of the machine should be thoroughly cleaned following the coating of the job?
What components are to be inspected for wear following the print run?
What records are important for following or repeat prints?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
PR72d  Produce coated product (complex)

Elements and Performance Criteria

PR72d–1 Maintain operation of reel transportation system on web–fed machine (OR PR72d–2)
  PR72d–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
  PR72d–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
  PR72d–1.3 Substrate is added to process according to job instructions

PR72d–2 Maintain operation of sheet transportation system on sheet–fed machine (OR PR72d–1)
  PR72d–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
  PR72d–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
  PR72d–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
  PR72d–2.4 Substrate is added to process according to job instructions

PR72d–3 Maintain operation of reel delivery system on web–fed machine (OR PR72d–4)
  PR72d–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks or blemishes to finished product
  PR72d–3.2 Substrate is removed from process according to job instructions
  PR72d–3.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

PR72d–4 Maintain operation of sheet delivery system on sheet–fed machine (OR PR72d–3)
  PR72d–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

PR72d–5 Maintain coating process
  PR72d–5.1 Roller condition is monitored and adjusted to ensure the quality of printed product meets the standard of approved proof
  PR72d–5.2 Coating system and doctor blade condition (if appropriate) are monitored and adjusted to ensure quality of product meets the standard of approved proof
  PR72d–5.3 Drying systems are monitored and adjusted to ensure quality of product meets the standard of approved proof
  PR72d–5.4 Quality and viscosity of varnish are monitored and adjusted as necessary to ensure quality of product

PR72d–6 Maintain operation of in–line processes
  PR72d–6.1 Basic or complex in–line printing / converting / binding / finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR72d–7 Maintain production process
  PR72d–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  PR72d–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
PR72d–7.3 Manual and/or automatic control is used as per specification
PR72d–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
PR72d–7.5 Coating performance, register and position of coating are monitored and adjusted throughout production run
PR72d–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
PR72d–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures
PR72d–7.8 Faulty performance of equipment is identified and reported in accordance with company procedures
PR72d–7.9 Waste is sorted according to enterprise procedures

PR72d–8 Identify and investigate coating machine operating problems
PR72d–8.1 Problems in coating machine are identified and reported in accordance with enterprise requirements

PR72d–9 Rectify minor coating machine faults
PR72d–9.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
PR72d–9.2 Coating machine operation is checked to ensure correct operation

PR72d–10 Conduct shut down of production process
PR72d–10.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
PR72d–10.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
PR72d–10.3 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
PR72d–10.4 All product is removed from operating area
PR72d–10.5 Machine faults requiring repair are identified and reported, according to company procedures to designated person
PR72d–10.6 Repair / adjustment is verified prior to resumption of operations

PR72d–11 Clean and wash up coating machine at end of print run
PR72d–11.1 Cylinders, plate and roller surfaces are cleaned ready for next run
PR72d–11.2 Coating delivery system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
PR72d–11.3 In–line slitting units are cleaned ready for next run
PR72d–11.4 Reef feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR72d–12 Complete records
PR72d–12.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Coatings
A range of carbon, carbonless, latex, wax, resin and metallic coatings, aqueous and UV varnishes and machine varnishes
Colour matching systems
Use of visual colour assessment and densitometry to match basic standard tints under controlled lighting conditions

Machines
A range of dedicated coating machines with manual, semi–automated, fully automated or computerised process control

Design
Spot coating, overall coating and fine detail coating

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Full range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Narrow or wide reel handling, and small and large sheet systems

Degree of autonomy
Working independently consulting as required

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Produce THREE complex coating jobs (one spot coating, one overall coating and one fine detail, using three different coatings of which one must be metallic) (if possible including at least ONE in–line process) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- interpreting job information
- reel or sheet transportation and delivery
- maintaining coating operations
- washup and shutdown of machine
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Interpreting job information
What should you do if vital information was missing from the job ticket?
What checks should be undertaken prior to set–up (availability of materials etc.)?

Reel or sheet transportation and delivery
What OH&S concerns are there related to loading and handling heavy reels?
Why are the sheets fanned before loading into the press?
Why is it important that the double sheet detector be set and checked during the print run?
What would be the effect on the print of excessive tension on the rewinding reel?
What will happen if the web is not spliced correctly?
What precautions should be taken to ensure that the rewound product is of consistent acceptable quality?
If sheeted, what components can be adjusted to ensure correct delivery?
How is printed material that is not of an acceptable standard identified?
Maintaining coating operations
What are the major OH&S concerns when coating?
What action could be taken if the aqueous coating was smudging on the delivery section of the machine?
What effects could anti set off spray have on the finished job?
At what level should the coating be maintained in the pan?
What effect does the UV lamp have on the UV coating?
When would the temperature and volume of hot and cold air knives be varied?
When is IR radiation used (including choice of medium or short wave lamps) and what is its effect when using coatings?

Wash up and shutdown of machine
What dangers exist from solvents and solutions used to clean the coating system, plates, cylinders and the press?
What parts of the machine should be thoroughly cleaned following the coating of the job?
What components are to be inspected for wear following the print run?
What records are important for following or repeat prints?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
PR81b  Set up for electronic / digital printing (basic)

Elements and Performance Criteria

PR81b–1  Read and interpret job requirements from job documentation or production control system

PR81b–1.1  Set up is carried out correctly in minimum time with minimum wastage

PR81b–2  Select and install inking system / cartridge on machine

PR81b–2.1  Appropriate inking system / cartridge is selected and secured to the machine

PR81b–3  Set up reel transportation system on web–fed machine (OR PR81b–4)

PR81b–3.1  Unwind reel is set up and adjusted to suit job requirements

PR81b–4  Set up sheet transportation system on sheet–fed machine (OR PR81b–3)

PR81b–4.1  Feeder is set up and adjusted to suit job requirements

PR81b–5  Set up reel delivery system on web–fed machine (OR PR81b–6)

PR81b–5.1  Rewind reel is set up and adjusted to suit job requirements

PR81b–6  Set up sheet delivery system on sheet–fed machine (OR PR81b–5)

PR81b–6.1  Delivery is set up and adjusted to suit job requirements

PR81b–6.2  Substrate is removed from process according to job instructions

PR81b–7  Access data

PR81b–7.1  Data required for the job is called up electronically using industry program

PR81b–7.2  Data is checked and amended to conform with job specifications and functionality

PR81b–8  Set up in–line units for basic process(es)

PR81b–8.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements

PR81b–8.2  Assistance is given in set up of major in–line printing / converting / binding unit(s).

(NOTE: if entire set up is done refer to appropriate competency standards)

PR81b–9  Conduct proof run or off–line proof

PR81b–9.1  Material to be used for proof is organised correctly

PR81b–9.2  Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR81b–10  Organise proof inspection and/or testing

PR81b–10.1  Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

PR81b–10.2  Production does not commence without customer OK or authority where appropriate

PR81b–11  Readjust settings

PR81b–11.1  Results are interpreted to determine adjustment requirements

PR81b–11.2  Adjustment changes are carried out in accordance with product and machine specifications
Range of Variables

Inks / coatings
Range of inks / dyes / toners commonly used in 2 colour printing, including special colours

Colour matching systems
Use of visual colour assessment and matching under controlled lighting conditions

Machines
Range of non–impact printing machines including inkjet and laser, without image and colour manipulation capability, and including machines with computerised monitoring and/or control

Design
Simple graphics and text. Minor variation in registration and position

Range of printing units used
Up to two printing units used for static and dynamic data

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of paper substrates

Substrate handling
Narrow reel, and small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Demonstrate all safety devices on the machine.
Set–up TWO jobs for basic electronic / digital printing (if possible ONE static and ONE variable data) according to job and workplace specifications, manufacturer's specifications and the listed performance criteria.
Demonstrate use of computerised control and monitoring systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:

- job requirements and RIP process
- inking or imaging system
- sheet or web transportation and delivery
- data access and manipulation
- in–line processes
- proofing and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Job requirements and RIP process
What would you do if vital information was missing from the job ticket (manual or electronic)?
What checks were undertaken prior to set–up (availability of materials etc)?
If a file does not transfer correctly what action should you take to correct the problem?
What are the main points to be checked before sending a job to the RIP?

**Inking or imaging system**
- What OH&S procedures should be followed when loading ink / toner?
- What determined the selection of the specific ink / toner for the printed product?
- Why was the toner from the specific supplier chosen?

**Sheet or web transportation and delivery**
- What are the major OH&S concerns when setting up the sheet or web transportation and delivery systems?
- What would you do if the required substrate was not available?
- What is the minimum weight of substrate that can be printed on the specific machine?
- What is the minimum weight of substrate that can be printed on the specific machine?
- What are possible faults associated with paper of a low weight?
- What pre prepared substrates are available for the machine?
- What is the maximum sheet / web size for the machine?
- What is the minimum sheet / web size for the machine?
- What is the maximum quantity that can be stacked / rewound in the delivery?
- What problems could be associated with incorrect delivery of the substrate?

**Data access and manipulation**
- What checks are made to ensure the data is in a format that can be used on the specific electronic / digital printer?
- What are the benefits of using electronic data rather than scanning hard copy?
- What is the benefit of merging in changeable information?
- How is the pagination of the printed job checked to ensure correctness?
- How is information that has been archived recalled?

**In–line processes**
- What OH&S procedures should be followed when setting up in–line processes?
- What in–line options are available on the machine?
- What checks should be made on in–line equipment?

**Proofing and adjustment**
- Under what circumstances would a job be modified before printing?
- Why would margins be changed when the job reaches the electronic printing machine?
- What additional images or colours could be reproduced on a printed product?
- What effect could a change of colour sequence have on the finished product?
- What are some reasons for changing the print sequence?
- What steps would need to be followed for a customer approval of the print?
- What is the proof checked against?
- Who gives the final approval for standard jobs?
- Does the off–line proof align to print output?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR81c  Set up for electronic / digital printing (complex)

Elements and Performance Criteria

PR81c–1  Read and interpret job requirements from job documentation or production control system
  PR81c–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

PR81c–2  Select and install inking system / cartridge on machine
  PR81c–2.1  Appropriate inking system / cartridge is selected and secured to the machine

PR81c–3  Set up reel transportation system on web-fed machine (OR PR81c–4)
  PR81c–3.1  Unwind reel is set up and adjusted to suit job requirements

PR81c–4  Set up sheet transportation system on sheet-fed machine (OR PR81c–3)
  PR81c–4.1  Feeder is set up and adjusted to suit job requirements

PR81c–5  Set up reel delivery system on web-fed machine (OR PR81c–6)
  PR81c–5.1  Rewind reel is set up and adjusted to suit job requirements

PR81c–6  Set up sheet delivery system on sheet-fed machine (OR PR81c–5)
  PR81c–6.1  Delivery is set up and adjusted to suit job requirements
  PR81c–6.2  Substrate is removed from process according to job instructions

PR81c–7  Access data
  PR81c–7.1  Data required for the job is called up electronically using industry program
  PR81c–7.2  Data is checked and amended to conform with job specifications and functionality

PR81c–8  Set up in-line units for basic process(es)
  PR81c–8.1  Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  PR81c–8.2  Assistance is given in set up of major in-line printing / converting / binding unit(s).
  (NOTE: if entire set up is done refer to appropriate competency standards)

PR81c–9  Conduct proof run or off-line proof
  PR81c–9.1  Material to be used for proof is organised correctly
  PR81c–9.2  Machine is operated in accordance with manufacturer's and enterprise requirements to produce a specified proof

PR81c–10  Organise proof inspection and/or testing
  PR81c–10.1  Proof is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures
  PR81c–10.2  Production does not commence without customer OK or authority where appropriate

PR81c–11  Readjust settings
  PR81c–11.1  Results are interpreted to determine adjustment requirements
  PR81c–11.2  Adjustment changes are carried out in accordance with product and machine specifications
Range of Variables

Inks / coatings
Range of inks / dyes / toners commonly used in 4 or more colour printing, including special colours

Colour matching systems
Use of visual colour assessment and matching under controlled lighting conditions

Machines
Range of non–impact printers or machines with laser written masters, including inkjet, laser and offset principles that have colour and image manipulation capability, and including machines with computerised monitoring and/or control

Design
Complex graphics and text. Minor or no variation in registration and position

Range of printing units used
Range of 4 or more printing units used for static and dynamic data

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of paper and other substrates

Substrate handling
Narrow reel, and small sheet handling systems

Degree of autonomy
Working independently in consultation with others

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Set-up THREE jobs for complex electronic / digital printing (if possible TWO static and ONE variable data) according to job and workplace specifications, manufacturer’s specifications and the listed performance criteria.

Demonstrate use of computerised control and monitoring systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
• job requirements and RIP process
• inking or imaging system
• sheet or web transportation and delivery
• data access and manipulation
• in–line processes
• proofing and adjustment
• information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Job requirements and RIP process
What would you do if vital information was missing from the job ticket (manual or electronic)?
What checks were undertaken prior to set–up (availability of materials etc)?
If a file does not transfer correctly what action should you take to correct the problem?
What are the main points to be checked before sending a job to the RIP?

**Inking or imaging system**
- What OH&S procedures should be followed when loading ink / toner?
- What determined the selection of the specific ink / toner for the printed product?
- Why was the toner from the specific supplier chosen?

**Sheet or web transportation and delivery**
- What are the major OH&S concerns when setting up the sheet or web transportation and delivery systems?
- What would you do if the required substrate was not available?
- What is the maximum weight of substrate that can be printed on the specific machine?
- What is the minimum weight of substrate that can be printed on the specific machine?
- What are possible faults associated with paper of a low weight?
- What pre prepared substrates are available for the machine?
- What is the maximum sheet / web size for the machine?
- What is the minimum sheet / web size for the machine?
- What is the maximum quantity that can be stacked / rewound in the delivery?
- What problems could be associated with incorrect delivery of the substrate?

**Data access and manipulation**
- What checks are made to ensure the data is in a format that can be used on the specific electronic / digital printer?
- What are the benefits of using electronic data rather than scanning hard copy?
- What is the benefit of merging in changeable information?
- How is the pagination of the printed job checked to ensure correctness?
- How is information that has been archived recalled?

**In–line processes**
- What OH&S procedures should be followed when setting up in–line processes?
- What in–line options are available on the machine?
- What checks should be made on in–line equipment?

**Proofing and adjustment**
- Under what circumstances would a job be modified before printing?
- Why would margins be changed when the job reaches the electronic printing machine?
- What additional images or colours could be reproduced on a printed product?
- What effect could a change of colour sequence have on the finished product?
- What are some reasons for changing the print sequence?
- What steps would need to be followed for a customer approval of the print?
- What is the proof checked against?
- Who gives the final approval for standard jobs?
- Does the off–line proof align to print output?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
PR82b Produce electronic / digital printed product (basic)

Elements and Performance Criteria

PR82b–1 Maintain operation of reel transportation system on web-fed machine (OR PR82b–2)
- PR82b–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
- PR82b–1.2 Substrate is added to process according to job instructions

PR82b–2 Maintain operation of sheet transportation system on sheet-fed machine (OR PR82b–1)
- PR82b–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- PR82b–2.2 Substrate is added to process according to job instructions

PR82b–3 Maintain operation of reel delivery system on web-fed machine (OR PR82b–4)
- PR82b–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
- PR82b–3.2 Substrate is removed from process according to job instructions

PR82b–4 Maintain operation of sheet delivery system on sheet-fed machine (OR PR82b–3)
- PR82b–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

PR82b–5 Maintain operation of non-impact printing system
- PR82b–5.1 Non-impact printing system is monitored and adjusted to ensure quality of printed product meets the standard of approved proof

PR82b–6 Maintain basic in-line process(es)
- PR82b–6.1 Basic in-line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure quality of product meets the standard of the approved proof

PR82b–7 Maintain production process
- PR82b–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- PR82b–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
- PR82b–7.3 Manual and/or automatic control is used as per specification
- PR82b–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
- PR82b–7.5 Ink performance, colour, register and position of print are monitored and adjusted throughout production run
- PR82b–7.6 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
- PR82b–7.7 Process adjustments to eliminate problems are reported in accordance with company procedures
- PR82b–7.8 Faulty adjustments to eliminate problems are reported in accordance with company procedures
- PR82b–7.9 Waste is sorted according to enterprise procedures

PR82b–8 Liaise with customers
PR82b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

PR82b–9 Identify and investigate machine operating problem
  PR82b–9.1 Problem in machine operation is identified and reported in accordance with enterprise requirements

PR82b–10 Rectify minor machine faults
  PR82b–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
  PR82b–10.2 Machine operation is checked to ensure correct operation

PR82b–11 Review and prepare next job
  PR82b–11.1 Next printing job is accessed and set up as per PR81b during production

PR82b–12 Conduct shut down of production process
  PR82b–12.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
  PR82b–12.2 Shut down is considered in association with fellow workers and in compliance with OH&S requirements
  PR82b–12.3 Unused ink / toner cartridge is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures
  PR82b–12.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
  PR82b–12.5 All product is removed from operating area
  PR82b–12.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person
  PR82b–12.7 Repair / adjustment is verified prior to resumption of operations
  PR82b–12.8 Machine is maintained to manufacturer's specifications

PR82b–13 Clean and wash up printing machine at end of print run
  PR82b–13.1 Printing units are cleaned ready for next run
  PR82b–13.2 In–line printing / converting / binding / finishing units are cleaned ready for next run
  PR82b–13.3 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
  PR82b–13.4 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

PR82b–14 Complete records
  PR82b–14.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Inks / coatings
  Range of inks / dyes / toners commonly used in 2 colour printing, including special colours

Colour matching systems
  Use of visual colour assessment and matching under controlled lighting conditions

Machines
  Range of non–impact printing machines including inkjet and laser, without image and colour manipulation capability, and including machines with computerised monitoring and/or control
Design
Simple graphics and text. Minor variation in registration and position

Range of printing units used
Up to two printing units used for static and dynamic data

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of paper substrates

Substrate handling
Narrow reel, and small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Produce TWO electronically printed products (if possible ONE static and ONE variable data) according to job and workplace specifications and the listed performance criteria.

Demonstrate use of computerised control and monitoring systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- in–feed and delivery of reel or sheet transportation
- operation of the imaging section
- in–line processes
- basic problem solving
- shutting down and cleaning the press
- records maintenance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

In–feed and delivery of reel or sheet transportation
What strategies can be used to minimise / eliminate double sheets?
Why is the tension on the web important?
What checks are made to ensure that printed material is inserted into the machine correctly?
How could marking or creasing in the delivery section be eliminated?

Operation of the imaging section
What OH&S concerns are relevant to electronic printing?
What are the indications of low ink or toner?
If inserting special sets, such as tabs, why is the order of the tabs important?
At what intervals should the finished product be examined?
What steps can be safely taken to improve production while the job is in progress?
What steps are taken to remove or to flag faulty products?
What are the possible security concerns with some printed work?
How are the waste products of electronic printing disposed?
What procedures are followed for disposal of different types of waste?

In–line processes
At what intervals should the in–line processes be checked for quality?
What are the benefits of these in-line processes?

**Basic problem solving**
- What safety devices are in place when working on the machine?
- What effect does paper dust have on the quality of the print?
- What is the ideal grain direction for work produced on the machine?

**Shutting down and cleaning the press**
- Why is the proper shutdown procedure important?
- What problems can be associated with an incorrect shutdown?
- What effect will a poorly maintained machine have on production?
- What effect will a poorly cleaned machine have on print quality?

**Records maintenance**
- What records should be completed at the end of the print run?
- How is the data stored for future reference and use?
- How long should the data be kept if it is not going to be archived?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
PR82c Produce electronic / digital printed product
(complex)

Elements and Performance Criteria

PR82c–1 Maintain operation of reel transportation system on web–fed machine (OR PR82c–2)
   PR82c–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
   PR82c–1.2 Substrate is added to process according to job instructions

PR82c–2 Maintain operation of sheet transportation system on sheet–fed machine (OR PR82c–1)
   PR82c–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to
           machine
   PR82c–2.2 Substrate is added to process according to job instructions

PR82c–3 Maintain operation of reel delivery system on web–fed machine (OR PR82c–4)
   PR82c–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to
           ensure no marks, blemishes or damage to finished product
   PR82c–3.2 Substrate is removed from process according to job instructions

PR82c–4 Maintain operation of sheet delivery system on sheet–fed machine (OR PR82c–3)
   PR82c–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

PR82c–5 Maintain operation of non–impact printing system
   PR82c–5.1 Non–impact printing system is monitored and adjusted to ensure quality of printed
           product meets the standard of approved proof

PR82c–6 Maintain basic in–line process(es)
   PR82c–6.1 Basic in–line printing / converting / binding / finishing process(es) are monitored
           and adjusted to ensure quality of product meets the standard of the approved proof

PR82c–7 Maintain production process
   PR82c–7.1 Production process is operated in association with fellow workers and in
           accordance with company specifications and planned daily schedule
   PR82c–7.2 Production is maintained within OH&S requirements and company and
           manufacturer's specifications
   PR82c–7.3 Manual and/or automatic control is used as per specification
   PR82c–7.4 Performance is monitored and verified using the process control system in
           accordance with company procedures
   PR82c–7.5 Ink performance, colour, register and position of print are monitored and adjusted
           throughout production run
   PR82c–7.6 Production difficulties are anticipated and preventative action is taken to prevent
           occurrence by timely intervention
   PR82c–7.7 Process adjustments to eliminate problems are reported in accordance with
           company procedures
   PR82c–7.8 Faulty adjustments to eliminate problems are reported in accordance with company
           procedures
   PR82c–7.9 Waste is sorted according to enterprise procedures

PR82c–8 Liaise with customers
PR82c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

**PR82c–9 Identify and investigate machine operating problem**

PR82c–9.1 Problem in machine operation is identified and reported in accordance with enterprise requirements

**PR82c–10 Rectify minor machine faults**

PR82c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

PR82c–10.2 Machine operation is checked to ensure correct operation

**PR82c–11 Review and prepare next job**

PR82c–11.1 Next printing job is accessed and set up as per PR81c during production

**PR82c–12 Conduct shut down of production process**

PR82c–12.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

PR82c–12.2 Shut down is considered in association with fellow workers and in compliance with OH&S requirements

PR82c–12.3 Unused ink / toner cartridge is correctly labelled and stored in accordance with manufacturer / supplier specifications and company operating procedures

PR82c–12.4 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

PR82c–12.5 All product is removed from operating area

PR82c–12.6 Machine faults requiring repair are identified and reported, according to company procedures to designated person

PR82c–12.7 Repair / adjustment is verified prior to resumption of operations

PR82c–12.8 Machine is maintained to manufacturer's specifications

**PR82c–13 Clean and wash up printing machine at end of print run**

PR82c–13.1 Printing units are cleaned ready for next run

PR82c–13.2 In–line printing / converting / binding / finishing units are cleaned ready for next run

PR82c–13.3 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

PR82c–13.4 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

**PR82c–14 Complete records**

PR82c–14.1 Production records or other documentation are accurately completed where required by enterprise procedures

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**Range of Variables**

**Inks / coatings**  Range of inks / dyes / toners commonly used in 4 or more colour printing, including special colours

**Colour matching systems**  Use of visual colour assessment and matching under controlled lighting conditions

**Machines**  Range of non–impact printers or machines with laser written masters, including inkjet, laser and offset principles that have colour and image manipulation capability, and including machines with computerised monitoring and/or control
Design | Complex graphics and text. Minor or no variation in registration and position
---|---
Range of printing units used | Range of four or more printing units used for static and dynamic data
In–line processes | Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types | Range of paper and other substrates
Substrate handling | Narrow reel, and small sheet handling systems
Degree of autonomy | Working independently in consultation with others

### Evidence Guide

**Context**

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

**Required evidence**

- Produce THREE complex electronically printed products (if possible TWO static and ONE variable data) according to job and workplace specifications and the listed performance criteria.
- Demonstrate use of computerised control and monitoring systems if available and appropriate.
- Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- in–feed and delivery of reel or sheet transportation
- operation of the imaging section
- in–line processes
- problem solving
- shutting down and cleaning the press
- records maintenance
- quality control
- information sources

### Sample Questions for Underpinning Knowledge

*These questions are only examples.
*They do not represent everything you need to know. Other questions may be asked.*

**Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.**

#### In–feed and delivery of reel or sheet transportation

- What strategies can be used to minimise / eliminate double sheets?
- Why is the tension on the web important?
- What checks are made to ensure that printed material is inserted into the machine correctly?
- How could marking or creasing in the delivery section be eliminated?

#### Operation of the imaging section

- What OH&S concerns are relevant to electronic printing?
- What are the indications of low ink or toner?
- If inserting special sets, such as tabs, why is the order of the tabs important?
- At what intervals should the finished product be examined?
- What steps can be safely taken to improve production while the job is in progress?
- What steps are taken to remove or to flag faulty products?
- What are the possible security concerns with some printed work?
- How are the waste products of electronic printing disposed?
What procedures are followed for disposal of different types of waste?

**In–line processes**

At what intervals should the in–line processes be checked for quality?
What are the benefits of these in–line processes?

**Problem solving**

What safety devices are in place when working on the machine?
What effect does paper dust have on the quality of the print?
What is the ideal grain direction for work produced on the machine?
What problems can occur when downloading from the RIP and how can they be solved?
What needs to be checked to ensure a match between stock and imaging material?
What problems can occur if stock and imaging material are incompatible?

**Shutting down and cleaning the press**

Why is the proper shutdown procedure important?
What problems can be associated with an incorrect shutdown?
What effect will a poorly maintained machine have on production?
What effect will a poorly cleaned machine have on print quality?

**Records maintenance**

What records should be completed at the end of the print run?
How is the data stored for future reference and use?
How long should the data be kept if it is not going to be archived?

**Quality control**

What precautions have you taken to maintain fit, proportion and position?
How do you ensure that the machine has been calibrated to manufacturer's specifications?
What do you do if the image colour is not consistent?
How do you ensure that pre–press has put the correct measurement elements in for the job?

**Information sources**

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
Screen Printing Units

These units cover screen and stencil preparation and screen print production.

Screen printers need units from this section as well as from the Support Units, Pre-press Units, and Converting Binding and Finishing Units, and possibly Printing Units and National Generic Units.

Screen Printing Units:
SP11b Reclaim screen (basic)
SP11c Reclaim screen (advanced)
SP15b Prepare screen
SP21b Prepare substrate
SP31b Prepare stencil using computer or hand cut method
SP33b Prepare stencil using photographic direct emulsion method (basic)
SP33c Prepare stencil using photographic direct emulsion method (advanced)
SP35b Prepare stencil using photographic indirect method
SP37c Prepare stencil using photographic capillary method
SP39c Prepare stencil using direct projection method
SP41c Prepare stencil using direct electronic imaging method
SP51c Prepare machine and drying / curing unit
SP71b Produce print – manual (basic)
SP71c Produce print – manual (advanced)
SP73b Produce print using semi-automatic machines (basic)
SP73c Produce print using semi-automatic machines (advanced)
SP75b Produce print using automatic machines
SP75c Produce print using automatic machines (advanced)
SP81b Finish screen print products

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
SP11b  Reclaim screen (basic)

Elements and Performance Criteria

SP11b–1  Select and prepare chemicals
  SP11b–1.1  Ink and stencil type is correctly identified and screen is assessed for suitability to be reclaimed
  SP11b–1.2  Screen reclaiming chemicals are selected and prepared in accordance with manufacturer’s / supplier’s instructions
  SP11b–1.3  Appropriate safety gear is selected and worn in accordance with manufacturer’s / supplier’s instructions and occupational health and safety requirements

SP11b–2  Wash screen
  SP11b–2.1  Screens are washed using a pressure gun in a suitably ventilated area with the required extraction system
  SP11b–2.2  Stains and hazes are removed using appropriate chemicals in accordance with manufacturer’s / supplier’s instructions and occupational health and safety requirements
  SP11b–2.3  Screens are checked for damage and any defects are reported and/or rectified in accordance with workplace procedures

SP11b–3  Store screen
  SP11b–3.1  Screens are correctly identified and labelled
  SP11b–3.2  Screens are stored in a clean, dry environment in accordance with manufacturer’s / supplier’s instructions

Range of Variables

Chemical type  Chemicals commonly used for the reclaiming of screens
Ink / stencil / frame types  Various types of ink systems, stencil and frame in common use in specific industry sectors
Mesh type  All types of mesh material, thread counts, thicknesses, colours and weaves used in specific industry sectors
Tension measurement techniques  Various different tension measurement techniques in common use in specific industry sectors
Degree of autonomy  Working under supervision to previously defined procedures to ensure production requirements have been met
Workplace procedures  Tasks must be performed in accordance with workplace procedures
Workplace quality standards  Tasks must meet workplace quality standards

Evidence Guide

Reclaim THREE screens, of preferably different mesh and stencil types commonly used in the workplace using manual techniques, to workplace standards in accordance with listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

*These questions are only examples.*
They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

**Mesh counts**
- What is the significance of mesh count?
- How should you treat screens with different mesh counts?

**Mesh and frame faults**
- What are the THREE common faults that could occur in meshes and frames?

**Ink / stencil types**
- Describe the ink removal procedures for THREE different inks.
- What are the stencil removal procedures for the two stencil types?

**Chemical selection and preparation**
- What chemicals are available for screen reclamation?
- Why have you selected the chemicals you are using?

**Chemical handling and disposal**
- What are the main considerations when handling and disposing chemicals?

**Reclaiming techniques**
- What screen reclamation techniques are available in the industry?
- Why have you selected the particular technique you are using?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SP11c  Reclaim screen (advanced)

**Elements and Performance Criteria**

**SP11c–1  Select and prepare chemicals**

- **SP11c–1.1** Ink and stencil type is correctly identified and screen is assessed for suitability to be reclaimed
- **SP11c–1.2** Screen reclaiming chemicals are selected and prepared in accordance with manufacturer's / supplier's instructions
- **SP11c–1.3** Appropriate safety gear is selected and worn in accordance with manufacturer's / supplier's instructions and occupational health and safety requirements

**SP11c–2  Maintain and adjust automatic cleaning equipment**

- **SP11c–2.1** Automatic cleaning equipment is inspected and routine user maintenance is carried out in accordance with manufacturer's / supplier's instructions and workplace procedures
- **SP11c–2.2** Automatic cleaning equipment is adjusted to suit ink system, mesh type and frame size

**SP11c–3  Wash screen**

- **SP11c–3.1** Screens are washed using a pressure gun or automatic machine in a suitably ventilated area with the required extraction system
- **SP11c–3.2** Stains and hazes are removed using appropriate chemicals in accordance with manufacturer's / supplier's instructions and occupational health and safety requirements
- **SP11c–3.3** Screens are checked for damage and any defects are reported and/or rectified in accordance with workplace procedures

**SP11c–4  Store screen**

- **SP11c–4.1** Screens are correctly identified and labelled
- **SP11c–4.2** Screens are stored in a clean, dry environment in accordance with manufacturer's / supplier's instructions

**SP11c–5  Carry out routine user maintenance**

- **SP11c–5.1** Cleaning equipment is lubricated, cleaned and adjusted in accordance with manufacturer's / supplier's instructions
- **SP11c–5.2** Faults are identified, reported and/or rectified in accordance with manufacturer's / supplier's instructions

**Range of Variables**

<table>
<thead>
<tr>
<th>Chemical type</th>
<th>Chemicals commonly used for reclaiming of screens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of machine</td>
<td>Automatic cleaning equipment commonly used relative to the industry sector</td>
</tr>
<tr>
<td>Ink, stencil and frame types</td>
<td>Ink systems, stencil and frame types in common use within the specific industry sector</td>
</tr>
<tr>
<td>Mesh type</td>
<td>Screen meshes with a variety of thread counts, thicknesses, colours and weaves commonly used within the specific industry sector</td>
</tr>
</tbody>
</table>
Tension measurement techniques commonly used with the specific industry sector

Degree of autonomy Working in consultation with others to previously defined procedures to ensure production requirements have been met

Workplace procedures Tasks must be performed in accordance with workplace procedures

Workplace quality standards Tasks must meet workplace quality standards

**Evidence Guide**

Reclaim THREE screens, with various grades of meshes and ink types using automatic equipment and to workplace standards in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- stencil type and mesh counts
- selection of appropriate safety gear
- ink types
- chemical selection and preparation
- machine operation, adjustment and maintenance
- reclaiming techniques
- identifying and storing frames
- chemical handling and storage
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*

*They do not represent everything you need to know. Other questions may be asked.*

**Answers need to show knowledge required when working in a wide range of circumstances.**

**Stencil types and mesh counts**
- What are the types of stencil used?
- What is the significance of mesh counts?
- What is the handling technique used for frames with various mesh counts?

**Selection of appropriate safety gear**
- Describe three personal protective equipment items you use for screen reclamation.
- What are the health hazards associated with chemical handling?

**Ink types**
- Why are various ink types treated differently when reclaiming?
- What pollution controls are in operation with regards to environmental issues?

**Chemical selection and preparation**
- What are the major OH&S concerns when handling chemicals?
- How do you select the appropriate chemicals for the ink, stencil and mesh types of each screen?
- Where do you obtain information on the application of each chemical?

**Machine operation adjustment and maintenance**
- What ventilation and extraction systems should be in operation?
- What maintenance procedures are necessary for this machine?

**Reclaiming techniques**
- What are the properties of different reclaiming chemicals?
- How are chemicals applied for stencil removal?
- What chemicals are used to remove stains / haze?

**Identifying and storing screens**
- What method do you use to identify the reclaim status of screens?
- What is the method of storing reclaimed screens?
Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?

What information is included in these documents?
SP15b  Prepare screen

Elements and Performance Criteria

SP15b–1  Select the frame
- SP15b–1.1  Frame is selected in accordance with job specifications
- SP15b–1.2  Quality, type and finish of frame is specified

SP15b–2  Prepare the frame
- SP15b–2.1  Frame surface is prepared free of imperfections to receive the mesh
- SP15b–2.2  Tools and equipment used in frame preparation are suitable to achieve the standard indicated in job specifications

SP15b–3  Select the mesh
- SP15b–3.1  Required mesh type is determined in accordance with job specifications
- SP15b–3.2  Imperfections and flaws are identified and appropriate remedial action is taken
- SP15b–3.3  Mesh is measured and cut from bulk supply to meet screen specifications with minimum wastage

SP15b–4  Stretch and fix mesh
- SP15b–4.1  Mesh is positioned in tensioning equipment at the correct angle in accordance with job specifications
- SP15b–4.2  Tension is set in accordance with job specifications
- SP15b–4.3  Tension is checked in accordance with manufacturer's / supplier's instructions
- SP15b–4.4  Mesh is fixed to frame in accordance with frame construction requirements

SP15b–5  Convert mesh
- SP15b–5.1  Chemicals are selected for the conversion of the mesh in accordance with manufacturer's / supplier's instructions
- SP15b–5.2  Chemicals are applied in accordance with manufacturer's / supplier's instructions and to occupational health and safety requirements to effect conversion

SP15b–6  Store screen
- SP15b–6.1  Screens are identified and labelled
- SP15b–6.2  Screens are stored in a clean, dry environment in subdued light

Range of Variables

<table>
<thead>
<tr>
<th>Frame type</th>
<th>Frame types commonly used within the industry relative to industry sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of mesh</td>
<td>Screen mesh thread counts, thread thickness, colours and weaves commonly used in the industry sectors</td>
</tr>
<tr>
<td>Fixing method</td>
<td>Fixing methods commonly used in the industry sector</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working to defined procedures in consultation with others to ensure production requirements have been met</td>
</tr>
<tr>
<td>Tension measurement</td>
<td>Different tension measurement techniques commonly used in the industry sector</td>
</tr>
</tbody>
</table>
Workplace procedures
Tasks must be performed in accordance with workplace procedures

Workplace quality standards
Tasks must meet workplace quality standards

Evidence Guide

Select a frame, either fixed or microchase, stretch and fix mesh as appropriate and prepare screen for stencil application.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- observing OH&S standards
- selecting and preparing the frame
- choosing and stretching the mesh
- measuring tension and fixing the mesh
- converting and storing the screen
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Observing OH&S standards
Describe the Personal Protective Equipment required when preparing frame surface, screen adhesive and chemical conversion.

Selecting and preparing frame
For what purpose is this frame used?
What tools do you use for preparing the frame surface?
Describe what to look for in order to achieve a good surface for mesh adhesion.

Choosing and stretching the mesh
Why did you choose this mesh type?
How much larger than the frame size is the mesh cut?
Describe flaws or imperfections that are found in screen mesh.

Measuring tension and fixing the mesh
What position is the mesh placed before tensioning?
What is the ideal tension for this type of mesh in N/CMs?
How is tension measured?
Describe the various methods of fixing mesh to frame.
What pre-tensioning techniques do you use?

Converting and storing screen
Describe the method of converting the screen mesh chemically.
Describe the method of converting the screen mesh mechanically.
What method do you use to identify the mesh on this screen?
What are the ideal conditions for storing screens

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SP21b  Prepare substrate

Elements and Performance Criteria

SP21b–1  Select substrate

SP21b–1.1 Substrates are selected in accordance with job specifications
SP21b–1.2 Substrates selected are to be of suitable form and quality to meet job specifications and the end use of the product

SP21b–2  Process substrate

SP21b–2.1 Processing of substrate is carried out in accordance with the job specifications
SP21b–2.2 Necessary preventative action is taken to avoid wastage, and to ensure best yield with respect to grain direction and the type of substrate selected
SP21b–2.3 User maintenance requirements are identified and implemented in accordance with manufacturers' / suppliers' instructions
SP21b–2.4 Substrate is inspected and print capability assessed, including the need for any special preparation requirements
SP21b–2.5 Substrate is suitably pre–treated, where required

SP21b–3  Store and handle substrate

SP21b–3.1 Materials are safely handled in accordance with manufacturer's / supplier's instructions
SP21b–3.2 Materials and substrate are appropriately handled and stored in accordance with manufacturer's / supplier's instructions to prevent damage and hazards to personnel
SP21b–3.3 Off–cuts of materials are disposed of in accordance with environmental conservation procedures

Range of Variables

Type of substrate  Substrates commonly used within the industry relative to industry sectors
Variety of conversion method  Methods of converting substrate of a type commonly used in the industry relative to industry sectors
Degree of autonomy  Performing work under supervision to defined procedures to ensure production requirements have been met
Workplace procedures  Tasks must be performed in accordance with workplace procedures
Workplace quality standards  Tasks must meet workplace quality standards

Evidence Guide

Select and process TWO substrates commonly used within the industry sector to production specifications in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* safe handling of processing equipment / tools
identification of chosen substrate
preparation and pretreatment of substrate before printing
ensuring best yield from sheet / roll to prevent wastage
processing substrate in accordance with job specifications
proper stacking and storage of processed substrate
proper disposal of offcuts and environmental implications
information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

Safe handling of processing equipment / tools
What OH&S concerns are there when preparing substrates?
How do you determine safe practices for handling substrates and equipment?

Identification of chosen substrate
Identify each of the chosen substrates
What is the final application of each of the substrates after printing?
Why was this grade / thickness of substrate chosen?

Preparation and pretreatment of substrate before printing
How do you identify defects and irregularities of the substrate?
What pretreatment of the surface is required before printing?
What tests should be undertaken to determine the suitability of the substrate for printing?

Ensuring the best yield from substrate sheet / roll to prevent wastage
How was the cut determined to obtain the least wastage?

Processing substrate in accordance with job specifications
What are the equipment / tools you use for preparing substrate?
How is the substrate prepared and quality of preparation monitored?

Proper stacking and storage of processed substrate
What handling and storage procedures are there to prevent damage to substrate prior to printing?
Has preparation of substrate been carried out according to job specifications?

Proper disposal of offcuts and environmental implications
What are correct procedures for the disposal of offcuts of substrate?
What environmental and conservation procedures should be carried out?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
**SP31b  Prepare stencil using computer or hand cut method**

**Elements and Performance Criteria**

**SP31b–1  Prepare the screen**

- **SP31b–1.1** Screen is selected in accordance with job specifications
- **SP31b–1.2** Required chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- **SP31b–1.3** Tension of screen mesh is checked for suitability according to job specifications

**SP31b–2  Select stencil material**

- **SP31b–2.1** Stencil material is selected appropriate for the ink type to be used in printing
- **SP31b–2.2** Quality of stencil material is checked against job specifications

**SP31b–3  Process material**

- **SP31b–3.1** Instruments are selected according to job specifications
- **SP31b–3.2** In the case of computer cutting, equipment is set up and prepared in accordance with manufacturer's / supplier's instructions
- **SP31b–3.3** In the case of computer cutting, stencil material is positioned in plotter in accordance with manufacturer's / supplier's instructions
- **SP31b–3.4** Stencil is secured for cutting job
- **SP31b–3.5** Sequence of colours is identified in accordance with job specifications
- **SP31b–3.6** Stencil material is cut and weeded in accordance with manufacturer's / supplier's instructions in such a way as to avoid excessive waste
- **SP31b–3.7** Before mounting, work is checked against job specifications and appropriate action is taken

**SP31b–4  Fix stencil to screen**

- **SP31b–4.1** Stencil material and screen are placed in intimate contact ensuring accurate register position
- **SP31b–4.2** Mounting solution is selected and applied in accordance with manufacturer's / supplier's instructions
- **SP31b–4.3** Prepared stencil / screen is dried and then backing sheet removed

**SP31b–5  Block out screen**

- **SP31b–5.1** Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications
- **SP31b–5.2** Retouching of image is carried out if required

**SP31b–6  Store screen**

- **SP31b–6.1** Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer's / supplier's instructions

**Range of Variables**

- **Stencil material**: Different stencil materials commonly used relative to industry sector
- **Variety of cutting equipment**: Manual or computer cutting equipment relative to industry sector
Stencil cutting method Hand cut and computer cut methods
Degree of autonomy Working to defined procedures in consultation with other relevant persons to ensure production requirements have been met
Workplace procedures Tasks must be performed in accordance with workplace procedures
Workplace quality standards Tasks must meet workplace quality standards

Evidence Guide

Prepare a hand cut or computer cut lacquer or water soluble stencil, mount the stencil on the screen and prepare stencil for printing.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparing the screen
- selecting stencil material
- hand cutting or computer cutting stencil
- fixing stencil to screen
- blocking and storing screen
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Preparing the screen
- What is the mesh count and tension of the screen you have selected?
- What is the compatibility of ink to stencil type chosen?
- Describe the preparation necessary for the screen to accept the stencil.

Selecting the stencil material
- How do you ensure that stencil material is compatible with the mesh?

Hand cutting or computer cutting stencil
- What OH&S concerns are there when cutting stencils?
- What instrument and cutting methods are required to cut this stencil?
- What is the colour sequence and the size of bleed?
- Describe the manner of inputting data into the computer through scanning, digitising or by disk.
- Describe the positioning of stencil material into the cutter and the operation of the computer stations.
- Describe correct weeding and repairing techniques.

Fixing stencil to screen
- Describe the procedure for positioning the stencil in the correct location under the screen.
- Why is it necessary to have absolute and intimate contact between screen and stencil?
- Why have you selected this fixing solution?
- Describe the method of drying the screen and removing the backing sheet.

Blocking and storing screen
- What determines the type of filler used for blocking out?
- Why do you spot pinholes and tape the screen?
- By what means is this screen able to be identified at a later date?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SP33b  Prepare stencil using photographic direct emulsion method (basic)

Elements and Performance Criteria

SP33b–1  Prepare the screen
- SP33b–1.1 Screen is selected in accordance with job specifications
- SP33b–1.2 Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- SP33b–1.3 Tension of screen mesh is checked for suitability according to job specifications

SP33b–2  Prepare the work area and equipment
- SP33b–2.1 Work area is made clean and functional prior to the commencement of work
- SP33b–2.2 All equipment is inspected to ensure it is functional and where necessary, appropriate remedial action is taken prior to the commencement of work
- SP33b–2.3 Appropriate coating trough is selected ensuring it is free of nicks and burrs

SP33b–3  Select emulsion
- SP33b–3.1 Emulsion is selected in accordance with requirements for ink type, print resolution, substrate, mesh type and machine type
- SP33b–3.2 Emulsion is checked for expiry date and appropriate action taken
- SP33b–3.3 Emulsion is prepared in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
- SP33b–3.4 Emulsion is used and dried in accordance with manufacturer's / supplier's instructions

SP33b–4  Process coated screen
- SP33b–4.1 Coated screen frame is placed in vacuum frame and has adequate pressure with positive positioned in accordance with manufacturer's / supplier's instructions
- SP33b–4.2 Light source is positioned in accordance with manufacturer's / supplier's instructions
- SP33b–4.3 Exposure is calculated and stencil exposed in accordance with manufacturer's / supplier's instructions
- SP33b–4.4 Exposed screen is removed from vacuum frame
- SP33b–4.5 Exposed screen is washed out after positive removal in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- SP33b–4.6 Processed stencil / screen is inspected for flaws

SP33b–5  Dry stencil
- SP33b–5.1 Processed stencil is dried in accordance with manufacturer's / supplier's instructions

SP33b–6  Block out screen
- SP33b–6.1 Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications
- SP33b–6.2 Stencil is inspected for flaws, scum and orientation
SP33b–6.3 Pin holes are spotted out with suitable filler and taped in accordance with ink type and job specifications

SP33b–7 Store screen

SP33b–7.1 Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer’s / supplier’s instructions

**Range of Variables**

- **Type of stencil material**: Direct stencil materials commonly used relative to each industry sector
- **Coating techniques**: Coating techniques for various emulsions, mesh types and definition requirements
- **Degree of autonomy**: Working under supervision to defined procedures to ensure production requirements have been met
- **Workplace procedures**: Tasks must be performed in accordance with workplace procedures
- **Workplace quality standards**: Tasks must meet workplace quality standards

**Evidence Guide**

Prepare a direct screen using manual coating and exposing techniques to job sheet specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparation of screen for coating
- preparation of work area and equipment
- selecting the right emulsions for the job
- coating and exposing techniques
- drying screen and blocking out
- storage and OH&S
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

**Preparation of screen for coating**
- What is the significance of the mesh count?
- What effect does screen tension have on emulsion coating?
- How do you determine the emulsion suitable for the job?

**Preparation of work area and equipment**
- What is the significance of good housekeeping?
- What effect does the coating trough edge have on emulsion coating?

**Selecting the right emulsion for the job**
- Why have you chosen this emulsion?
- Why do you need to check the expiry date of emulsions?
- What is the maximum temperature at which the emulsion can be dried?

**Coating and exposing techniques**
- Why is it necessary to have good vacuum pressure in the vacuum frame?
- Why have you placed the light source in this position?
What formula do you use to calculate exposure time?
What are the effects of over exposure and under exposure?
How do you determine if the screen is washed out properly?
When inspecting for flaws, what characteristics determine a good or bad stencil?

Drying screen and blocking out
What is the screen dried before blocking out?
What determines the type of filler used for blocking out?
Why do you spot pinholes and tape the screen?

Storage and OH&S
What is the OH&S requirement for UV exposure light?
By what means is this screen able to be identified at a later date?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SP33c  Prepare stencil using photographic direct emulsion method (advanced)

Elements and Performance Criteria

SP33c–1  Prepare the screen
  SP33c–1.1 Screen is selected in accordance with job specifications
  SP33c–1.2 Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
  SP33c–1.3 Tension of screen mesh is checked for suitability according to job specifications

SP33c–2  Prepare the work area and equipment
  SP33c–2.1 Work area is made clean and functional prior to the commencement of work
  SP33c–2.2 All equipment is inspected to ensure it is functional and where necessary, appropriate remedial action is taken prior to the commencement of work
  SP33c–2.3 Appropriate coating troughs for automatic coaters are selected ensuring they are free of nicks and burrs
  SP33c–2.4 Automatic coating equipment is inspected and routine user maintenance is carried out in accordance with manufacturer's instructions and workplace procedures
  SP33c–2.5 Automatic coating equipment is adjusted to suit screen frame and mesh, and emulsion

SP33c–3  Select emulsion
  SP33c–3.1 Emulsion is selected in accordance with requirements for ink type, print resolution, substrate, mesh type and machine type
  SP33c–3.2 Emulsion is checked for expiry date and appropriate action taken
  SP33c–3.3 Emulsion is prepared in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
  SP33c–3.4 Emulsion is used and dried in accordance with manufacturer's / supplier's instructions

SP33c–4  Process coated screen
  SP33c–4.1 Coated screen frame is placed in vacuum frame and adequately vacuumed with positive positioned in accordance with manufacturer's / supplier's instructions
  SP33c–4.2 Light source is positioned in accordance with manufacturer's / supplier's instructions
  SP33c–4.3 Exposure is calculated and stencil exposed in accordance with manufacturer's / supplier's instructions
  SP33c–4.4 Exposed screen is removed from vacuum frame
  SP33c–4.5 Exposed screen is washed out after positive removal in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
  SP33c–4.6 Processed stencil / screen is inspected for flaws
Range of Variables

Type of stencil Materials
- Direct stencil materials commonly used relative to the industry sector

Types of machines
- Automatic coating equipment commonly used in the screen printing sector

Coating techniques
- Appropriate coating techniques for various emulsions, mesh types and definition requirements

Degree of autonomy
- Working to defined procedures and in consultation with other relevant persons to ensure production requirements have been met

Workplace procedures
- Tasks must be performed in accordance with workplace procedures

Workplace quality standards
- Tasks must meet workplace quality standards

Evidence Guide

Prepare a direct screen using automatic coating equipment or by hand, and expose, wash and dry the screen to job specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparation of screen for coating
- preparation of work area and equipment maintenance
- selecting the correct emulsion
- coating and drying the screen
- exposing, washing and drying the screen
- blocking out, storing the screen
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Preparation of screen for coating
- What influence does mesh count have on final printed product?
- Why is it necessary to have the correct tension on the screen?
- How do you determine what screen tension is required on screens of various mesh counts and grades?
- What degreasing / cleaning techniques are employed prior to coating the screen?

Preparation of work area and equipment maintenance
- What information is contained in MSDSs for the emulsion being used?
- What is the OH&S requirement for exposure to UV light sources?
- What pollution and environmental issues need to be considered when working with emulsions?
- What maintenance is required to be carried out on the automatic coating machine?

Selecting the correct emulsion
- Name two emulsions used in screen printing, describe their characteristics, their shelf life and areas of use.
- What are the storage requirements for the emulsion you are using?
- What is the preparation formula for the emulsion you are using?
- Why is it necessary to have the correct illumination in the work area?

Coating and drying the screen
- What influence does the length of run and ink or dye being used have on the coating technique?
How do you determine the number of coats of emulsion and the best method of coating the screen?
What factors are taken into consideration in determining the angle at which the coaters coat the screen?
What is the appropriate position (horizontal or vertical) for drying the screen?
Describe what effect each of these positions has on the way the emulsion dries.
What is the effect of heat on the emulsion during the drying process?

**Exposing, washing and drying the screen**
- Describe the function and use of a light integrator.
- Describe the procedure for exposing the stencil.
- What effect does the position, angle and distance of the light source have on the exposing process?
- Why is it necessary to have perfect contact between positive and screen during exposure?
- What effect does temperature, pressure and time taken have on the washing out process?
- How do you determine when washout is complete?
- What is the ideal position of the screen for drying to prevent scum and streaking?
- What does post curing do to the stencil?

**Blocking out and storing screen**
- What information have you obtained from the MSDS for this particular blockout?
- Why does the ink to be used and the type of stencil have a bearing on the type of blockout?
- What preventative measures can be taken to minimise pinholes?
- Why is it necessary to tape the edge of the frame and the squeegee edge?
- By what means is this screen able to be identified at a later date?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SP35b  Prepare stencil using photographic indirect method

Elements and Performance Criteria

SP35b–1  Prepare the screen

SP35b–1.1  Screen is selected in accordance with job specifications

SP35b–1.2  Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP35b–1.3  Tension of screen mesh is checked for suitability according to job specifications

SP35b–2  Prepare the work area

SP35b–2.1  Work area is made clean and functional prior to the commencement of work

SP35b–2.2  All equipment, tools and materials are inspected to ensure they are functional and where necessary, appropriate remedial action is taken prior to the commencement of work

SP35b–2.3  Activating chemicals are prepared in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP35b–3  Select indirect stencil material

SP35b–3.1  Stencil material is selected in accordance with requirements for ink type, print resolution, substrate and machine type

SP35b–3.2  Stencil material is checked for faults and expiry date and suitable action taken

SP35b–4  Process material

SP35b–4.1  Selected material is cut to size in accordance with job specifications with minimisation of waste

SP35b–4.2  Material is placed in vacuum frame with positive positioned and intimate vacuum achieved in accordance with manufacturer's / supplier's instructions and job specifications

SP35b–4.3  Exposure is calculated and stencil exposed in accordance with manufacturer's / supplier's instructions

SP35b–4.4  Light source is positioned in accordance with manufacturer's / supplier's instructions

SP35b–4.5  Exposed stencil is removed from vacuum frame and treated with the necessary activator (if required) in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP35b–4.6  Activated stencil is washed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP35b–4.7  Exposed stencil is inspected for processing flaws

SP35b–5  Apply stencil to screen

SP35b–5.1  Prepared screen is re–wet and inspected for cleanliness and dust

SP35b–5.2  Stencil is positioned and adhered accurately in accordance with manufacturer's / supplier's instructions

SP35b–6  Dry stencil

SP35b–6.1  Processed stencil is dried in accordance with manufacturer's / supplier's instructions and backing sheet is carefully removed and stencil checked for full adhesion
SP35b–7  Block out screen

SP35b–7.1 Stencil is inspected for flaws, scum and orientation

SP35b–7.2 Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications

SP35b–7.3 Pin holes are spotted out with suitable filler and faulty / damaged images are retouched and are taped in accordance with ink type and job specifications

SP35b–8  Store screen

SP35b–8.1 Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer’s / supplier’s instructions

Range of Variables

Type of stencil materials  Storage and use of indirect stencil materials and activators commonly used within the industry relative to industry sectors

Degree of autonomy  Working under supervision to defined procedures to ensure production requirements have been met

Workplace procedures  Tasks must be performed in accordance with workplace procedures

Workplace quality standards  Tasks must meet workplace quality standards

Evidence Guide

Prepare an indirect screen using manual or mechanical techniques to job sheet specification and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- preparing the screen
- equipment used and preparation of the work area
- indirect stencil material selection
- exposing, activating and washing indirect stencils
- applying stencil to screen and drying off
- blocking out, spotting and storing screen
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

Preparing the screen

What is the significance of mesh count?
Why must the screen be tensioned correctly?
What chemicals are used for pretreating and degreasing?

Equipment used and preparation of work area

Describe the method of preparing activator to OH&S standards.
What is the significance of a dust free work area when working with indirect stencils?
Has the necessary equipment been inspected to ensure it is functional?

Indirect stencil material selection

What are the characteristics of indirect stencils relative to ink type, print resolution and substrate?
Why have you chosen indirect stencil material?
What are the common faults associated with indirect film?

Exposing, activating and washing indirect stencil
  Why is it necessary to have good vacuum pressure prior to exposing the stencil?
  Why have you placed the light source in this position?
  How do you calculate exposure time for this indirect film?
  What are the effects of over exposure and under exposure?
  Describe the method of activating film.
  What is the temperature of the water for washing indirect stencils?
  How do you recognise and rectify flaws?

Applying stencil to screen and drying off
  What are the main considerations before applying the stencil to the screen?
  Describe the method of positioning and adhering stencil to screen.
  Describe the process of drying the stencil and removing the backing sheet.

Blocking out, spotting and storing the screen
  Describe how you rectify flaws and scum in the stencil.
  What determines the type of filler used for blocking out?
  Why are pinholes spotted and the screen taped?
  By what means is this screen able to be identified at a later date?

Information sources
  What manuals, safety documentation, etc are relevant to this task and where are they kept?
  What information is included in these documents?
SP37c Prepare stencil using photographic capillary method

**Elements and Performance Criteria**

**SP37c–1 Prepare the screen**
- SP37c–1.1 Screen is selected in accordance with job specifications
- SP37c–1.2 Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

**SP37c–2 Prepare the work area**
- SP37c–2.1 Work area is made clean and functional prior to the commencement of work
- SP37c–2.2 All equipment, tools and materials are inspected to ensure they are functional and where necessary, appropriate remedial action is taken prior to the commencement of work
- SP37c–2.3 Chemicals are prepared (if necessary) in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions

**SP37c–3 Select and process capillary film**
- SP37c–3.1 Capillary film is selected in accordance with requirements for ink type, print resolution, substrate and machine type with minimisation of waste
- SP37c–3.2 Capillary film is cut to size in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions with minimisation of waste
- SP37c–3.3 Capillary film is mounted on screen in accordance with manufacturer's / supplier's instructions
- SP37c–3.4 Screen is dried according to manufacturer's / supplier's instructions and workplace procedures
- SP37c–3.5 Backing sheet is removed in accordance with manufacturer's / supplier's instructions

**SP37c–4 Process material**
- SP37c–4.1 Screen is placed in vacuum frame with positive positioned in accordance with manufacturer's / supplier's instructions and job specifications
- SP37c–4.2 Exposure is calculated and stencil exposed in accordance with manufacturer's / supplier's instructions
- SP37c–4.3 Light source is positioned in accordance manufacturer's / supplier's instructions
- SP37c–4.4 Exposed screen is removed from vacuum frame in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
- SP37c–4.5 Exposed screen is washed out in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

**SP37c–5 Dry stencil**
- SP37c–5.1 Processed stencil is dried in accordance with manufacturer's / supplier's instructions

**SP37c–6 Block out screen**
- SP37c–6.1 Stencil is inspected for flaws, scum and orientation
- SP37c–6.2 Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications
SP37c–6.3 Pin holes are spotted out with suitable filler and faulty / damaged images are retouched and are taped in accordance with ink type and job specifications

SP37c–7 Store screen

SP37c–7.1 Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer's / supplier’s instructions

Range of Variables

Type of stencil material Capillary stencil materials commonly used relative to the industry sector
Degree of autonomy Working to defined procedures and in consultation with others to ensure production requirements have been met
Workplace procedures Tasks must be performed in accordance with workplace procedures
Workplace quality standards Tasks must meet workplace quality standards

Evidence Guide

Prepare a screen by applying a capillary stencil and exposing, washing, drying and blocking out to job specification and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparing work area, the screen and routine maintenance
- selecting film
- mounting capillary film to screen manually / by machine
- processing the stencil
- drying and Blocking out
- storage and post processing maintenance
- information sources

Sample Questions for Underpinning Knowledge

_These questions are only examples. They do not represent everything you need to know. Other questions may be asked._

Answers need to show knowledge required when working in a wide range of circumstances.

Preparing work area
- What are the health hazards and what safe working procedures are these in place when degreasing screens?
- What is the significance of mesh count?
- Why is it necessary to have the correct tension on the screen?
- How do you determine the best screen mesh count for the application of a capillary stencil?
- What chemicals are used for degreasing screens?
- What maintenance procedures are there in place for equipment in the stencil preparation area?

Selecting film
- What are the peculiarities of photographic capillary stencils?
- What determines the type of capillary film to be used?
- What pollution and environmental concerns are addressed when working with capillary films?

Mounting capillary
- What wetting agents are used to facilitate the application of the film to the screen?
- What problems are caused by dust on the surface of the mesh?
- How do you determine the position of film on the screen?
- What problems can occur from poor or incorrect mounting techniques?
How do you rectify problems associated with mounting capillary film?

Processing the stencil
- What OH&S concerns are there when exposing stencils?
- What is the correct drying distance and drying time?
- What are the effects of incorrect drying temperature?
- What factors indicate that drying is complete?
- Why is it necessary to dry film under safelight conditions?
- When and how is the backing sheet removed?
- Describe the function and use of a light integrator.
- What does the position, angle and distance of the light source have on the exposing process?
- What effect does temperature, pressure and time taken have on the washing out process?

Drying and blocking out
- Why is it important to blot up excess water from the stencil to prevent scum and streaking?
- How do you determine when drying is complete?
- Why does the ink to be used and the type of stencil have a bearing on the type of blockout?
- What preventative measures can be taken to prevent pinholes?
- Why is it necessary to tape the edge of the frame?

Storage and post processing maintenance
- By what means is the screen able to be identified at a later date?
- What maintenance should be carried out on exposing, washing and drying equipment?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SP39c  Prepare stencil using direct projection method

Elements and Performance Criteria

SP39c–1  Prepare the screen
- SP39c–1.1 Screen is selected in accordance with job specifications
- SP39c–1.2 Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP39c–2  Prepare the work area
- SP39c–2.1 Work area is made clean and functional prior to the commencement of work
- SP39c–2.2 All equipment, tools and materials are inspected to ensure they are functional and where necessary, appropriate remedial action is taken prior to the commencement of work
- SP39c–2.3 Chemicals are prepared in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- SP39c–2.4 Appropriate coating trough (or troughs for automatic coaters) is selected ensuring they are free of nicks and burrs

SP39c–3  Select emulsion
- SP39c–3.1 Emulsion is selected in accordance with requirements for ink type, print resolution, substrate, mesh type and machine type with minimisation of waste
- SP39c–3.2 Emulsion is checked for expiry date and appropriate action taken
- SP39c–3.3 Emulsion is prepared in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
- SP39c–3.4 Emulsion is used and dried in accordance with manufacturer's / supplier's instructions

SP39c–4  Process material
- SP39c–4.1 Coated screen is positioned on projection frame holder in accordance with manufacturer's / supplier's instructions
- SP39c–4.2 Projection light source equipment is positioned in accordance with manufacturer's / supplier's instructions
- SP39c–4.3 The positive is positioned into the projection light source which is then set up to desired enlargement in accordance with manufacturer's / supplier's instructions
- SP39c–4.4 Exposure is calculated and stencil exposed in accordance with manufacturer's / supplier's instructions
- SP39c–4.5 Exposed screen is removed from positioning frame in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- SP39c–4.6 Exposed screen is washed out in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
- SP39c–4.7 Processed stencil / screen is inspected for processing flaws

SP39c–5  Dry stencil
- SP39c–5.1 Processed stencil is dried in accordance with manufacturer's / supplier's instructions

SP39c–6  Block out screen
SP39c–6.1 Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications

SP39c–6.2 Inspect stencil for flaws, scum and orientation

SP39c–6.3 Pin holes are spotted out with suitable filler and taped in accordance with ink type and job specifications

SP39c–7 Store screen

SP39c–7.1 Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer’s / supplier’s instructions

**Range of Variables**

- **Type of stencil materials**: Direct emulsion commonly used in direct projection relative to the industry sector
- **Degree of autonomy**: Working to defined procedures in consultation with other relevant person to ensure production requirements have been met
- **Coating techniques**: Coating techniques for various emulsions, mesh types and edge definition requirements
- **Enlargements**: Able to determine and set enlargement criteria within the variable parameters of the equipment commonly used relative to the industry sector
- **Workplace procedures**: Tasks must be performed in accordance with workplace procedures
- **Workplace quality standards**: Tasks must meet workplace quality standards

**Evidence Guide**

Prepare a screen using the direct projection method to job specification and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- preparation of the screen for coating
- preparation of the work area and equipment maintenance
- selecting the correct emulsion
- coating and drying the screen
- operating direct projection camera and exposing screen
- washing and drying the screen
- blocking and storing the screen and maintenance of equipment
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*

**Preparation of screen for coating**

- What influence does mesh count have on final printed product?
- Why is it necessary to have a correctly tensioned screen?
- How do you determine what screen tension is required on screens of various mesh count or grades?
- What degreasing / cleaning techniques are employed prior to coating the screen?
Preparation of work area and equipment maintenance
- What information is contained in MSDSs for the emulsion?
- What pollution and environmental issues need to be considered when working with emulsions?
- What maintenance is required to be carried out on the direct projection camera?
- Why is it necessary to work in a safelight area when using the direct projection method?

Selecting the correct emulsion
- What kinds of high sensitivity emulsion are available and state their characteristics, lifespans and areas of use?
- What is the preparation method for the emulsion you are using?

Coating and drying the screen
- What influence does the length of run and ink being used have on the coating technique?
- How do you determine the number of coats of emulsion and the best method of coating the screen?
- What is the best position (horizontal or vertical) for drying the screen?
- What is the effect of heat on the emulsion during the drying process?

Operating the direct projection camera and exposing the screen
- What OH&S concerns are there when exposing the screen?
- What are the operating features of the direct projection camera?
- How do you set enlargement factor and take into account registration on frame for appropriate printing machine?
- What exposing techniques are used and how do you calculate exposure time?
- What are the exposing procedures?

Washing and drying the screen
- What is the effect of temperature, pressure and period of washing on the emulsion?
- How do you determine when washing out is complete?
- What is the ideal position of the screen for drying to prevent scum and streaking?
- What does post curing do to the stencil?

Blocking out and storing the screen and maintenance of equipment
- What information have you obtained from the MSDSs for this particular blockout?
- Why does the ink to be used and the type of stencil have a bearing on the type of blockout?
- What preventative measures can be taken to minimise pinholes?
- Why is it necessary to tape the edge of the frame?
- By what means is this screen able to be identified at a later date?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SP41c  Prepare stencil using direct electronic imaging method

Elements and Performance Criteria

SP41c–1  Prepare the screen
  SP41c–1.1  Screen is selected in accordance with job specifications
  SP41c–1.2  Chemicals are applied and removed in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions

SP41c–2  Prepare the work area
  SP41c–2.1  Work area is made clean and functional prior to the commencement of work
  SP41c–2.2  All equipment, tools and materials are inspected to ensure they are functional and where necessary, appropriate remedial action is taken prior to the commencement of work
  SP41c–2.3  Chemicals are prepared in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
  SP41c–2.4  Appropriate coating trough (or troughs for automatic coaters) is selected ensuring they are free of nicks and burrs

SP41c–3  Select direct emulsion
  SP41c–3.1  Emulsion is selected in accordance with requirements for ink type; print resolution; substrate, mesh type and machine type with minimisation of waste
  SP41c–3.2  Emulsion is checked for expiry date and appropriate action taken
  SP41c–3.3  Emulsion is prepared in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
  SP41c–3.4  Emulsion is used and dried in accordance with manufacturer's / supplier's instructions

SP41c–4  Process material
  SP41c–4.1  Coated screen is placed in direct imaging equipment in accordance with manufacturer's / supplier's instructions
  SP41c–4.2  Direct imaging equipment is set up in accordance with job specification according to manufacturer's / supplier's instructions
  SP41c–4.3  Direct imaging equipment is operated in accordance with occupational health and safety requirements, and manufacturer's / supplier's instructions
  SP41c–4.4  Exposed screen is removed and washed out in accordance with occupational health and safety requirements and manufacturer's / supplier's instructions
  SP41c–4.5  Processed stencil / screen is inspected for processing flaws

SP41c–5  Dry stencil
  SP41c–5.1  Processed stencil is dried in accordance with manufacturer's / supplier's instructions

SP41c–6  Block out screen
  SP41c–6.1  Non–image areas of prepared screen are blocked out with filler suitable for ink type and in accordance with job specifications
  SP41c–6.2  Stencil is inspected for flaws, scum and orientation
SP41c–6.3 Pin holes are spotted out with suitable filler and taped in accordance with ink type and job specifications

**SP41c–7 Store screen**

SP41c–7.1 Prepared screen is labelled and stored in a clean, dry environment in accordance with manufacturer’s / supplier’s instructions

### Range of Variables

**Type of stencil materials**
- Direct emulsions commonly used for direct imaging relative to the industry sector

**Degree of autonomy**
- Working to defined procedures in consultation with other relevant persons to ensure production procedures have been met

**Coating techniques**
- Appropriate coating techniques for various emulsions, mesh types and edge definition requirements

**Workplace procedures**
- Tasks must be performed in accordance with workplace procedures

**Workplace quality standards**
- Tasks must meet workplace quality standards

### Evidence Guide

Prepare a screen using direct electronic imaging techniques to job specification and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- preparation of the screen for coating
- preparation of the work area and equipment maintenance
- selecting the correct emulsion
- coating and drying the screen
- operating direct imaging equipment and exposing the screen
- washing and drying the screen
- blocking out and storing the screen and equipment maintenance
- information sources

### Sample Questions for Underpinning Knowledge

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

**Preparation of screen for coating**
- What influence does mesh count have on final printed product?
- Why is it necessary to have a correctly tensioned screen?
- How do you determine what screen tension is required on screens of various mesh count or grades?
- What degreasing / cleaning techniques are employed prior to coating the screen?

**Preparation of work area and equipment maintenance**
- What information is contained in MSDSs for the emulsion?
- What pollution and environmental issues need to be considered when working with emulsions?
- What maintenance is required to be carried out on the direct imaging equipment?
- Why is it necessary to work in a safelight area when using the direct imaging method?

**Selecting the correct emulsion**
What kinds of emulsion are available and state their characteristics, lifespans and areas of use?
What is the preparation method for the emulsion you are using?

Coating and drying the screen
What influence does the length of run and ink being used have on the coating technique?
How do you determine the number of coats of emulsion and the best method of coating the screen?
What is the best position (horizontal or vertical) for drying the screen?
What is the effect of heat on the emulsion during the drying process?

Operating direct imaging equipment and exposing the screen
What health hazards are associated with the direct imaging equipment and what safe working procedures should be followed?
What are the operating features of the direct imaging equipment?
How do you determine the best position on the frame and the registration requirements?
How do you determine the scanning speed and the exposure time?
Describe how to input information into the computer, manipulate image and output information.

Washing and drying the screen
What is the effect of temperature, pressure and period of washing on the emulsion?
How do you determine when washing out is complete?
What is the ideal position of the screen for drying to prevent scum and streaking?
What does post curing do to the stencil?

Blocking out and storing the screen and maintenance of equipment
What information have you obtained from the MSDSs for this particular blockout?
Why does the ink to be used and the type of stencil have a bearing on the type of blockout?
What preventative measures can be taken to minimise pinholes?
Why is it necessary to tape the edge of the frame?
By what means is this screen able to be identified at a later date?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
SP51c  Prepare machine and drying / curing unit

Elements and Performance Criteria

SP51c–1  Inspect the screen

SP51c–1.1  Screen frames are identified to determine colour sequence
SP51c–1.2  Each screen frame is examined for defects and appropriate action taken
SP51c–1.3  Screen is taped
SP51c–1.4  Screens are inspected against film positives noting variances in centring, registration and alignment and appropriate action is taken
SP51c–1.5  Screen frame, mesh and stencil are appropriately handled in accordance with manufacturer's / supplier's instructions to prevent damage and hazards to personnel

SP51c–2  Maintain and adjust machine

SP51c–2.1  Machine is inspected and routine user maintenance is carried out in accordance with manufacturer's instructions and workplace procedures
SP51c–2.2  All necessary periodic adjustments and user maintenance items are made at the correct times in accordance with manufacturer's instructions and workplace procedures

SP51c–3  Install screen frames and dry–run machine

SP51c–3.1  Laysheet is positioned in grippers and side–lay in accordance with manufacturer's / supplier's instructions
SP51c–3.2  Establish image position on laysheet
SP51c–3.3  Screen frame is positioned in screen frame holder
SP51c–3.4  Registration, alignment and centring are confirmed and screen clamps tightened to ensure no movement of the frame in accordance with manufacturer's / supplier's instructions
SP51c–3.5  Machine is run through printing cycle at the same time ensuring that substrate registers in lays and appropriate action is taken

SP51c–4  Prepare and position flood bar and squeegees

SP51c–4.1  Flood bar (for semi–automatic and automatic machines) and correct squeegee are assembled in accordance with manufacturer's / supplier's instructions ensuring that flood bar is free from nicks and burrs
SP51c–4.2  Squeegee blade is sharpened in accordance with manufacturer's / supplier's instructions considering the ink system to be used
SP51c–4.3  Flood bar (for semi–automatic and automatic machines) and squeegee are positioned in accordance with job specifications with squeegee at the correct predetermined angle
SP51c–4.4  On/off contact (and peel off if available) is adjusted to suit ink system and printing speed in accordance with manufacturer's / supplier's instructions
SP51c–4.5  Squeegee is correctly adjusted and brought into contact with the substrate

SP51c–5  Set up drying / curing unit

SP51c–5.1  Belt speed and energy required are set to achieve desired properties then printing speeds are adjusted to suit
SP51c–5.2  Stock is properly stacked at the end of the dryer
Range of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of machine</td>
<td>Commonly used hand tables / machines / dryers / curing units relative to the industry sector</td>
</tr>
<tr>
<td>Degree of cure / drying</td>
<td>Assessing the degree of cure or drying required to obtain required product properties</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working under supervision to defined procedures to ensure production requirements have been met</td>
</tr>
<tr>
<td>Workplace procedures</td>
<td>Tasks must be performed in accordance with workplace procedures</td>
</tr>
<tr>
<td>Workplace quality standards</td>
<td>Tasks must meet workplace quality standards</td>
</tr>
</tbody>
</table>

Evidence Guide

Prepare a machine for printing by installing the screen frame and squeegee / flood coater and setting up a drying / curing unit to achieve the desired properties.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- inspection of the screen
- preparation of machine and equipment maintenance
- preparation of base and installing and registering screen frame
- squeegee types / flood coaters and their adjustments
- adjusting and dry running machine
- adjustment and maintenance of drying / curing unit
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

Inspection of the screen
- How do you determine the colour sequence?
- What defects can be found when examining the screen and stencil?
- How do you determine variation between positive and stencil?

Preparation of machine and equipment maintenance
- What OH&S concerns are there when using drying and curing units?
- What is the maintenance required on this equipment?
- What periodic adjustments are made to equipment and drying / curing units?
- What are the machine capabilities and characteristics?

Preparation of base and installing screen
- What is the function of the printing base?
- What is the position of the lay sheet on the printing base?
- How do you establish the image position on the lay sheet?
- Describe the lay sheet you are using.
- Describe how to position frame in frame holder and register and align the stencil with the image on the lay sheet.
- What other checks are required so as to maintain register?

Squeegee types / flood coaters and their adjustments
- What are the characteristics of a good squeegee blade / flood coater?
- What is the significance of shore hardness of squeegee material?
- Why have you chosen that length squeegee / flood coater?
- Describe the positioning, fixing and adjusting the squeegee / flood coater.
What is the relationship of squeegee to flood coater?

**Adjusting and dry running machine**
- Describe the adjustment of on/off contact distance and peel off requirements of the screen frame.
- What is the relationship of the machine stroke to off contact / peel off requirements?

**Adjustments and maintenance of drying / curing units**
- Describe the basic maintenance requirements for the drying / curing unit.
- What adjustments are required to the unit before and during drying / curing?
- How do you adjust the unit for ink drying / curing?
- What are the effects of temperature on substrate?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SP71b  Produce print – manual (basic)

Elements and Performance Criteria

SP71b–1  Load substrate
- SP71b–1.1 Substrate is checked against job specifications with any irregularities reported and/or rectified
- SP71b–1.2 Substrate position and stencil registration is adjusted in accordance with job specifications

SP71b–2  Apply ink to screen
- SP71b–2.1 Ink is applied to the screen in the quantity required for the screen size
- SP71b–2.2 Equipment is kept clean and spillage minimised
- SP71b–2.3 Ink is checked to ensure it complies with job specifications

SP71b–3  Produce proof print
- SP71b–3.1 Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying / curing, artwork detail and other technical aspects in accordance with job specifications
- SP71b–3.2 Adjustments are made
- SP71b–3.3 Appropriate approval to commence production is sought prior to commencing
- SP71b–3.4 Belt speed and energy required are set to achieve desired curing or drying properties

SP71b–4  Run job and monitor print quality
- SP71b–4.1 Printing speed production is adjusted to maximise quality and speed of output
- SP71b–4.2 Print quality is continuously evaluated and adjusted as required
- SP71b–4.3 Effects of ink alterations during run are monitored and any discrepancy is notified in accordance with workplace procedures
- SP71b–4.4 Workplace documentation on job is completed as required
- SP71b–4.5 Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer’s / supplier’s instructions

SP71b–5  Carry out routine user maintenance
- SP71b–5.1 Equipment is cleaned in accordance with workplace procedures
- SP71b–5.2 Fault conditions are identified and reported in accordance with workplace procedures

SP71b–6  Stack production output
- SP71b–6.1 Output is checked for thorough drying / curing before stacking
- SP71b–6.2 Job status and progress is checked against job specifications and any necessary action is taken

SP71b–7  Finish operation
- SP71b–7.1 Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturer’s / supplier’s instructions
Range of Variables

Types of techniques | Basic Manual techniques relative to industry sector
Types of drying / curing units | Manual drying systems commonly used in specific industry sectors
Degree of autonomy | Working under supervision to previously defined procedures to ensure production requirements have been met
Workplace procedures | Tasks must be performed in accordance with workplace procedures
Workplace quality standards | Tasks must meet workplace quality standards

Evidence Guide

Produce a print run manually to workplace standards in accordance with listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- positioning and registering screen
- ink systems
- substrate
- printing techniques
- drying / curing systems
- equipment maintenance
- stacking procedures for printed substrate
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.
Answers need to show the essential knowledge required when working in a limited range of circumstances.

Positioning and registering screen
Describe the procedure for setting up frame in position relative to print image and base board in preparation for printing.

Ink systems
How do you check the ink to determine its suitability for printing on this substrate?

Substrate
Why is it necessary to check substrate against job specifications?

Printing techniques
What OH&S concerns are there when producing a manual print?
What is checked on the printed sheet when the proof print has been run off?
What aspects of the print are evaluated during printing?

Drying / curing systems
What determines the drying / curing system to be used for this application?

Equipment maintenance
What maintenance should be carried out on this machine?
What is the correct method of ink removal and cleaning squeegees?
Stacking procedures
   How do you determine whether a print is dried / cured prior to stacking?

Information sources
   What manuals, safety documentation, etc are relevant to this task and where are they kept?
   What information is included in these documents?
SP71c  Produce print – manual (advanced)

Elements and Performance Criteria

SP71c–1  Load substrate

SP71c–1.1 Substrate is checked against job specifications with any irregularities reported and/or rectified

SP71c–1.2 Substrate position and stencil registration is adjusted in accordance with job specifications

SP71c–2  Apply ink to screen

SP71c–2.1 Ink is applied to the screen in the quantity required for the screen size

SP71c–2.2 Equipment is kept clean and spillage minimised

SP71c–2.3 Colour is mixed and ink is checked to ensure it complies with job specifications

SP71c–3  Produce proof print

SP71c–3.1 Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying / curing, artwork detail and other technical aspects in accordance with job specifications

SP71c–3.2 Adjustments are made

SP71c–3.3 Appropriate approval to commence production is sought prior to commencing

SP71c–3.4 Belt speed and energy required are set to achieve desired properties

SP71c–4  Run job and monitor print quality

SP71c–4.1 Printing speed production is adjusted to maximise quality and speed of output

SP71c–4.2 Print quality is continuously evaluated and adjusted as required

SP71c–4.3 Effects of ink alterations during run are monitored and appropriate action taken in accordance with job specifications and manufacturer's / supplier's instructions

SP71c–4.4 Workplace documentation on job is completed as required

SP71c–4.5 Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer's / supplier's instructions

SP71c–5  Carry out routine user maintenance

SP71c–5.1 Equipment is lubricated, cleaned and adjusted in accordance with manufacturer's / supplier's instructions

SP71c–5.2 Fault conditions are identified and reported in accordance with workplace procedures

SP71c–6  Stack production output

SP71c–6.1 Output is checked for thorough drying / curing before stacking

SP71c–6.2 Job status and progress is checked against job specifications and any necessary action is taken

SP71c–7  Finish operation

SP71c–7.1 Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturers’ / suppliers’ instructions

SP71c–7.2 Waste materials are disposed of in accordance with manufacturers’ / suppliers’ instructions and environmental conservation procedures
SP71c–7.3 Equipment and surrounding areas are cleaned in accordance with manufacturer’s / supplier’s instructions

Range of Variables

Type of techniques Manual screen printing techniques relative to the industry sector
Types of drying / curing units Drying systems commonly used and relative to the industry sector
Degree of autonomy Working in conjunction with others to ensure production requirements have been met
Workplace procedures Tasks must be performed in accordance with workplace procedures
Workplace quality standards Tasks must meet workplace quality standards

Evidence Guide

Produce a multi colour print run using manual techniques to workplace standards and in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- substrates and ink compatibility
- preparing for printing and routine user maintenance
- positioning and registering screen and setting up machine
- maintaining and adjusting drying / curing unit
- run job, monitor print quality and stack and check production output
- post production cleaning and maintenance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Substrates and ink compatibility
What are the criteria for selecting the correct substrate for the job?
How do you determine ink and substrate compatibility?
What are the characteristics of solvents and ink additives and how is compatibility determined?

Preparing for printing and routine user maintenance
Describe the adjustments necessary on the equipment prior to setting up.
What routine user maintenance is required for this equipment?
What method do you use for checking the screen, ink, substrate, squeegee prior to printing?

Positioning and registering screen and setting up machine
What maintenance is require on the printing base?
How do you determine the lay edge on the equipment?
Demonstrate how you correctly position, register and lock screen in position.
How do you determine which squeegee to use?
How do you determine the off–contact distance?

Maintaining / adjusting drying / curing unit
Why have you selected this drying / curing system to print / cure this job?
What determines the speed / temperature of the unit?
What routine maintenance is required on this unit?

Run job and monitor print quality
What OH&S concerns are there when producing a manual print?
Why is it necessary to condition some substrates?
How do you determine the correct viscosity of ink?
How do you rectify the problem of alteration to ink viscosity during the run?
How do you evaluate and maintain print quality during the run?
What is the ideal printing rate on this equipment?
What procedure do you have for checking and stacking production output?

Post production cleaning and maintenance
What is the correct procedure for removing ink without damaging the screen?
What is the correct method of cleaning squeegees, equipment and the surrounding area?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
SP73b  Produce print using semi–automatic machines (basic)

**Elements and Performance Criteria**

SP73b–1  Load substrate

SP73b–1.1 Substrate is checked against job specifications with any irregularities reported and/or rectified

SP73b–1.2 Substrate position and stencil registration is adjusted in accordance with job specifications

SP73b–2  Apply ink to screen

SP73b–2.1 Ink is applied to the screen in the quantity required for the screen size

SP73b–2.2 Equipment is kept clean and spillage minimised

SP73b–2.3 Colour is mixed and ink is checked to ensure it complies with job specifications

SP73b–3  Produce proof print

SP73b–3.1 Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying / curing, artwork detail and other technical aspects in accordance with job specifications

SP73b–3.2 Adjustments are made as required

SP73b–3.3 Appropriate approval to commence production is sought prior to commencing

SP73b–3.4 Belt speed and energy required are set to achieve desired properties then printing speeds are adjusted to suit

SP73b–4  Run job and monitor print quality

SP73b–4.1 Printing speed production is adjusted to maximise quality and speed of output

SP73b–4.2 Print quality is continuously evaluated and adjusted as required

SP73b–4.3 Effects of ink alterations during run are monitored and basic appropriate action taken in accordance with job specifications and manufacturer's / supplier's instructions

SP73b–4.4 Workplace documentation on job is completed as required

SP73b–4.5 Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer's / supplier's instructions

SP73b–5  Carry out routine user maintenance

SP73b–5.1 Equipment is cleaned in accordance with manufacturer's / supplier's instructions

SP73b–5.2 Fault conditions are identified and reported in accordance with manufacturer's / supplier's instructions

SP73b–6  Stack production output

SP73b–6.1 Output is checked for thorough drying / curing before stacking

SP73b–6.2 Job status and progress is checked against job specifications and any necessary action is taken

SP73b–7  Shut down machine
SP73b–7.1 Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturers’/suppliers’ instructions

SP73b–7.2 Waste materials are disposed of in accordance with manufacturers’/suppliers’ instructions and environmental conservation procedures

SP73b–7.3 Equipment and surrounding areas are cleaned in accordance with manufacturer’s/supplier’s instructions

**Range of Variables**

<table>
<thead>
<tr>
<th>Type of machine</th>
<th>Semi–automatic and computerised machines relative to the industry sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of drying / curing units</td>
<td>Manual drying racks, mechanical dryers or UV curing units</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working under supervision to previously defined procedures to ensure production requirements have been met</td>
</tr>
<tr>
<td>Workplace procedures</td>
<td>Tasks must be performed in accordance with workplace procedures</td>
</tr>
<tr>
<td>Workplace quality standards</td>
<td>Tasks must meet workplace quality standards</td>
</tr>
</tbody>
</table>

**Evidence Guide**

Produce a print run using a semi–automatic machine to workplace standard in accordance with listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- identifying and setting of substrate
- positioning substrate and screen frame
- solvent and ink systems for selected substrate
- drying and curing systems
- proofing and running job and monitoring print quality
- stacking production output
- housekeeping and maintenance
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show the essential knowledge required when working in a limited range of circumstances.*

**Identifying and setting of substrate**

Identify the substrate, finished size, length of run and order of colours.

Why are you using this particular colour sequence?

What is the correct placement of image on the sheet?

**Positioning substrate and screen frame**

What is the significance of substrate guides / lays?

Describe the procedure for setting up frame position relative to print image and base in preparation for printing.

**Solvent and ink system for selected substrate**

Why did you select this ink system?
Why are belt speed and head units set to these parameters?

**Proofing and running job**
- What OH&S concerns are there when using a semi-automatic machine?
- Why do you use that type of squeegee / flood coater and squeegee angle?
- Why have you produced a proof print and what needs to be checked on the proof?
- Why is print quality and drying / curing of ink continuously monitored?
- What is the purpose of workplace documentation?

**Stacking production output**
- How do you check printed sheets for drying / curing before stacking?

**Housekeeping and maintenance**
- What procedure do you take for disposing of unused ink and solvent rags?
- How do you determine that prints are dried / cured?
- Describe frequency and type of maintenance that should be performed.

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
SP73c  Produce print using semi–automatic machines
(advanced)

**Elements and Performance Criteria**

**SP73c–1  Load substrate**
- SP73c–1.1 Substrate is checked against job specifications with any irregularities reported and/or rectified
- SP73c–1.2 Substrate position and stencil registration is adjusted in accordance with job specifications

**SP73c–2  Apply ink to screen**
- SP73c–2.1 Ink is applied to the screen in the quantity required for the screen size
- SP73c–2.2 Equipment is kept clean and spillage minimised
- SP73c–2.3 Colour is mixed and ink is checked to ensure it complies with job specifications

**SP73c–3  Produce proof print**
- SP73c–3.1 Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying / curing, artwork detail and other technical aspects in accordance with job specifications
- SP73c–3.2 Adjustments are made as required
- SP73c–3.3 Appropriate approval to commence production is sought prior to commencing
- SP73c–3.4 Belt speed and energy required are set to achieve desired properties then printing speeds are adjusted to suit

**SP73c–4  Run job and monitor print quality**
- SP73c–4.1 Printing speed production is adjusted to maximise quality and speed of output
- SP73c–4.2 Print quality is continuously evaluated and adjusted as required
- SP73c–4.3 Effects of ink alterations during run are monitored and appropriate action taken in accordance with job specifications and manufacturer's / supplier's instructions
- SP73c–4.4 Workplace documentation on job is completed as required
- SP73c–4.5 Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer's / supplier's instructions

**SP73c–5  Carry out routine user maintenance**
- SP73c–5.1 Equipment is lubricated, cleaned and adjusted in accordance with manufacturer's / supplier's instructions
- SP73c–5.2 Fault conditions are identified, reported and/or rectified in accordance with manufacturer's / supplier's instructions

**SP73c–6  Stack production output**
- SP73c–6.1 Output is checked for thorough drying / curing before stacking
- SP73c–6.2 Job status and progress is checked against job specifications and any necessary action is taken

**SP73c–7  Shut down machine**
SP73c–7.1 Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturers'/suppliers' instructions.

SP73c–7.2 Waste materials are disposed of in accordance with manufacturers'/suppliers' instructions and environmental conservation procedures.

SP73c–7.3 Equipment and surrounding areas are cleaned in accordance with manufacturer's/supplier's instructions.

Range of Variables

| Type of machine                  | Semi–automatic and computerised screen printing machines relative to the industry sector |
| Types of drying / curing unit    | Drying / curing units commonly used relative to the industry sector |
| Degree of autonomy               | Working to defined procedures and in consultation with other relevant persons to ensure production requirements have been met |
| Workplace procedures             | Tasks must be performed in accordance with workplace procedures |
| Workplace quality standards      | Tasks must meet workplace quality standards |

Evidence Guide

Produce a print of more than one colour containing line and tone using a semi–automatic machine to workplace standards in accordance with listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- substrate and ink compatibility
- preparation for printing and machine user maintenance
- positioning and registering screen and setting machine
- maintaining and adjusting drying / curing unit
- proofing and running jobs and monitoring print quality
- checking and stacking production output
- post production cleaning and routine maintenance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Substrate and ink compatibility

What are the criteria for selecting the right substrate for the job?
How do you determine ink and substrate compatibility?
What are the characteristics of solvents and ink additives and how is compatibility to this ink system determined?
What adjustments are necessary to the machine prior to setting up?

Preparation for printing and routine user maintenance

What maintenance is required on this machine prior to the commencement of printing?
What procedure do you use for checking the screen sequence of colours, ink, substrate and squeegee / flood coater prior to printing?

Positioning and registering screen and setting machine
- What is the function of the printing base and what maintenance is required?
- How is the lay edge and gripper / take off edge of the substrate determined?
- Describe how you correctly position register and lock the screen in position.
- How do you determine which squeegee / shore hardness and flood coater to use?
- Why is it necessary to adjust the off contact / peel off requirements of the screen?

Maintaining and adjusting drying / curing unit
- What are the OH&S requirements when working with infra red / UV curing units?
- What is the relationship between ink deposit, squeegee speed and belt speed / temperature?
- What routine user maintenance is required on this unit?

Run job and monitor print quality
- What OH&S concerns are there when using a semi–automatic machine?
- What effect does humidity level have on print procedure?
- How do you determine the correct viscosity of the ink prior to printing?
- How do you rectify the change in the viscosity of the ink during a production run?
- How do you evaluate and maintain print quality during the run?
- What is the ideal printing rate for this substrate on this machine?

Checking and stacking production output
- What determines how production output is stacked? (ie flat or on edge)
- What effect do environmental conditions have on output capacity?
- Why is it necessary to determine the exact count and to record production details on the job sheet?

Post production cleaning and routine maintenance
- What are the health hazards associated with inks and solvents?
- What is the correct procedure for removing ink without damaging the screen?
- What is the correct method of cleaning squeegees / flood coater machine and surrounding area?
- What maintenance is required on this machine after printing?

Information sources
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
SP75b Produce print using automatic machines

**Elements and Performance Criteria**

**SP75b–1 Load substrate**
- **SP75b–1.1** Substrate is checked against job specifications with any irregularities reported and/or rectified
- **SP75b–1.2** Substrate position and stencil registration is adjusted in accordance with job specifications

**SP75b–2 Apply ink to screen**
- **SP75b–2.1** Ink is applied to the screen in the quantity required for the screen size
- **SP75b–2.2** Equipment is kept clean and spillage minimised
- **SP75b–2.3** Ink is checked to ensure it complies with job specifications
- **SP75b–2.4** Feeder is set and adjusted to suit substrate

**SP75b–3 Produce proof print**
- **SP75b–3.1** Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying/curing, artwork detail and other technical aspects in accordance with job specifications
- **SP75b–3.2** Adjustments are made as required
- **SP75b–3.3** Appropriate approval to commence production is sought prior to commencing
- **SP75b–3.4** Belt speed and energy required are set to achieve desired properties then printing speeds are adjusted to suit

**SP75b–4 Run job and monitor print quality**
- **SP75b–4.1** Printing speed production is adjusted to maximise quality and speed of output
- **SP75b–4.2** Print quality and sheet feeder is continuously evaluated and adjusted as required
- **SP75b–4.3** Effects of ink alterations during run are monitored and appropriate action taken in accordance with job specifications and manufacturer's/supplier's instructions
- **SP75b–4.4** Workplace documentation on job is completed as required
- **SP75b–4.5** Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer's/supplier's instructions

**SP75b–5 Carry out routine user maintenance**
- **SP75b–5.1** Equipment is cleaned in accordance with manufacturer's/supplier's instructions
- **SP75b–5.2** Fault conditions are identified, reported and/or rectified in accordance with manufacturer's/supplier's instructions

**SP75b–6 Handle production output**
- **SP75b–6.1** Output is checked for thorough drying/curing before handling
- **SP75b–6.2** Job status and progress is checked against job specifications and any necessary action is taken

**SP75b–7 Shut down machine**
- **SP75b–7.1** Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturers’/suppliers’ instructions
SP75b–7.2 Waste materials are disposed of in accordance with manufacturers’ / suppliers’ instructions and environmental conservation procedures

SP75b–7.3 Equipment and surrounding areas are cleaned in accordance with manufacturer’s / supplier’s instructions

**Range of Variables**

**Type of machine** Automatic and computerised screen printing machines relative to the industry sector

**Types of drying / curing units** Various drying systems commonly used in the industry relative to the industry sector

**Degree of autonomy** Working in consultation with other relevant persons to define procedures to ensure production requirements have been met

**Workplace procedures** Tasks must be performed in accordance with workplace procedures

**Workplace quality standards** Tasks must meet workplace quality standards

**Evidence Guide**

Produce a print using an automatic machine to workplace standards in accordance with listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- preparing for printing and machine / feeder user maintenance
- adjusting the feeder system to suit substrate
- positioning and registering screen and setting up machine
- maintaining and adjusting drying / curing unit
- proofing and running job and monitoring print quality
- checking and handling production output
- post production cleaning and routine maintenance
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*

*They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a wide range of circumstances.

**Preparing for printing and machine / feeder user maintenance**

What adjustments are necessary to the machine prior to setting up?

What maintenance is required on the machine and feeder prior to the commencement of printing?

How do you determine which substrate is to be used on this job?

What procedure do you use for checking the screen sequence of colours, ink, substrate and squeegee / flood coater prior to printing?

**Adjusting the feeder system to suit substrate**

Describe the system for setting the feed board and loading substrate.

Why is it necessary to prepare substrate or item when loading the feeder?

Describe how to adjust the stock feed system for this machine.

**Positioning and registering screen and setting up machine**

Describe how the frame is correctly positioned, registered and the screen locked into position.

How is the on/off contact / peel off requirements of the frame adjusted?
Maintenance and adjusting drying / curing unit

What are the OH&S requirements when working with infra red / UV curing units?
What is the relationship between ink deposit, squeegee speed and belt speed / temperature of drying / curing unit?
Describe the routine maintenance you undertake on this drying / curing unit.

Run job and monitor print quality

What OH&S concerns are there when using an automatic machine?
What is the effect of humidity on the substrate?
How do you determine the correct viscosity of the ink prior to printing?
How do you rectify the thickening of the ink during the print run?
How do you evaluate and maintain the print quality during printing?
What is the ideal printing rate for this substrate on this machine?

Checking and handling production output

How is production output handled to prevent offsetting of the ink?
What effect do the ink conditions have on output capacity?
Why is it necessary to determine the exact count and to record production details on the job sheet?

Post production cleaning and routine maintenance

What are the health hazards associated with ink / solvents?
What is the correct procedure for removing the ink without damaging the screen?
What is the correct method of cleaning squeegees / flood coaters, machine and surrounding area?
What maintenance is required on this machine after printing?

Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
SP75c Produce print using automatic machines (advanced)

Elements and Performance Criteria

SP75c–1 Load substrate

SP75c–1.1 Substrate is checked against job specifications with any irregularities reported and/or rectified

SP75c–1.2 Substrate position and stencil registration is adjusted in accordance with job specifications

SP75c–2 Apply ink to screen

SP75c–2.1 Ink is applied to the screen in the quantity required for the screen size

SP75c–2.2 Equipment is kept clean and spillage minimised

SP75c–2.3 Colour is mixed and ink is checked to ensure it complies with job specifications

SP75c–2.4 Feeder is set and adjusted to suit substrate

SP75c–3 Produce proof print

SP75c–3.1 Proof print is run off and checked for colour, strength, registration, adhesion, clarity, gloss level, drying / curing, artwork detail and other technical aspects in accordance with job specifications

SP75c–3.2 Adjustments are made as required

SP75c–3.3 Appropriate approval to commence production is sought prior to commencing

SP75c–3.4 Belt speed and energy required are set to achieve desired properties then printing speeds are adjusted to suit

SP75c–4 Run job and monitor print quality

SP75c–4.1 Printing speed production is adjusted to maximise quality and speed of output

SP75c–4.2 Print quality and sheet feeding is continuously evaluated and adjusted as required

SP75c–4.3 Effects of ink alterations during run are monitored and appropriate action taken in accordance with job specifications and manufacturer's / supplier's instructions

SP75c–4.4 Workplace documentation on job is completed as required

SP75c–4.5 Curing and drying are constantly monitored and adjusted in accordance with job specifications and manufacturer's / supplier's instructions

SP75c–5 Carry out routine user maintenance

SP75c–5.1 Equipment is cleaned in accordance with manufacturer's / supplier's instructions

SP75c–5.2 Fault conditions are identified, reported and/or rectified in accordance with manufacturer's / supplier's instructions

SP75c–6 Handle production output

SP75c–6.1 Output is checked for thorough drying / curing before handling

SP75c–6.2 Job status and progress is checked against job specifications and any necessary action is taken

SP75c–7 Shut down machine
SP75c–7.1 Excess ink, screens, squeegees and flood coaters are removed and cleaned in accordance with occupational health and safety requirements and manufacturers’ / suppliers’ instructions.

SP75c–7.2 Waste materials are disposed of in accordance with manufacturers’ / suppliers’ instructions and environmental conservation procedures.

SP75c–7.3 Equipment and surrounding areas are cleaned in accordance with manufacturer’s / supplier’s instructions.

**Range of Variables**

<table>
<thead>
<tr>
<th>Types of machines</th>
<th>Automatic and computerised screen printing machines with two or more colours relative to the industry sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of drying / curing units</td>
<td>Drying / curing systems commonly used in the industry relative to the industry sector</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Initiative and judgement in working in consultation with other persons to ensure production requirements have been met</td>
</tr>
<tr>
<td>Workplace procedures</td>
<td>Tasks must be performed in accordance with workplace procedures</td>
</tr>
<tr>
<td>Workplace quality standards</td>
<td>Tasks must meet workplace quality standards</td>
</tr>
</tbody>
</table>

**Evidence Guide**

Produce a print of more than one colour containing line and tone using an automatic machine to workplace standards in accordance with listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- preparing for printing and machine / feeder user maintenance
- adjusting the feeder system to suit substrate
- substrate and ink compatibility
- positioning and registering screen and setting up machine
- maintaining and adjusting drying / curing unit
- proofing and running job and monitoring print quality
- checking and handling production output
- post production cleaning and routine maintenance
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

**Preparing for printing and machine / feeder user maintenance**

What adjustments are necessary to the machine prior to setting up?
What maintenance is required on the machine and feeder prior to the commencement of printing?
What adjustments need to be made to machine / feeder to allow for characteristics of substrate?
What procedure is in place to confirm the screen sequence of colour, ink, substrate and squeegee / flood coater prior to printing?

**Adjusting the feeder system to suit substrate**
Describe the system for setting the feedboard and loading substrate.
Why is it necessary to prepare substrate or item when loading the feeder?
Describe how to adjust the stock feed system for this machine.
What system is in place to check the substrate is fed into the machine at the required production speed without damage, distortion or variation in position?

**Substrate and ink compatibility**

What are the criteria for selecting the right substrate for the job?
How do you determine ink and substrate compatibility?
What are the characteristics of solvents and ink additives and how is compatibility to this ink system determined?

**Positioning and registering screen and setting up machine**

Describe how the frame is correctly positioned, registered and the screen locked into position.
Describe how to position the squeegee / flood coater.
How are the on/off–contact / peel off requirements of the frame adjusted?
What is the shore hardness of the squeegee blade and why have you chosen it?

**Maintaining and adjusting drying / curing unit**

What is the relationship between ink deposit, squeegee speed and belt speed / temperature of drying / curing unit?
What are the OH&S requirements when working with infra–red / UV curing units?
Describe the routine maintenance you undertake on this drying / curing unit.
How are ink drying / ink curing characteristics determined?

**Proofing and running job and monitoring print quality**

What OH&S concerns are there when using an automatic machine?
How do you assess that colour complies with job specifications?
What do you check on the initial proof run before continuing?
How do you evaluate print quality and substrate feeding during the run?
What is the ideal printing speed for this substrate on this machine?
What is the effect of humidity on the substrate?
How do you maintain the correct viscosity of ink during the run?

**Checking and handling production output**

How do you determine if print is dried / cured before handling?
How is production output handled to prevent offsetting of ink, blocking, sweating or rewetting of ink?
What effect could weather conditions have on output capacity?
Why is it necessary to determine the exact count and to record production details on the job sheet?

**Post production cleaning and routine maintenance**

What are the health hazards associated with ink / solvents?
What is the correct procedure for removing the ink without damaging the screen?
What is the correct method of cleaning squeegees / flood coaters, machine and surrounding area?
What maintenance is required on this machine after printing is completed?

**Information sources**

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
SP81b  Finish screen print products

Elements and Performance Criteria

SP81b–1  Receive printed product

SP81b–1.1  Screen print job is collected / received and quality checks made in accordance with job specifications

SP81b–1.2  Defects or irregularities are identified, reported and / or rectified

SP81b–2  Carry out final processing

SP81b–2.1  Final processing requirements of job are determined from job specifications

SP81b–2.2  Equipment and materials for final processing are identified and prepared in accordance with job specifications and manufacturer’s / supplier’s instructions

SP81b–2.3  Final processes are implemented in accordance with job specifications and industry practice in the specific industry sectors

SP81b–2.4  Quality of product is monitored and maintained throughout final processing

SP81b–2.5  Irregularities are identified, reported and/or rectified

SP81b–2.6  Job status and progress is checked against job specifications and any necessary action is taken

SP81b–3  Handle final product

SP81b–3.1  The final print is processed using appropriate handling, storage and dispatching techniques to ensure minimal wastage, and prevent hazards to personnel

SP81b–3.2  Waste materials are disposed of in accordance with manufacturers’ / suppliers’ instructions, and environmental conservation procedures

SP81b–3.3  Post production cleaning and user maintenance is carried out in accordance with manufacturer’s / supplier’s instructions

SP81b–4  Store, pack and dispatch

SP81b–4.1  Final quality checks are carried out and appropriate action taken in accordance with the job specifications

SP81b–4.2  Finished job is stored, packed and dispatched in accordance with job specifications

Range of Variables

Types of finishing process  Finishing processes commonly used in screen printing EXCLUDING guillotining, flatbed cutting, folding, etc covered in separate Converting Binding and Finishing units

Degree of autonomy  Work is performed under supervision to defined procedures to ensure production requirements have been met

Workplace procedures  Tasks must be performed in accordance with workplace procedures

Workplace quality standards  Tasks must be performed to meet workplace quality standards
Evidence Guide

Finish TWO different screen printed jobs and apply final processing requirements to production specifications in accordance with listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- quality checking for defects and irregularities
- equipment and materials for final processing
- processing to job specifications
- handling, storage and techniques
- disposal of waste materials
- housekeeping and equipment / tools maintenance
- final quality checking and dispatching
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show the essential knowledge required when working in a limited range of circumstances.

Quality checking for defects and irregularities
What techniques are used to determine defects and irregularities?
How are defects rectified?
What are the features of a quality screen printed job?

Equipment and materials for final processing
What OH&S concerns are there when finishing print jobs?
What are the equipment, tools and materials you use for final processing?
What are the final processing requirements for the job?

Processing to job specifications
What finishing processes are being used on this job?
What are the final processes indicated on job specification?
How is the quality of the finished product monitored and maintained throughout final processing?

Handling, storage and techniques
What safety requirements are there when handling printed product?
What are the handling techniques used to prevent damage to the processed product?

Disposal of waste material
What are the correct methods for disposing of waste material?

Housekeeping and equipment / tools maintenance
What post production cleaning methods are used?
Name the type and frequency of maintenance that should be performed on equipment.

Final quality checking and dispatching
What are the final quality checking methods you are using?
What method do you use for maintaining and recording job information?
In what way is the final product packed and stored?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
Converting Binding and Finishing Units

Converting binding and finishing covers forme making, cutting, folding, collating, fastening, binding and laminating.

Converting binding and finishing workers need units from this section as well as from the Support Units, and possibly Printing Units and National Generic Units.

Converting Binding and Finishing Units:
- CF11c Prepare for cutting forme and stripper making
- CF12c Set cutting forme and strippers
- CF21b Set up and produce basic cut (guillotined) product
- CF21c Set up and produce complex cut (guillotined) product
- CF23b Set up machine for cutting (trimming)
- CF24b Produce cut (trimmed) product
- CF25b Set up machine for basic flat bed die cutting or embossing
- CF25c Set up machine for complex flat bed die cutting or embossing
- CF26b Produce basic flat bed die cut or embossed product
- CF26c Produce complex flat bed die cut or embossed product
- CF27b Set up machine for basic rotary die cutting or embossing
- CF27c Set up machine for complex rotary die cutting or embossing
- CF28b Produce basic rotary die cut or embossed product
- CF28c Produce complex rotary die cut or embossed product
- CF31b Set up machine for basic cutting (flat bed)
- CF32b Produce basic cut (flat bed) product
- CF35b Set up machine for basic cutting (rotary)
- CF36b Produce basic cut (rotary) product
- CF41b Set up machine for basic folding (single / continuous)
- CF41d Set up machine for complex folding (sequenced / multiple)
- CF42b Produce basic folded (single / continuous) product
- CF42c Produce complex folded (sequenced / multiple) product
- CF43b Set up machine for basic collating (sheet / section)
- CF43c Set up machine for complex collating (sheet / section / reel)
- CF44b Produce basic collated (sheet / section) product
- CF44c Produce complex collated (sheet / section / reel) product
- CF45b Set up and produce hand collated product
- CF61b Set up machine for basic fastening (adhesive / mechanical / thermal)
- CF61c Set up machine for complex fastening (adhesive / mechanical / sewing)
- CF62b Produce basic fastened (adhesive / mechanical / thermal) product
- CF62c Produce complex fastened (adhesive / mechanical / sewing) product
- CF63b Set up and produce hand fastened product
- CF65d Set up and produce hand bound book
- CF67d Restore books
- CF69c Set up for and produce hand made box
- CF71c Decorate paper
- CF81b Set up machine for basic laminating
- CF81c Set up machine for complex laminating
- CF82b Produce basic laminated product
- CF82c Produce complex laminated product

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
CF11c Prepare for cutting forme and stripper making

Elements and Performance Criteria

CF11c–1 Identify and select die and stripper making requirements from die drawing or inspection
  CF11c–1.1 Cutting formes and stripers are made correctly in minimum time
  CF11c–1.2 Materials chosen are appropriate to cutting forme design and machine cutting forme / stripper is to be used on

CF11c–2 Assess and cut cutting forme / stripper making materials to size
  CF11c–2.1 Cutting forme / stripper making materials are correct size for production requirements
  CF11c–2.2 Stripper backing material is correct size for production requirements

CF11c–3 Draw product design onto cutting forme blank
  CF11c–3.1 Drawing matches cutting forme design
  CF11c–3.2 Drawing is in register on cutting forme blank
  CF11c–3.3 Drawing is in register on stripper backing material

CF11c–4 Glue lay down sheet / cutting forme tracing onto cutting forme blank
  CF11c–4.1 Lay down sheet is in register on cutting forme blank
  CF11c–4.2 Cutting forme tracing matches product design

CF11c–5 Design location of bridges, stripping rule and mounting holes
  CF11c–5.1 Cutting forme maintains strength
  CF11c–5.2 Waste is cut to suit waste extraction system
  CF11c–5.3 Mounting holes register with holes in cutting forme blank

Range of Variables

Complexity of process Varied cutting formes according to manufacturer's differentiations
Degree of autonomy Initiative and judgment is demonstrated
Workplace procedures Range of workplace procedures within defined work area
Quality processes and standards Range of workplace quality processes and standards within defined work area

Evidence Guide

Required evidence
Prepare materials for TWO cutting formes (one large one small) to accommodate TWO differing substrates (typically used) using all of the relevant processes according to job specifications and the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
  * interpreting drawings
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Interpreting drawings
What special requirements may be identified from planner's drawing?

Cutting forme materials
What OH&S factors must be considered when cutting materials?
Name the substrates commonly cut by these cutting formes.
How do different substrates affect forme setting?
How is the size of the stripper backer material determined?

Design transfer procedures
What care should be taken when drawing design onto blank?
How is registration assured when drawing design onto blank?
How is correct registration achieved when gluing and laying down the cutting forme tracing onto the cutting forme blank?

Bridges, stripping rule and mounting holes
What factors determine the thickness of the stripping rule?
What factors determine the position and number of the bridges?
What factors determine the position and number of the mounting holes?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF12c  Set cutting forme and strippers

Elements and Performance Criteria

CF12c–1  Cut cutting forme wood
- CF12c–1.1  Bridge holes are accurately drilled
- CF12c–1.2  Saw cuts accurately match line drawing on cutting forme blank
- CF12c–1.3  Holes are reinforced and in register with fixing screws

CF12c–2  Cut and shape knives and creasers
- CF12c–2.1  Knives and creasers cut and shaped accurately to suit cutting forme

CF12c–3  Set knives and creasers and cutting forme rubbers
- CF12c–3.1  Knives and creasers set accurately into place on cutting forme blank
- CF12c–3.2  Rubber located on cutting forme to eject product and waste as required

CF12c–4  Set stripping material
- CF12c–4.1  Stripping materials are attached securely and accurately to stripper backing material
- CF12c–4.2  Mounting strips are fixed

CF12c–5  Proof the cutting forme
- CF12c–5.1  Sample meets production order specifications

CF12c–6  Allocate and record cutting forme / stripper identification number
- CF12c–6.1  Correct number is allocated to cutting formes / strippers and recorded

CF12c–7  Clean cutting forme making machinery
- CF12c–7.1  Cutting forme machine is cleaned according to OH&S and company standard

CF12c–8  Note and report cutting forme making machine maintenance problems
- CF12c–8.1  Problems are accurately described to supervisor / Maintenance Department

CF12c–9  Report cutting forme / stripper status
- CF12c–9.1  Status of cutting formes / strippers is reported correctly and without delay to production

Range of Variables

Complexity of process: Varied cutting formes according to manufacturer's differentiations
Degree of autonomy: Initiative and judgment is demonstrated
Workplace procedures: Range of workplace procedures within defined work area
Quality processes and standards: Range of workplace quality processes and standards within defined work area
Evidence Guide

Required evidence
Prepare TWO cutting formes (one large one small) to accommodate TWO differing substrates (typically used) using all of the relevant processes according to job requirements and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- forme and knife shaping
- knife setting
- stripper setting
- proofing
- machine cleaning and maintenance
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Forme and knife shaping
What needs to be checked to correctly position bridge holes?
How are the bridge holes reinforced?
What checks can be performed to ensure that the saw cuts accurately match the line drawings?
What needs to be checked when cutting and shaping the knives and creasers?

Knife setting
What OH&S concerns are there when setting knives?
What factors determine the amount of rubber attached to the forme?
What factors determine the positioning of the rubber on the forme?
List THREE important items to consider when setting the knives and creasers into position on the forme blank.

Stripper setting
What needs to be checked when attaching stripping materials to stripper backing materials?
How is the attachment of stripper materials done accurately?
Explain the purpose of the mounting strips.

Proofing
List FOUR areas that must be proofed to ensure that the cutting forme meets the production order specifications
Why is it important to allocate numbers to each forme?
What method of recording the forme allocation numbers is the accepted formulae?

Machine cleaning and maintenance
What OH&S factors must be considered when cleaning the machine?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?
What are the recommended cleaning agents?
Describe the method of recording and reporting machine maintenance problems.
What indicators show that the machine is in need of oiling / greasing?

Quality assurance
List the conditions to be noted when noting / reporting the status of the cutting forme or stripper.
Why is it important to monitor the condition of the forme and stripper?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF21b  Set up and produce basic cut (guillotined) product

Elements and Performance Criteria

CF21b–1  Read and interpret job requirements from job documentation or production control system
  CF21b–1.1  Set up is carried out correctly in minimum time with minimum wastage
  CF21b–1.2  Grip and lay edges of sheet are identified

CF21b–2  Check knife sharpness
  CF21b–2.1  Knives are checked for appropriate sharpness
  CF21b–2.2  Dull knives are reported and arrangements made for them to be changed
  NOTE: knife installation is part of CF21c Set up and produce complex cut (guillotined) product
  CF21b–2.3  Cutting sticks are replaced when necessary

CF21b–3  Set up machine for basic cutting (guillotining)
  CF21b–3.1  Guillotine is manually set up and adjusted to suit job requirements
  CF21b–3.2  Clamping pressures are set up and adjusted to suit job requirements

CF21b–4  Conduct simple cut
  CF21b–4.1  Material to be used for sample is organised correctly
  CF21b–4.2  Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF21b–5  Organise sample inspection and/or testing
  CF21b–5.1  Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF21b–6  Readjust settings
  CF21b–6.1  Results are interpreted to determine adjustment requirements
  CF21b–6.2  Adjustment changes are carried out in accordance with product and machine specifications

CF21b–7  Maintain basic cutting (guillotining) process
  CF21b–7.1  Knife and cutting stick condition is monitored and adjusted to ensure the quality of product meets the standard of the approved sample
  CF21b–7.2  Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
  CF21b–7.3  Registration of knife(s) is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF21b–8  Maintain production process
  CF21b–8.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  CF21b–8.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
  CF21b–8.3  Manual and/or automatic control is used as per specification
CF21b–8.4 Performance is monitored and verified using the process control system in accordance with company procedures

CF21b–8.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

CF21b–8.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF21b–8.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF21b–8.8 Waste is sorted according to enterprise procedures

CF21b–9 Liaise with customer / supervisor

CF21b–9.1 Production is maintained or adjusted in consultation with customer / supervisor to meet job requirements

CF21b–10 Identify and investigate cutting (guillotining) machine operating problem

CF21b–10.1 Problem in cutting (guillotining) machine operation is identified and reported in accordance with enterprise requirements

CF21b–11 Rectify minor cutting (guillotining) machine faults

CF21b–11.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

CF21b–11.2 Cutting (guillotining) machine operation is checked to ensure correct operation

CF21b–12 Conduct shut down of production process

CF21b–12.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

CF21b–12.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF21b–12.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF21b–12.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF21b–12.5 Repair / adjustment is verified prior to resumption of operations

CF21b–13 Clean cutting (guillotining) machine at end of run

CF21b–13.1 Knife(s) are replaced and cleaned ready for next run

CF21b–13.2 Machine bed is cleaned ready for next run

CF21b–13.3 Cutting units are disengaged and cleaned ready for next run

CF21b–14 Complete records

CF21b–14.1 Production records or other documentation are accurately completed where required by enterprise procedures

**Range of Variables**

<table>
<thead>
<tr>
<th>Cutting process</th>
<th>Single knife, manual guillotines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting sequence</td>
<td>Simple cutting sequence</td>
</tr>
<tr>
<td>Range of cutting units</td>
<td>Range of semi–automatic, hand feed or delivery, low volume / speed guillotines</td>
</tr>
<tr>
<td>Substrate handling</td>
<td>Large or small sheet handling systems</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working to defined procedures under limited supervision</td>
</tr>
</tbody>
</table>
Evidence Guide

Required evidence
Demonstrate all safety devices on the machine.

Set up (not including knife change) and produce TWO basic guillotined products (if possible one large sheet and one small sheet) to enterprise standards according to job specifications, manufacturer’s specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- documentation
- checking guillotine knives
- guillotine set up and operation
- checking and adjustment
- maintaining cutting process
- identifying and rectifying cutting faults
- shutting down and cleaning machine
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning cutting should be found in the job documentation or production control system?

Checking guillotine knives
What OH&S factors MUST be considered when handling knife blades during the knife change operation?
What factors indicate a new blade is needed?
What can occur if a dull blade is continually used?
How do you tell a sharp knife from a dull knife?
When is it necessary to replace a cutting stick?

Guillotine set up and operation
What OH&S factors MUST be considered when setting up and operating the machine?
What factors should be considered when setting up a guillotine for cutting?
How is the correct clamping pressure chosen for a given job?

Checking and adjustment
What OH&S factors MUST be considered when checking and adjusting the machine?
What aspects of the cutting result should be checked against the sample?
What steps should be taken if the cutting result does not coincide with the sample?

Maintaining cutting process
What OH&S factors MUST be considered when maintaining the production process?
What reporting procedures should be followed if the machine malfunctions?
How should waste from the guillotine be treated / disposed of?

Identifying and rectifying cutting faults
What part of the guillotine should be checked if, after a cut, the top sheets are out of square?
What part of the guillotine should be checked if, after a cut, the top sheets are creasing across the cut line?
How do you recognise the need for machine lubrication?
Where do you find out information about correct types and methods of lubrication?

Shutting down and cleaning machine
What OH&S factors MUST be considered when shutting down or cleaning a machine?
What special operations are essential when closing down machine?

**Quality assurance**
- What quality aspects should be considered in a completed cutting job?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
CF21c  Set up and produce complex cut (guillotined) product

Elements and Performance Criteria

CF21c–1 Read and interpret job requirements from job documentation or production control system
   CF21c–1.1 Set up is planned and carried out correctly in minimum time with minimum wastage
   CF21c–1.2 Grip and lay edges of sheet are identified

CF21c–2 Install and replace cutting knives into machine
   CF21c–2.1 Appropriate knives are selected and safely secured to machine
   CF21c–2.2 Dull knives are removed and bolted securely to protective board
   CF21c–2.3 Cutting sticks are replaced when necessary

CF21c–3 Set up machine for cutting (guillotining)
   CF21c–3.1 Guillotine is set up and adjusted to suit job requirements
   CF21c–3.2 Clamping pressures are set up and adjusted to suit job requirements

CF21c–4 Conduct sample cut
   CF21c–4.1 Material to be used for sample is organised correctly
   CF21c–4.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF21c–5 Organise sample inspection and/or testing
   CF21c–5.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF21c–6 Readjust settings
   CF21c–6.1 Results are interpreted to determine adjustment requirements
   CF21c–6.2 Adjustment changes are carried out in accordance with product and machine specifications

CF21c–7 Maintain cutting (guillotining) process
   CF21c–7.1 Knife and cutting stick condition is monitored and adjusted to ensure the quality of product meets the standard of the approved sample
   CF21c–7.2 Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
   CF21c–7.3 Registration of knife(s) is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF21c–8 Maintain operation of production process
   CF21c–8.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
   CF21c–8.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
   CF21c–8.3 Manual and/or automatic control is used as per specification
CF21c–8.4 Performance is monitored and verified using the process control system in accordance with company procedures

CF21c–8.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

CF21c–8.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF21c–8.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF21c–8.8 Waste is sorted according to enterprise procedures

**CF21c–9 Liaise with customers**

CF21c–9.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

**CF21c–10 Identify and investigate cutting (guillotining) machine operating problem**

CF21c–10.1 Problem in cutting (guillotining) machine operation is identified and reported in accordance with enterprise requirements

**CF21c–11 Rectify minor cutting (guillotining) machine faults**

CF21c–11.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

CF21c–11.2 Cutting (guillotining) machine operation is checked to ensure correct operation

**CF21c–12 Conduct shut down of production process**

CF21c–12.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

CF21c–12.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF21c–12.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF21c–12.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF21c–12.5 Repair / adjustment is verified prior to resumption of operations

**CF21c–13 Clean cutting (guillotining) machine at end of run**

CF21c–13.1 Knife and machine bed are cleaned ready for next run

CF21c–13.2 Cutting machine is disengaged and cleaned ready for next run

**CF21c–14 Complete records**

CF21c–14.1 Production records or other documentation are accurately completed where required by enterprise procedures

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**Range of Variables**

- **Cutting process**
  - Single knife, programmable guillotines
  - Complex cutting sequence

- **Range of cutting units**
  - Range of semi–automated automated or computerised guillotines

- **Substrate types**
  - Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

- **Substrate handling**
  - Large or small sheet handling systems

- **Degree of autonomy**
  - Working under limited supervision
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Set up (including knife change) and produce THREE complex guillotined products (THREE different substrates eg paper, strawboard, plastic, bookcloth, and both large and small sheets) using a semi automatic or automatic electronic guillotine, and setting a complex cutting program to meet job specifications, manufacturer's specifications and workplace standards and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- replacement and installation of guillotine knives
- setting up and operating guillotine
- checking and adjustment
- maintaining cutting production
- cutting faults
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Documentation
What information concerning cutting can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
List and explain SIX trade terms that may be used in the documentation for complex cutting or guillotine knife change operations.
What elements must be considered when planning a cutting sequence?

Replacement and installation of guillotine knives
What OH&S factors MUST be considered when handling knife blades during the knife change operation?
What are the recommended knife angles for general cutting?
When would a double bevel be needed on a guillotine knife?
What factors indicate that a new blade is needed?
What can result if a dull blade is continually used?
How can you tell a sharp knife from a dull knife?
What information must be sent with dull knife when replaced?
When is it necessary to replace a cutting stick?
What forces are acting on a guillotine knife?

Setting up and operating guillotine
What OH&S factors MUST be considered when setting up and operating the guillotine?
What factors should be considered when setting up a guillotine for a complex cutting job?
How is the correct clamping pressure chosen for a given job?
What can result if the clamp pressure is not appropriate for the stock?
How is the clamp pressure adjusted?
What clamp pressure is recommended for NCR paper?
What clamp pressure is recommended for 80gsm offset paper?
What clamp pressure is recommended for 2400um strawboard?
What can be expected if the knife angle is less than 19 degrees?
What can be expected if the knife angle is more than 24 degrees?
When would a knife with a double angle be needed?
What are the knife angles on a double bevelled knife?
What are the largest and smallest size sheets that can be processed on this machine?
What procedures can be used to complete under size requirements?
How can a "work and turn" job be recognised?
How can a "work and twist" job be recognised?
How can a "work and tumble" job be recognised?
How can a "work and back" job be recognised?
What problems can occur when activating the automatic knife?
List FOUR types of job not suitable for automatic cutting.
What important operation is required to trim multi-section books or magazines with bulky spines?

Checking and adjustment
What OH&S factors MUST be considered when checking and adjusting the machine?
To what parameters should the machine be adjusted?
Checks should be made to which areas after readjustment?
Explain the settings that may need to be altered after checking
What items of the cutting result should be checked against sample?
What steps are taken if the cutting result does not coincide with the sample?
What areas of the machine should be continually monitored?
How can a lay and gripper edge be identified if not marked (FIVE methods)?

Maintaining cutting production
What OH&S factors MUST be considered when maintaining the production process?
What production factors must be considered when maintaining the production process?
What production difficulties can possibly affect the smooth production flow?
What reporting procedures are to be followed if the machine should malfunction?
How is waste from the guillotine area treated / disposed of?
Name four ways to mark lay and gripper edges on sheets.
What can result if lay and grip edges are not recognised?
When would it be necessary to build up the clamp of a guillotine?
Explain how the clamp of a guillotine is "packed up".
What important operation is required to trim multi-section books or magazines with bulky spines?

Cutting faults
Give FOUR reasons why the guillotine knife will not operate when machine is turned on.
Give FOUR reasons why a book block may be cut out of square.
Give FOUR reasons for the program not working after it has been entered into the machine.
What part of the guillotine should be checked if, after a cut, the top sheets are longer than the bottom sheets?
What part of the guillotine should be checked if, after a cut, the top sheets are shorter than the bottom sheets?
What result will result if the cutting stick is not replaced regularly?
What part of the guillotine should be checked if, after a cut, the top sheets are out of square?
What part of the guillotine should be checked if, after a cut, the top sheets are creasing along the cut line?
When might it be necessary to remove the clamp plate and what needs to be checked when this is done?
How do you recognise the need for machine lubrication?
Where do you find out information about correct types and methods of lubrication?

Machine shut down and cleaning
What OH&S factors MUST be considered when shutting down and/or cleaning the machine?
What special operations are essential when closing down machine?
What maintenance procedures should be used to keep machine in good condition and order?
What methods are employed to rid the machine of waste?
What cleaning agents are used on the guillotine?

Quality assurance
What quality aspects should be considered in a completed cutting job?
What steps should be taken to ensure that important features of the production control system are followed?
In what way might production need to be altered to meet customer requirements?
List FOUR items that must be checked against the customer's sample.
What steps should be taken if the test sample is incorrect?
What areas of the finished product should be inspected?

**Information sources**

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
CF23b  Set up machine for cutting (trimming)

Elements and Performance Criteria

CF23b–1  Read and interpret job requirements from job documentation or production control system
  CF23b–1.1  Set up is carried out correctly in minimum time with minimum wastage

CF23b–2  Install and replace cutting knives into machine
  CF23b–2.1  Appropriate knives are selected and secured to machine
  CF23b–2.2  Dull blades are securely bolted into protective holder

CF23b–3  Set up section transportation system on book machine
  CF23b–3.1  Feeder is set up and adjusted to suit job requirements
  CF23b–3.2  Section pick up and transportation system is set up and adjusted to suit job requirements
  CF23b–3.3  Transfer systems are set up and adjusted to suit job requirements

CF23b–4  Set up stacking system on book machine
  CF23b–4.1  Delivery is set up and adjusted to suit job requirements
  CF23b–4.2  Section transfer and control system is set up and adjusted to suit job requirements

CF23b–5  Set up machine for cutting (trimming)
  CF23b–5.1  Trimmer knives are set up and adjusted to suit job requirements
  CF23b–5.2  Clamping pressures are set up and adjusted to suit job requirements
  CF23b–5.3  Stops and lays are set to remove desired trim

CF23b–6  Conduct sample run
  CF23b–6.1  Material to be used for sample is organised correctly
  CF23b–6.2  Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF23b–7  Organise sample inspection and/or testing
  CF23b–7.1  Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF23b–8  Readjust settings
  CF23b–8.1  Results are interpreted to determine adjustment requirements
  CF23b–8.2  Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Cutting process
  Single or multiple knife, manual or programmable 3 or 5 knife trimmers and spine trimmers

Range of cutting units
  Range of semi–automated, automated or computerised 3 knife trimmers and spine trimmers
Substrate types Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling Large or small book handling systems

Degree of autonomy Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Demonstrate all safety devices on the machine.
Set up a 3-way trimming operation of either: Book block trimmer OR Single section copy trimmer (3-knife section gather / stitch / trim) OR Single section copy trimmer (1 or 3-knife multiple flat sheet gather / fold / stitch / trim) OR use a five knife trimmer on TWO occasions using: different grammage or thickness of section or books AND different size alterations (eg. A4 to A5) according to job specifications, manufacturer's specifications and listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
  + documentation
  + installing–replacing cutting knives
  + setting up transportation systems
  + setting up stacking systems
  + setting up machine for cutting (trimming)
  + quality assurance
  + information sources

NOTE: an additional competency can be achieved by being assessed on an additional process or type of machine.

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information should you find on a job ticket or production control system?

Installing–replacing cutting knives
What OH&S factors MUST be considered when handling knife blades during the knife change operation?
What safety devices must be used when replacing trimmer knives?
How should trimmer knives be transported to and from the machine?
What are the recommended knife angles for the trimming machine?
What factors indicate a new blade is needed?
What can occur if a dull blade is continually used?
How do you tell a sharp knife from a dull knife?
When is it necessary to replace a cutting stick?

Setting up transportation systems
What OH&S factors MUST be considered when setting up transportation systems?
When would belt timing need to be re-adjusted?
What should be adjusted to ensure book is fast against book stops?
What determines the book transport speed?
What should be adjusted if the book is out of square?
What should be adjusted if the book is scratching or "scuffing"?

Setting up stacking systems
What OH&S factors MUST be considered when setting up three knife stacking systems?
What danger areas exist at the delivery end of the book trimming machine?
What problems can be expected in the delivery area of the machine?
How is the batching device activated?

Setting up machine for cutting (trimming)
What OH&S factors MUST be considered when setting trimming unit
What machinery safeguards are to be considered when setting the trimmer?
How is the clamp pressure for each job determined?
What evidence indicates that the clamp pressure is insufficient?
When is it necessary to replace the knives?
What important elements must be considered when moving knives to suit a different size book?
How would the machine be adjusted to remove more offcut from the foredge of the book?
How would the machine be adjusted to remove more offcut from the head and tail of the book?
What important elements must be considered when moving knives to suit maximum / minimum size?

Quality assurance
What are FOUR areas to check on the final job sample?
Explain how it is recommended to correct the following problems: book out of square; book scuffing; wrong sections; incorrect cover creasing; wrong wire stitch positions; wrong sheet / section sequence; wet ink problems, book spines "bursting", waste not transferring from cut line?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF24b  Produce cut (trimmed) product

Elements and Performance Criteria

CF24b–1  Maintain operation of section transportation system on book machine

- CF24b–1.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- CF24b–1.2 Section pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet / section / book handling and efficient operation
- CF24b–1.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- CF24b–1.4 Substrate is added to process according to job instructions

CF24b–2  Maintain operation of section delivery system on book machine

- CF24b–2.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF24b–3  Maintain cutting (trimming) process

- CF24b–3.1 Knife condition is monitored and adjusted to ensure the quality of product meets the standard of the approved sample
- CF24b–3.2 Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
- CF24b–3.3 Registration of knife(s) is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF24b–4  Maintain operation of in–line processes

- CF24b–4.1 In–line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF24b–5  Maintain operation of production process

- CF24b–5.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- CF24b–5.2 Production is maintained within OH&S requirements and company and manufacturer’s specifications
- CF24b–5.3 Manual and/or automatic control is used as per specification
- CF24b–5.4 Performance is monitored and verified using the process control system in accordance with company procedures
- CF24b–5.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
- CF24b–5.6 Process adjustments to eliminate problems are reported in accordance with company procedures
- CF24b–5.7 Faulty performance of equipment is identified and reported in accordance with company procedures
- CF24b–5.8 Waste is sorted according to enterprise procedures

CF24b–6  Liaise with customers

- CF24b–6.1 Production is maintained or adjusted in consultation with customer to meet customer requirements
CF24b–7 Identify and investigate cutting (trimming) machine operating problem
   CF24b–7.1 Problem in cutting (trimming) machine operation is identified and reported in accordance with enterprise requirements

CF24b–8 Rectify minor cutting (trimming) machine faults
   CF24b–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
   CF24b–8.2 Cutting (trimming) machine operation is checked to ensure correct operation

CF24b–9 Conduct shut down of production process
   CF24b–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
   CF24b–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
   CF24b–9.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
   CF24b–9.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
   CF24b–9.5 Repair / adjustment is verified prior to resumption of operations

CF24b–10 Clean cutting (trimming) machine at end of run
   CF24b–10.1 Knife(s), cutting sticks and machine bed are cleaned ready for next run
   CF24b–10.2 Cutting machine is disengaged and cleaned ready for next run
   CF24b–10.3 In-line printing / converting / binding / finishing units are cleaned ready for next run
   CF24b–10.4 Section feed, transport and delivery systems are disengaged and cleaned ready for next run

CF24b–11 Complete records
   CF24b–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

<table>
<thead>
<tr>
<th>Cutting process</th>
<th>Single of multiple knife, manual or programmable 3 or 5 knife trimmers and spine trimmers</th>
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<tr>
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<tr>
<td>Substrate handling</td>
<td>Large or small book handling systems</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working to defined procedures under limited supervision</td>
</tr>
</tbody>
</table>

Evidence Guide

Required evidence
Use a three–knife trimming unit to complete THREE jobs of various types, sizes and thicknesses of substrate in accordance with job specifications and requirements and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Section transport and delivery systems
What OH&S factors should be considered in the transport and delivery areas of the machine?
Name THREE procedures that will ensure smooth transport of sections through machine.
What steps can be taken to ensure smooth delivery of sections?

Cutting (trimming) processes and faults
What OH&S factors should be considered while the trimming process is operational?
In what ways can the waste (offcut) be removed from the work area?
What are FOUR procedures which will ensure that the machine can be kept running without interruption?
What will need to be adjusted if the cover is marked (scuffed)?

Basic in–line processes
Name three in–line processes associated with the machine.

Shut–down and cleaning procedures
What OH&S factors must be considered when conducting machine shut–down, maintenance and cleaning procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked during the machine shut–down procedure?
What areas of the machine require cleaning at the end of the run?

Quality assurance
What quality aspects should be considered in a completed cutting job?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF25b Set up machine for basic flat bed die cutting or embossing

**Elements and Performance Criteria**

**CF25b–1** Read and interpret job requirements from job documentation or production control system
- CF25b–1.1 Set up is carried out correctly in minimum time with minimum wastage

**CF25b–2** Mount flat bed cutting devices
- CF25b–2.1 Cutting devices are mounted
- CF25b–2.2 Cutting devices are registered and proofed

**CF25b–3** Install flat bed cutting devices into machine
- CF25b–3.1 Appropriate cutting devices are selected and secured to machine

**CF25b–4** Set up reel transportation system on web-fed machine (OR CF25b–5)
- CF25b–4.1 Unwind reel is set up and adjusted to suit job requirements
- CF25b–4.2 Webbing procedures are carried out
- CF25b–4.3 Web-control system is set up and adjusted to suit job requirements
- CF25b–4.4 Reels are spliced / joined to suit job requirements

**CF25b–5** Set up sheet transportation system on sheet-fed machine (OR CF25b–4)
- CF25b–5.1 Feeder is set up and adjusted to suit job requirements
- CF25b–5.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
- CF25b–5.3 Transfer systems are set up and adjusted to suit job requirements

**CF25b–6** Set up reel delivery system on web-fed machine (OR CF25b–7)
- CF25b–6.1 Rewind reel is set up and adjusted to suit job requirements
- CF25b–6.2 Folder is set up and adjusted to suit job requirements
- CF25b–6.3 Sheeter is set up and adjusted to suit job requirements

**CF25b–7** Set up sheet delivery system on sheet-fed machine (OR CF25b–6)
- CF25b–7.1 Delivery is set up and adjusted to suit job requirements
- CF25b–7.2 Substrate is removed from process according to job instructions
- CF25b–7.3 Sheet transfer and control system is set up and adjusted to suit job requirements

**CF25b–8** Set up machine for basic flat bed die cutting or embossing
- CF25b–8.1 Flat bed cutting or embossing devices are set up and adjusted to suit job requirements
- CF25b–8.2 Cutting pressures are set up and adjusted to suit job requirements
- CF25b–8.3 Machine lays are set to correct position for registration

**CF25b–9** Set up in-line unit(s) for basic process(es)
- CF25b–9.1 Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
CF25b–9.2 Assistance is given in set up of major in-line printing / converting / binding unit(s).
(NOTE: if entire set up is done refer to appropriate competency standards)

**CF25b–10 Conduct sample run**

- CF25b–10.1 Material to be used for sample is organised correctly
- CF25b–10.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer’s and enterprise requirements to produce a specified sample

**CF25b–11 Organise sample inspection and/or testing**

- CF25b–11.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

**CF25b–12 Readjust settings**

- CF25b–12.1 Results are interpreted to determine adjustment requirements
- CF25b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

**Cutting process**
- Flat bed die and forme cutting, embossing

**Shapes**
- Simple or single shapes

**Range of cutting (flat bed) units**
- A range of machines with dies or cutting formes and manual, semi–automated, fully automated or computerised process control

**In–line processes**
- Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**
- Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

**Substrate handling**
- Wide or narrow reel or large or small sheet handling systems

**Degree of autonomy**
- Working to defined procedures under limited supervision

**Evidence Guide**

**Context**
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

**Required evidence**
Demonstrate all safety devices on the machine.

Competence must be demonstrated on EITHER flat bed die cutting OR embossing. For either process set up TWO jobs changing the type and size of substrates and design of finished patterns according to job specifications, manufacturer's specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- documentation
- mounting flat bed cutting devices
- installing flat bed cutting devices into machine
- reel transportation system on web fed machines OR
- sheet transportation system on sheet fed machines
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning die cutting or embossing can be expected to be found in the job documentation or production control system?

Mounting flat bed cutting devices
What needs to be checked when mounting cutting devices on a flat bed?
What needs to be checked when registering and proofing the cutting devices?

Installing flat bed cutting devices
What needs to be checked when securing the cutting devices to the machine?
What criteria determines the selection of particular cutting devices?

Reel transportation system on web fed machines
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?

Sheet transportation system on sheet fed machines
What OH&S concerns are there when setting up sheet transportation systems?
What are FOUR important areas to check during the feeder unit set-up?
What adjustments can be made to the machine to facilitate the accurate sheet pick up and transportation?

Reel delivery system on web fed machines
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
What steps should be taken to ensure that the delivery system operates effectively?

Sheet delivery system on sheet fed machines
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What areas of the delivery system should be observed to prevent damage to the finished product?
What are FOUR ways in which the folded sheets can be secured for dispatch?

Setting machine for basic flat bed die cutting or embossing
What OH&S factors MUST be considered when setting cutting devices?
What needs to be checked when setting up, adjusting and operating flat bed cutting devices?
How is the machine pressure determined?
How are the machine cutting depths determined?

Basic in–line processes
When would it be necessary to adjust in–line units?
What areas should be checked to ensure the suitability of in–line processes?

Quality assurance
What details of the completed sample should be examined to ensure correctness with the customer's requirements?
What common faults can occur with the flat bed cutting process?
What factors indicate a need for the replacement of knives / blades / cutting edges?
How should the cutting edges be stored to guard against damage and deterioration?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF25c  Set up machine for complex flat bed die cutting or embossing

**Elements and Performance Criteria**

**CF25c–1** Read and interpret job requirements from job documentation or production control system
- CF25c–1.1 Set up is planned and carried out correctly in minimum time with minimum wastage

**CF25c–2** Mount flat bed die cutting or embossing devices
- CF25c–2.1 Cutting devices are mounted
- CF25c–2.2 Cutting devices are registered and proofed

**CF25c–3** Install flat bed cutting devices into machine
- CF25c–3.1 Appropriate cutting devices are selected and secured to machine

**CF25c–4** Set up reel transportation system on web–fed machine (OR CF25c–5)
- CF25c–4.1 Unwind reel is set up and adjusted to suit job requirements
- CF25c–4.2 Webbing procedures are carried out
- CF25c–4.3 Web–control system is set up and adjusted to suit job requirements
- CF25c–4.4 Reels are spliced / joined to suit job requirements

**CF25c–5** Set up sheet transportation system on sheet–fed machine (OR CF25c–4)
- CF25c–5.1 Feeder is set up and adjusted to suit job requirements
- CF25c–5.2 Sheet pick up and transportation system is set up and adjusted to suit job requirements
- CF25c–5.3 Transfer systems are set up and adjusted to suit job requirements

**CF25c–6** Set up reel delivery system on web–fed machine (OR CF25c–7)
- CF25c–6.1 Rewind reel is set up and adjusted to suit job requirements
- CF25c–6.2 Folder is set up and adjusted to suit job requirements
- CF25c–6.3 Sheeter is set up and adjusted to suit job requirements

**CF25c–7** Set up sheet delivery system on sheet–fed machine (OR CF25c–6)
- CF25c–7.1 Delivery is set up and adjusted to suit job requirements
- CF25c–7.2 Substrate is removed from process according to job instructions
- CF25c–7.3 Sheet transfer and control system is set up and adjusted to suit job requirements

**CF25c–8** Set up machine for complex flat bed die cutting or embossing
- CF25c–8.1 Flat bed cutting devices are set up and adjusted to suit job requirements
- CF25c–8.2 Cutting pressures are set up and adjusted to suit job requirements
- CF25c–8.3 Machine lays are set to correct position to register

**CF25c–9** Set up in–line unit(s)
- CF25c–9.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
CF25c–9.2 Assistance is given in set up of major in-line printing / converting / binding unit(s).
(NOTE: if entire set up is done refer to appropriate competency standards)

CF25c–10 Conduct sample run
  CF25c–10.1 Material to be used for sample is organised correctly
  CF25c–10.2 Machine is set up and operated in accordance with OH&S requirements and
  manufacturer's and enterprise requirements to produce a specified sample

CF25c–11 Organise sample inspection and/or testing
  CF25c–11.1 Sample is visually inspected and/or tested or laboratory testing organised in
  accordance with enterprise procedures

CF25c–12 Readjust settings
  CF25c–12.1 Results are interpreted to determine adjustment requirements
  CF25c–12.2 Adjustment changes are carried out in accordance with product and machine
  specifications

Range of Variables

Cutting process  Flat bed die and forme cutting and embossing
Shapes          Complex or multiple shapes
Range of cutting (flat bed) units  A range of machines with dies or cutting formes and manual, semi–
In–line processes  automated, fully automated or computerised process control
Minor processes that are integral to this competency can include basic
in–line operations such as perforating, numbering, slitting that do not
in themselves constitute another defined unit of competency. Where a
major in–line process is defined as a separate competency (eg flat
bed cutting, folding etc.) it should be assessed as such
Substrate types  Range of substrates within the major categories of paper, pressure
Sensitive material, board, plastics and related films, or metal
Substrate handling Wide or narrow reel or large or small sheet handling systems
Degree of autonomy Working under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or
machinery used

Required evidence
Competence must be demonstrated on EITHER flat bed die cutting OR embossing. For either process set up
TWO complex jobs (including in–line processes) with different substrates, sizes and patterns according to job
specifications, manufacturer's specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
  • documentation
  • mounting and installing flat bed cutting devices
  • reel transportation and delivery systems OR
  • sheet transportation and delivery systems
  • machine setting for complex cutting
  • in–line processes
  • checking and adjustment
  • information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Documentation
What information concerning flat bed die cutting or embossing can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What factors must be considered when deciding on a cutting system?

Mounting and installing flat bed cutting devices
What needs to be checked when cutting devices are mounted on a flat bed?
Explain TWO methods each of registering and proofing the cutting devices.
What needs to be checked when the cutting devices are secured to the machine?
What criteria determines the selection of particular cutting devices?

Reel transportation and delivery systems
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?
List and explain the adjustments available to the web.
What needs to be checked when splicing / joining the web?
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
When would it be necessary to make an adjustment to the sheeter during production?
When would it be necessary to make an adjustment to the folder during production?
When would it be necessary to make an adjustment to the rewind wheel during production?

Sheet transportation and delivery systems
What OH&S factors must be considered when setting and/or operating sheet transport and delivery systems?
List FOUR important areas of the feeder unit set–up.
What adjustments can be made to the machine to facilitate the accurate sheet pick up and transportation?
What areas of the delivery system should be observed to maintain neat delivery of finished work?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine?
List FOUR ways in which the finished product can be secured for dispatch.

Machine setting for complex cutting
What OH&S factors must be considered when setting cutting devices?
What needs to be checked when setting up, adjusting and operating flat bed cutting devices?
How is the machine pressure is determined?
How are the machine cutting depths are determined?
Why do you adjust lays for registration and what needs to be checked when it is done?

In–line processes
When would it be necessary to adjust in–line units?
What areas should be checked to ensure the suitability of in–line processes?
What is the largest / smallest size sheet that can be processed on this machine?

Checking and adjustment
What details of the completed sample should be examined to ensure correctness with the customer’s requirements?
What common faults can occur with the flat bed cutting process?
What areas of the finished sample should be compared with the customer’s original copy?
What factors indicate a need for the replacement of knives / blades / cutting edges?
How should the cutting edges be stored to guard against damage and deterioration?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF26b  Produce basic flat bed die cut or embossed product

**Elements and Performance Criteria**

**CF26b–1**  Maintain operation of reel transportation system on web–fed machine (OR CF26b–2)
- **CF26b–1.1**  Reel stand is monitored and adjusted to ensure efficient continuous operation
- **CF26b–1.2**  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
- **CF26b–1.3**  Substrate is added to process according to job instructions

**CF26b–2**  Maintain operation of sheet transportation system on sheet–fed machine (OR CF26b–1)
- **CF26b–2.1**  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- **CF26b–2.2**  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
- **CF26b–2.3**  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- **CF26b–2.4**  Substrate is added to process according to job instructions

**CF26b–3**  Maintain operation of reel delivery system on web–fed machine (OR CF26b–4)
- **CF26b–3.1**  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
- **CF26b–3.2**  Substrate is removed from process according to job instructions
- **CF26b–3.3**  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

**CF26b–4**  Maintain operation of sheet delivery system on sheet–fed machine (OR CF26b–3)
- **CF26b–4.1**  Delivery is monitored and adjusted to ensure quality and efficient product delivery

**CF26b–5**  Maintain basic cutting (flat bed) process
- **CF26b–5.1**  Cutting edge and knife condition are monitored and adjusted to ensure the quality of product meets the standard of the approved sample
- **CF26b–5.2**  Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
- **CF26b–5.3**  Registration of cutting devices and knife(s) are monitored and adjusted to ensure quality of product meets the standard of approved sample
- **CF26b–5.4**  Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of approved sample

**CF26b–6**  Maintain basic in–line process(es)
- **CF26b–6.1**  Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

**CF26b–7**  Maintain production process
- **CF26b–7.1**  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- **CF26b–7.2**  Production is maintained within OH&S requirements and company and manufacturer’s specifications
CF26b–7.3 Manual and/or automatic control is used as per specification
CF26b–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
CF26b–7.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF26b–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures
CF26b–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures
CF26b–7.8 Waste is sorted according to enterprise procedures

CF26b–8 Liaise with customers
CF26b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF26b–9 Identify and investigate cutting (flat bed) machine operating problem
CF26b–9.1 Problem in cutting (flat bed) machine operation is identified and reported in accordance with enterprise requirements

CF26b–10 Rectify minor cutting (flat bed) machine faults
CF26b–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
CF26b–10.2 Cutting (flat bed) machine operation is checked to ensure correct operation

CF26b–11 Conduct shut down of production process
CF26b–11.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
CF26b–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF26b–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF26b–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF26b–11.5 Repair / adjustment is verified prior to resumption of operations

CF26b–12 Clean cutting (flat bed) machine at end of run
CF26b–12.1 Cutting devices and knife(s) are cleaned or replaced ready for next run
CF26b–12.2 Cutting devices are sharpened
CF26b–12.3 Machine bed is cleaned ready for next run
CF26b–12.4 Cutting units are disengaged and cleaned ready for next run
CF26b–12.5 In-line printing / converting / binding / finishing units are cleaned ready for next run
CF26b–12.6 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
CF26b–12.7 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF26b–13 Complete records
CF26b–13.1 Production records or other documentation are accurately completed where required by enterprise procedures
**Range of Variables**

**Cutting process**  
Flat bed die or forme cutting, embossing,

**Shapes**  
Simple or single shapes

**Range of cutting (flat bed) units**  
A range of machines with dies or cutting and manual, semi–automated fully automated or computerised process control

**In–line processes**  
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**  
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

**Substrate handling**  
Wide or narrow reel or large or small sheet handling systems

**Degree of autonomy**  
Working to defined procedures under limited supervision

**Evidence Guide**

**Context**  
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

**Required evidence**  
Competence must be demonstrated on EITHER flat bed die cutting OR embossing. For either process produce TWO jobs with different types and sizes of substrate and design of finished patterns according to job specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel or sheet transportation systems
- reel or sheet delivery systems
- maintenance of cutting process (flat bed and in–line)
- cutting machine faults and problems
- machine shut–down procedures
- completion of records
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*  
*They do not represent everything you need to know. Other questions may be asked.*

*Answers need to show knowledge required when working in a limited range of circumstances.*

**Reel or sheet transportation systems**

What OH&S factors must be considered when setting and/or operating machine transport systems?  
What areas of the reel stand should be monitored to ensure trouble–free operation?  
What area of the control system should be adjusted to maintain correct web tension?

**Reel or sheet delivery systems**

What OH&S factors must be considered when setting and/or operating machine delivery systems?  
What needs to be checked when substrate is removed from the machine?

**Maintenance of cutting process (flat bed and in–line)**
What OH&S factors must be considered when maintaining the cutting process?
What indicators demand the replacement of a knife?
How is cutting pressure adjusted?

**Cutting machine faults and problems**
What OH&S factors must be considered when problem solving on the machine maintaining the cutting process?
What needs to be checked when packing cutting devices?
Explain the procedure for correcting THREE common machine faults.

**Machine shut-down procedures**
What OH&S factors must be considered when conducting machine shut-down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked during the machine shut-down procedure?
What needs to be checked when the cutting devices or knives are cleaned or replaced ready for the next run?
What areas of the machine require cleaning at the end of the run?

**Completion of records**
What production records need to be kept or written up?
What information should be included in this reporting procedure?

**Information sources**
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF26c  Produce complex flat bed die cut or embossed product

Elements and Performance Criteria

CF26c–1  Maintain operation of reel transportation system on web-fed machine (OR CF26c–2)
  CF26c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
  CF26c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
  CF26c–1.3  Substrate is added to process according to job instructions

CF26c–2  Maintain operation of sheet transportation system on sheet-fed machine (OR CF26c–1)
  CF26c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
  CF26c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
  CF26c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
  CF26c–2.4  Substrate is added to process according to job instructions

CF26c–3  Maintain operation of reel delivery system on web-fed machine (OR CF26c–4)
  CF26c–3.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
  CF26c–3.2  Substrate is removed from process according to job instructions
  CF26c–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF26c–4  Maintain operation of sheet delivery system on sheet-fed machine (OR CF26c–3)
  CF26c–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF26c–5  Maintain complex cutting (flat bed) process
  CF26c–5.1  Knife condition is monitored and adjusted to ensure the quality of product meets the standard of the approved sample
  CF26c–5.2  Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
  CF26c–5.3  Registration of knife(s) is monitored and adjusted to ensure quality of product meets the standard of approved sample
  CF26c–5.4  Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF26c–6  Maintain operation of in-line process(es)
  CF26c–6.1  In-line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF26c–7  Maintain operation of production process
  CF26c–7.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
CF26c–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

CF26c–7.3 Manual and/or automatic control is used as per specification

CF26c–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

CF26c–7.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

CF26c–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF26c–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF26c–7.8 Waste is sorted according to enterprise procedures

CF26c–8 Liaise with customers

CF26c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF26c–9 Identify and investigate cutting (flat bed) machine operating problem

CF26c–9.1 Problem in cutting (flat bed) machine operation is identified and reported in accordance with enterprise requirements

CF26c–10 Rectify minor cutting (flat bed) machine faults

CF26c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

CF26c–10.2 Cutting (flat bed) machine operation is checked to ensure correct operation

CF26c–11 Conduct shut down of production process

CF26c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

CF26c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF26c–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF26c–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF26c–11.5 Repair / adjustment is verified prior to resumption of operations

CF26c–12 Clean cutting (flat bed) machine at end of run

CF26c–12.1 Knife and machine bed are cleaned ready for next run

CF26c–12.2 Cutting devices are sharpened correctly

CF26c–12.3 Cutting machine is disengaged and cleaned ready for next run

CF26c–12.4 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF26c–12.5 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF26c–12.6 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF26c–13 Complete records

CF26c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

Cutting process  Flat bed die and forme cutting, embossing
Shapes  Complex or multiple shapes
Range of cutting (flat bed) units  A range of machines with dies, cutting formes or drills and manual, semi–automated, fully automated or computerised process control
In–line processes  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (e.g., flat bed cutting, folding etc.) it should be assessed as such
Substrate types  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
Substrate handling  Wide or narrow reel or large or small sheet handling systems
Degree of autonomy  Working under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Competence must be demonstrated on EITHER flat bed die cutting OR embossing. For either process produce TWO complex jobs (including in–line processes) with different substrates, sizes and patterns according to job specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel or sheet transportation systems
- reel or sheet delivery systems
- flat–bed cutting operations
- machine problems and cutting faults
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Reel or sheet transportation systems
- What OH&S factors must be considered when setting and/or operating machine transport systems?
- What areas of the reel stand should be monitored to ensure trouble–free operation?
- What area of the web control system should be adjusted to maintain correct web tension?
- What area of the web control system should be adjusted to maintain correct positioning of the web?
- What areas of the sheet–fed feeder should be monitored to ensure trouble–free operation?
- What parts of the sheet pick–up system is to be adjusted to ensure accurate and continuous sheet handling?

Reel or sheet delivery systems
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What areas of the delivery system should be observed to maintain tension?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine?

Flat–bed cutting operations
What OH&S factors must be considered when maintaining the cutting process?
What indicators demand the replacement of a knife?
What needs to be checked when cutting pressure is adjusted?
List THREE ways in which registration can be guaranteed.
What production difficulties can be expected during production runs?

Machine problems and cutting faults
What OH&S factors must be considered when problem solving on the machine maintaining the cutting process?
What needs to be checked when packing cutting devices?
What needs to be checked when correcting dull cutting edges on equipment?
What needs to be checked when correcting the depth of embossing?
What needs to be checked when correcting out of square results?

Machine shut down and cleaning
What OH&S factors must be considered when conducting machine shut–down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked when shutting down the machine?
What needs to be checked when the cutting devices or knives are cleaned or replaced ready for the next run?
List the areas of the machine that require cleaning at the end of the run.

Quality assurance
What production records need to be kept or written up?
What information should be included in this reporting procedure?
What quality aspects should be considered in a completed cutting job?
What steps should be taken to ensure that important features of the production control system are followed?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF27b  Set up machine for basic rotary die cutting or embossing

Elements and Performance Criteria

CF27b–1  Read and interpret job requirements from job documentation or production control system
  CF27b–1.1  Set up is carried out correctly in minimum time with minimum wastage

CF27b–2  Mount rotary cutting devices to cylinders
  CF27b–2.1  Cutting devices are mounted
  CF27b–2.2  Cutting devices are registered and proofed

CF27b–3  Install rotary cutting devices into machine
  CF27b–3.1  Appropriate cutting devices are selected and secured to machine

CF27b–4  Set up reel transportation system on web–fed machine (OR CF27b–5)
  CF27b–4.1  Unwind reel is set up and adjusted to suit job requirements
  CF27b–4.2  Webbing procedures are carried out
  CF27b–4.3  Web–control system is set up and adjusted to suit job requirements
  CF27b–4.4  Reels are spliced / joined to suit job requirements

CF27b–5  Set up sheet transportation system on sheet–fed machine (OR CF27b–4)
  CF27b–5.1  Feeder is set up and adjusted to suit job requirements
  CF27b–5.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
  CF27b–5.3  Transfer systems are set up and adjusted to suit job requirements

CF27b–6  Set up reel delivery system on web–fed machine (OR CF27b–7)
  CF27b–6.1  Rewind reel is set up and adjusted to suit job requirements
  CF27b–6.2  Folder is set up and adjusted to suit job requirements
  CF27b–6.3  Sheeter is set up and adjusted to suit job requirements

CF27b–7  Set up sheet delivery system on sheet–fed machine (OR CF27b–6)
  CF27b–7.1  Delivery is set up and adjusted to suit job requirements
  CF27b–7.2  Substrate is removed from process according to job instructions
  CF27b–7.3  Sheet transfer and control system is set up and adjusted to suit job requirements

CF27b–8  Set up machine for basic cutting (rotary)
  CF27b–8.1  Rotary cutting devices are set up and adjusted to suit job requirements
  CF27b–8.2  Cutting pressures are set up and adjusted to suit job requirements
  CF27b–8.3  Counter knives / anvils are set in correct position

CF27b–9  Set up in–line unit(s) for basic process(es)
  CF27b–9.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
CF27b–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s).
(NOTE: if entire set up is done refer to appropriate competency standards)

CF27b–10 Conduct sample run
   CF27b–10.1 Material to be used for sample is organised correctly
   CF27b–10.2 Machine is set up and operated in accordance with OH&S requirements and
      manufacturer's and enterprise requirements to produce a specified sample

CF27b–11 Organise sample inspection and/or testing
   CF27b–11.1 Sample is visually inspected and/or tested or laboratory testing organised in
      accordance with enterprise procedures

CF27b–12 Readjust settings
   CF27b–12.1 Results are interpreted to determine adjustment requirements
   CF27b–12.2 Adjustment changes are carried out in accordance with product and machine
      specifications

Range of Variables

| Cutting process       | Rotary die and forme cutting, embossing |
| Shapes                | Simple or single shapes |
| Range of cutting (rotary) units | A range of machines with dies or cutting formes and manual, semi–automated, fully automated or computerised process control |
| In–line processes     | Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such |
| Substrate types       | Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal |
| Substrate handling    | Wide or narrow reel or large or small sheet handling systems |
| Degree of autonomy    | Working to defined procedures under limited supervision |

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Demonstrate all safety devices on the machine.
Competence must be demonstrated on EITHER rotary die cutting OR embossing. For either process set up TWO jobs changing the type and size of substrates and design of finished patterns according to job specifications, manufacturer's specifications and listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- documentation
- mounting and installing rotary cutting devices
- reel transportation system on web fed machines OR
- sheet transportation system on sheet fed machines
- reel delivery system on web fed machines OR
- sheet delivery system on sheet fed machines
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

**Documentation**
What information concerning rotary die cutting or embossing can be expected to be found in the job documentation or production control system?

**Mounting and installing rotary cutting devices**
What needs to be checked when cutting devices are mounted on a cylinder?
What needs to be checked when the cutting devices are attached to the machine?

**Reel transportation system on web fed machines**
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?

**Sheet transportation system on sheet fed machines**
What OH&S concerns are there when setting up sheet transportation systems?
What are FOUR important areas to check when the feeder unit set-up?

**Reel delivery system on web fed machines**
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
What steps should be taken to ensure that the delivery system operates effectively?

**Sheet delivery system on sheet fed machines**
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What needs to be checked when substrate is removed from machine?
What are FOUR ways in which the finished product can be secured for dispatch?

**Setting machine for basic rotary die cutting or embossing**
What OH&S factors must be considered when setting cutting devices?
How is the machine pressure determined?
How are the machine cutting depths determined?

**Basic in–line processes**
When would it be necessary to adjust in–line units?

**Quality assurance**
What details of the completed sample should be examined to ensure correctness with the customer’s requirements?
How should the cutting edges, counter knives ( anvils) be stored to guard against damage and deterioration?

**Information sources**
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF27c  Set up machine for complex rotary die cutting or embossing

**Elements and Performance Criteria**

**CF27c–1** Read and interpret job requirements from job documentation or production control system

CF27c–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

**CF27c–2** Mount rotary cutting devices to cylinders

CF27c–2.1  Cutting devices are mounted to die cylinders

CF27c–2.2  Cutting devices are registered and proofed on die cylinder

**CF27c–3** Install rotary cutting devices into machine

CF27c–3.1  Appropriate cutting devices are selected and secured to machine

**CF27c–4** Set up reel transportation system on web–fed machine (OR CF27c–5)

CF27c–4.1  Unwind reel is set up and adjusted to suit job requirements

CF27c–4.2  Webbing procedures are carried out

CF27c–4.3  Web–control system is set up and adjusted to suit job requirements

CF27c–4.4  Reels are spliced / joined to suit job requirements

**CF27c–5** Set up sheet transportation system on sheet–fed machine (OR CF27c–4)

CF27c–5.1  Feeder is set up and adjusted to suit job requirements

CF27c–5.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements

CF27c–5.3  Transfer systems are set up and adjusted to suit job requirements

**CF27c–6** Set up reel delivery system on web–fed machine for multiple delivery (OR CF27c–7)

CF27c–6.1  Rewind reel is set up and adjusted to suit job requirements

CF27c–6.2  Folder is set up and adjusted to suit job requirements

CF27c–6.3  Sheeter is set up and adjusted to suit job requirements

**CF27c–7** Set up sheet delivery system on sheet–fed machine for multiple delivery (OR CF27c–6)

CF27c–7.1  Delivery is set up and adjusted to suit job requirements

CF27c–7.2  Substrate is removed from process according to job instructions

CF27c–7.3  Sheet transfer and control system is set up and adjusted to suit job requirements

**CF27c–8** Set up machine for complex rotary die cutting or embossing

CF27c–8.1  Rotary cutting devices are set up and adjusted to suit job requirements

CF27c–8.2  Cutting pressures are set up and adjusted to suit job requirements

CF27c–8.3  Counter knives / anvils are set in position

**CF27c–9** Set up in–line unit(s)

CF27c–9.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
CF27c–9.2 Assistance is given in set up of major in–line printing / converting / binding unit(s).
(NOTE: if entire set up is done refer to appropriate competency standards)

CF27c–10 Conduct sample run
CF27c–10.1 Material to be used for sample is organised correctly
CF27c–10.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF27c–11 Organise sample inspection and/or testing
CF27c–11.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF27c–12 Readjust settings
CF27c–12.1 Results are interpreted to determine adjustment requirements
CF27c–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Cutting process
Rotary die and forme cutting, and embossing

Shapes
Complex, multiple shapes

Range of cutting (rotary) units
A range of machines with dies, cutting formes and manual, semi–automated, fully automated or computerised process control

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Competence must be demonstrated on EITHER rotary die cutting OR embossing. For either process set up TWO complex jobs (including in–line processes) with different substrates, sizes and patterns according to job specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- mounting and installing rotary cutting devices
- reel transportation and delivery systems OR
- sheet transportation and delivery systems
- machine setting for complex cutting
- in–line processes
- checking and adjustment
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Documentation
What information concerning rotary die cutting or embossing can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What factors must be considered when deciding on a cutting system?

Mounting and installing rotary cutting devices
What needs to be checked when cutting devices are mounted on a cylinder?
Explain TWO methods each of registering and proofing the cutting devices.
What needs to be checked when the cutting devices are attached to the machine?
What criteria determines the selection of particular cutting devices?

Reel transportation and delivery systems
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?
List and explain the adjustments available to the web.
What needs to be checked when splicing / joining the web?
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
When might it be necessary to make an adjustment to the sheeter during production?
When might it be necessary to make an adjustment to the folder during production?
When might it be necessary to make an adjustment to the rewind wheel during production?

Sheet transportation and delivery systems
What OH&S factors must be considered when setting and/or operating sheet transport and delivery systems?
List FOUR important areas of the feeder unit set–up.
What adjustments can be made to the machine to facilitate the accurate sheet pick up and transportation?
What areas of the delivery system should be observed to maintain neat delivery of finished work?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine?
List FOUR ways in which the finished product can be secured for dispatch.

Machine setting for complex cutting
What OH&S factors must be considered when setting rotary cutting devices?
What needs to be checked when setting up, adjusting and operating rotary cutting machines?
How is the machine pressure is determined?
How are the machine cutting depths are determined?
Why do you adjust lays for registration and what needs to be checked when it is done?
What could eventuate if the counter knives / anvils are incorrectly set?
What is the largest / smallest size sheet that can be processed on this machine?

In–line processes
When would it be necessary to adjust in–line units?
What areas should be checked to ensure the suitability of in–line processes?

Checking and adjustment
What details of the completed sample should be examined to ensure correctness with the customer's requirements?
What common faults can occur with the rotary cutting process?
What factors indicate a need for the replacement of knives / blades / cutting edges?
How should the cutting edges, counter knives (anvils) be stored to guard against damage and deterioration?
List FOUR items that must be checked against the customer's sample.
Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF28b Produce basic rotary die cut or embossed product

Elements and Performance Criteria

CF28b–1 Maintain operation of reel transportation system on web-fed machine (OR CF28b–2)

CF28b–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation

CF28b–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation

CF28b–1.3 Substrate is added to process according to job instructions

CF28b–2 Maintain operation of sheet transportation system on sheet-fed machine (OR CF28b–1)

CF28b–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine

CF28b–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation

CF28b–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation

CF28b–2.4 Substrate is added to process according to job instructions

CF28b–3 Maintain operation of reel delivery system on web-fed machine (OR CF28b–4)

CF28b–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product

CF28b–3.2 Substrate is removed from process according to job instructions

CF28b–3.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF28b–4 Maintain operation of sheet delivery system on sheet-fed machine (OR CF28b–3)

CF28b–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF28b–5 Maintain basic rotary die cutting or embossing process

CF28b–5.1 Cutting edges and knife condition are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF28b–5.2 Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample

CF28b–5.3 Registration of cutting devices and knife(s) are monitored and adjusted to ensure quality of product meets the standard of approved sample

CF28b–5.4 Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF28b–6 Maintain basic in-line process(es)

CF28b–6.1 Basic in-line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF28b–7 Maintain production process

CF28b–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

CF28b–7.2 Production is maintained within OH&S requirements and company and manufacturer’s specifications
CF28b–7.3  Manual and/or automatic control is used as per specification
CF28b–7.4  Performance is monitored and verified using the process control system in accordance with company procedures
CF28b–7.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF28b–7.6  Process adjustments to eliminate problems are reported in accordance with company procedures
CF28b–7.7  Faulty performance of equipment is identified and reported in accordance with company procedures
CF28b–7.8  Waste is sorted according to enterprise procedures

**CF28b–8  Liaise with customers**

CF28b–8.1  Production is maintained or adjusted in consultation with customer to meet customer requirements

**CF28b–9  Identify and investigate cutting (rotary) machine operating problem**

CF28b–9.1  Problem in cutting (rotary) machine is identified and reported in accordance with enterprise requirements

**CF28b–10  Rectify minor cutting (rotary) machine faults**

CF28b–10.1  Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
CF28b–10.2  Cutting (rotary) machine operation is checked to ensure correct operation

**CF28b–11  Conduct shut down of production process**

CF28b–11.1  Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
CF28b–11.2  Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF28b–11.3  Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF28b–11.4  Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF28b–11.5  Repair / adjustment is verified prior to resumption of operations

**CF28b–12  Clean cutting (rotary) machine at end of run**

CF28b–12.1  cutting devices and knife(s) are replaced or cleaned ready for next run
CF28b–12.2  Cutting devices and knife(s) are sharpened correctly
CF28b–12.3  Machine bed is cleaned ready for next run
CF28b–12.4  Cutting machine is disengaged and cleaned ready for next run
CF28b–12.5  In–line printing / converting / binding / finishing units are cleaned ready for next run
CF28b–12.6  Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
CF28b–12.7  Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

**CF28b–13  Complete records**

CF28b–13.1  Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

Cutting process
- Rotary die and forme cutting, and embossing

Shapes
- Simple or single shapes

Range of cutting (rotary) units
- A range of machines with dies or cutting formes and manual, semi-automated, fully automated or computerised process control

Substrates
- Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

In-line processes
- Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (e.g., flat bed cutting, folding, etc.) it should be assessed as such

Substrate handling
- Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
- Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Competence must be demonstrated on EITHER rotary die cutting OR embossing. For either process produce TWO jobs with different types and sizes of substrate and design of finished patterns according to job specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel or sheet transportation systems
- reel or sheet delivery systems
- maintenance of cutting process (rotary)
- cutting machine faults and problems
- machine shut-down procedures
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel or sheet transportation systems
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?
What areas of the sheet-fed feeder should be monitored to ensure trouble-free operation?

Reel or sheet delivery systems
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What needs to be checked when substrate is removed from machine?

Maintenance of cutting process (rotary)
What OH&S factors must be considered when maintaining the cutting process?
What are FOUR important points to monitor when maintaining the rotary cutting process?
What are THREE sectors of the basic in-line printing / converting / binding / finishing process that may need to be monitored and adjusted to meet the approved standards?
What production difficulties can be expected during production runs?

**Cutting machine faults and problems**
What OH&S factors must be considered when problem solving on the rotary machine cutting process?
Explain the procedure for correcting THREE common machine faults.

**Machine shut-down procedures**
What OH&S factors must be considered when conducting machine shut-down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked when cutting devices or knives are cleaned, stored or replaced ready for the next run?
What areas of the machine require cleaning at the end of the run?

**Quality assurance**
What quality aspects should be considered in a completed rotary cutting job?
What production areas may have to be adjusted to meet customer requirements?

**Information sources**
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF28c  Produce complex rotary die cut or embossed product

Elements and Performance Criteria

CF28c–1  Maintain operation of reel transportation system on web-fed machine (OR CF28c–2)

CF28c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
CF28c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
CF28c–1.3  Substrate is added to process according to job instructions

CF28c–2  Maintain operation of sheet transportation system on sheet-fed machine (OR CF28c–1)

CF28c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
CF28c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
CF28c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
CF28c–2.4  Substrate is added to process according to job instructions

CF28c–3  Maintain operation of reel delivery system on web-fed machine (OR CF28c–4)

CF28c–3.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
CF28c–3.2  Substrate is removed from process according to job instructions
CF28c–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF28c–4  Maintain operation of sheet delivery system on sheet-fed machine (OR CF28c–3)

CF28c–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF28c–5  Maintain operation of complex rotary die cutting or embossing process

CF28c–5.1  Knife condition is monitored and adjusted to ensure the quality of product meets the standard of the approved sample
CF28c–5.2  Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
CF28c–5.3  Registration of knife(s) is monitored and adjusted to ensure quality of product meets the standard of approved sample
CF28c–5.4  Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of sample approved

CF28c–6  Maintain operation of in-line processes

CF28c–6.1  In-line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF28c–7  Maintain operation of production process

CF28c–7.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
CF28c–7.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
CF28c–7.3 Manual and/or automatic control is used as per specification
CF28c–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
CF28c–7.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF28c–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures
CF28c–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures
CF28c–7.8 Waste is sorted according to enterprise procedures

CF28c–8 Liaise with customers
CF28c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF28c–9 Identify and investigate cutting (rotary) machine operating problem
CF28c–9.1 Problem in cutting (rotary) machine is identified and reported in accordance with enterprise requirements

CF28c–10 Rectify minor cutting (rotary) machine faults
CF28c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
CF28c–10.2 Cutting (rotary) machine operation is checked to ensure correct operation

CF28c–11 Correct shut down of production process
CF28c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
CF28c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF28c–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF28c–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF28c–11.5 Repair / adjustment is verified prior to resumption of operations

CF28c–12 Clean cutting (rotary) units at end of run
CF28c–12.1 Knife and machine bed are cleaned ready for next run
CF28c–12.2 Cutting devices are sharpened correctly
CF28c–12.3 Cutting machine is disengaged and cleaned ready for next run
CF28c–12.4 In-line printing / converting / binding / finishing units are cleaned ready for next run
CF28c–12.5 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
CF28c–12.6 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF28c–13 Complete records
CF28c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

<table>
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<tr>
<th>Category</th>
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<td>Range of cutting (rotary) units</td>
<td>A range of machines with dies or cutting formes and manual, semi–automated, fully automated or computerised process control</td>
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<tr>
<td>In–line processes</td>
<td>Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such</td>
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Evidence Guide

Context

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence

Competence must be demonstrated on EITHER rotary die cutting OR embossing. For either process produce TWO complex jobs (including in–line processes) with different substrates, sizes and patterns according to job specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel or sheet transportation systems
- reel or sheet delivery systems
- rotary cutting operations
- in–line processes
- machine problems and cutting faults
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Reel or sheet transportation systems

What OH&S factors must be considered when setting and/or operating machine transport systems?

What areas of the reel stand should be monitored to ensure trouble–free operation?

What area of the web control system should be adjusted to maintain correct web tension?

What area of the web control system should be adjusted to maintain correct positioning of the web?

What areas of the sheet–fed feeder should be monitored to ensure accurate and continuous sheet feeding?

Reel or sheet delivery systems
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What areas of the delivery system should be observed to maintain tension?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine?

**Rotary cutting operations**
What OH&S factors must be considered when maintaining the cutting process?
List FOUR items of importance to consider to maintain rotary cutting operations?
How are the following checked: cutting pressures; cutting registration; packing of cutting area;
condition of cutting edges; the smooth running of the operation?
What indicators demand the replacement of cutting edges?
What needs to be checked when cutting accuracy is adjusted?
List THREE ways in which a clean and precise result can be guaranteed.
What production difficulties can be expected during production runs?

**In–line processes**
List FOUR sectors of the complex in–line printing / converting / binding / finishing process that may
need to be monitored and adjusted to meet the approved standards.

**Machine problems and cutting faults**
What OH&S factors must be considered when problem solving on the rotary machine cutting
process?
What needs to be checked when packing cutting devices?
Explain the procedure for correcting any machine faults.

**Machine shut down and cleaning**
What OH&S factors must be considered when conducting machine shut–down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for
disposal or recycling?
What needs to be checked when shutting down the machine?
What needs to be checked when the cutting devices or knives are cleaned, stored or replaced ready for the next run?
List the areas of the machine that require cleaning at the end of the run.
What cleaning agents are used in cleaning the machine?
What build–ups need to be cleaned from the machine?

**Quality assurance**
What production records need to be kept or written up?
What information should be included in this reporting procedure?
What quality aspects should be considered in a completed rotary cutting job?
What steps should be taken to ensure that important features of the production control system are
followed?
What production areas may have to be adjusted to meet customer requirements?
List FOUR items that must be checked against the customer's sample.

**Information sources**
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF31b  Set up machine for basic cutting (flat bed)

Elements and Performance Criteria

CF31b–1  Read and interpret job requirements from job documentation or production control system
   CF31b–1.1  Set up is carried out correctly in minimum time with minimum wastage

CF31b–2  Mount flat bed cutting devices
   CF31b–2.1  Cutting devices are mounted
   CF31b–2.2  Cutting devices are registered and proofed

CF31b–3  Install flat bed cutting devices into machine
   CF31b–3.1  Appropriate cutting devices are selected and secured to machine

CF31b–4  Set up reel transportation system on web–fed machine (OR CF31b–5)
   CF31b–4.1  Unwind reel is set up and adjusted to suit job requirements
   CF31b–4.2  Webbing procedures are carried out
   CF31b–4.3  Web–control system is set up and adjusted to suit job requirements
   CF31b–4.4  Reels are spliced / joined to suit job requirements

CF31b–5  Set up sheet transportation system on sheet–fed machine (OR CF31b–4)
   CF31b–5.1  Feeder is set up and adjusted to suit job requirements
   CF31b–5.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
   CF31b–5.3  Transfer systems are set up and adjusted to suit job requirements

CF31b–6  Set up reel delivery system on web–fed machine (OR CF31b–7)
   CF31b–6.1  Rewind reel is set up and adjusted to suit job requirements
   CF31b–6.2  Folder is set up and adjusted to suit job requirements
   CF31b–6.3  Sheeter is set up and adjusted to suit job requirements

CF31b–7  Set up sheet delivery system on sheet–fed machine (OR CF31b–6)
   CF31b–7.1  Delivery is set up and adjusted to suit job requirements
   CF31b–7.2  Substrate is removed from process according to job instructions
   CF31b–7.3  Sheet transfer and control system is set up and adjusted to suit job requirements

CF31b–8  Set up machine for basic cutting (flat bed)
   CF31b–8.1  Flat bed cutting devices are set up and adjusted to suit job requirements
   CF31b–8.2  Cutting pressures are set up and adjusted to suit job requirements
   CF31b–8.3  Machine lays are set to correct position for registration

CF31b–9  Set up in–line unit(s) for basic process(es)
   CF31b–9.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
   CF31b–9.2  Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)
CF31b–10 Conduct sample run

CF31b–10.1 Material to be used for sample is organised correctly

CF31b–10.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF31b–11 Organise sample inspection and/or testing

CF31b–11.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF31b–12 Readjust settings

CF31b–12.1 Results are interpreted to determine adjustment requirements

CF31b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Cutting process
Flat bed kiss cutting, hole punching, hole drilling, slotting, slitting, sheeting, creasing, scoring, and pin perforating, indexing, round cornering. (Die cutting and embossing are covered in CF25b)

Shapes
Simple or single shapes

Range of cutting (flat bed) units
A range of machines with dies, cutting formes or drills and manual, semi-automated, fully automated or computerised process control

In-line processes
Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Demonstrate all safety devices on the machine.

Competence must be demonstrated on any THREE different processes. For each process set up TWO jobs changing the type and size of substrates and design of finished patterns according to job specifications, manufacturer’s specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- documentation
- mounting flat bed cutting devices
- installing flat bed cutting devices into machine
- reel transportation system on web fed machines OR
- sheet transportation system on sheet fed machines
- reel delivery system on web fed machines OR
• sheet delivery system on sheet fed machines
• setting machine for basic cutting (flat bed)
• basic in–line processes
• quality assurance
• information sources

NOTE: an additional competency can be achieved by being assessed on an additional THREE processes.

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning hole punching / indexing / creasing and scoring can be expected to be found in the job documentation or production control system?

Mounting flat bed cutting devices
What needs to be checked when mounting cutting devices on a flat bed?
What needs to be checked when registering and proofing the cutting devices?

Installing flat bed cutting devices
What needs to be checked when securing the cutting devices to the machine?
What criteria determines the selection of particular cutting devices?

Reel transportation system on web fed machines
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?

Sheet transportation system on sheet fed machines
What OH&S concerns are there when setting up sheet transportation systems?
What are FOUR important areas to check during the feeder unit set–up?
What adjustments can be made to the machine to facilitate the accurate sheet pick up and transportation?

Reel delivery system on web fed machines
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
What steps should be taken to ensure that the delivery system operates effectively?

Sheet delivery system on sheet fed machines
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What areas of the delivery system should be observed to prevent damage to the finished product?
What are FOUR ways in which the folded sheets can be secured for dispatch?

Setting machine for basic cutting (flat bed)
What OH&S factors MUST be considered when setting cutting devices?
What needs to be checked when setting up, adjusting and operating flat bed cutting devices?
How is the machine pressure determined?
How are the machine cutting depths determined?

Basic in–line processes
When would it be necessary to adjust in–line units?
What areas should be checked to ensure the suitability of in–line processes?

Quality assurance
What details of the completed sample should be examined to ensure correctness with the customer's requirements?
What common faults can occur with the flat bed cutting process?
What factors indicate a need for the replacement of knives / blades / cutting edges?
How should the cutting edges be stored to guard against damage and deterioration?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
**CF32b  Produce basic cut (flat bed) product**

**Elements and Performance Criteria**

**CF32b–1  Maintain operation of reel transportation system on web–fed machine (OR CF32b–2)**

- **CF32b–1.1**  Reel stand is monitored and adjusted to ensure efficient continuous operation
- **CF32b–1.2**  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
- **CF32b–1.3**  Substrate is added to process according to job instructions

**CF32b–2  Maintain operation of sheet transportation system on sheet–fed machine (OR CF32b–1)**

- **CF32b–2.1**  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- **CF32b–2.2**  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
- **CF32b–2.3**  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- **CF32b–2.4**  Substrate is added to process according to job instructions

**CF32b–3  Maintain operation of reel delivery system on web–fed machine (OR CF32b–4)**

- **CF32b–3.1**  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
- **CF32b–3.2**  Substrate is removed from process according to job instructions
- **CF32b–3.3**  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

**CF32b–4  Maintain operation of sheet delivery system on sheet–fed machine (OR CF32b–3)**

- **CF32b–4.1**  Delivery is monitored and adjusted to ensure quality and efficient product delivery

**CF32b–5  Maintain basic cutting (flat bed) process**

- **CF32b–5.1**  Cutting edge and knife condition are monitored and adjusted to ensure the quality of product meets the standard of the approved sample
- **CF32b–5.2**  Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
- **CF32b–5.3**  Registration of cutting devices and knife(s) are monitored and adjusted to ensure quality of product meets the standard of approved sample
- **CF32b–5.4**  Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of approved sample

**CF32b–6  Maintain basic in–line process(es)**

- **CF32b–6.1**  Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

**CF32b–7  Maintain production process**

- **CF32b–7.1**  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- **CF32b–7.2**  Production is maintained within OH&S requirements and company and manufacturer's specifications
CF32b–7.3 Manual and/or automatic control is used as per specification
CF32b–7.4 Performance is monitored and verified using the process control system in accordance with company procedures
CF32b–7.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF32b–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures
CF32b–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures
CF32b–7.8 Waste is sorted according to enterprise procedures

CF32b–8 Liaise with customers
CF32b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF32b–9 Identify and investigate cutting (flat bed) machine operating problem
CF32b–9.1 Problem in cutting (flat bed) machine operation is identified and reported in accordance with enterprise requirements

CF32b–10 Rectify minor cutting (flat bed) machine faults
CF32b–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
CF32b–10.2 Cutting (flat bed) machine operation is checked to ensure correct operation

CF32b–11 Conduct shut down of production process
CF32b–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
CF32b–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF32b–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF32b–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF32b–11.5 Repair / adjustment is verified prior to resumption of operations

CF32b–12 Clean cutting (flat bed) machine at end of run
CF32b–12.1 Cutting devices and knife(s) are cleaned or replaced ready for next run
CF32b–12.2 Cutting devices are sharpened
CF32b–12.3 Machine bed is cleaned ready for next run
CF32b–12.4 Cutting units are disengaged and cleaned ready for next run
CF32b–12.5 In-line printing / converting / binding / finishing units are cleaned ready for next run
CF32b–12.6 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run
CF32b–12.7 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF32b–13 Complete records
CF32b–13.1 Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

Cutting process
Flat bed hole punching, hole drilling, slotting, slitting, sheeting, creasing, scoring, pin perforating, indexing, round cornering. (Die cutting and embossing are covered in CF26b)

Shapes
Simple or single shapes

Range of cutting (flat bed) units
A range of machines with dies, cutting formes or drills and manual, semi-automated fully automated or computerised process control

In-line processes
Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Competence must be demonstrated on THREE different processes. For each process produce TWO jobs with different types and sizes of substrate and design of finished patterns according to job specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel or sheet transportation systems
- reel or sheet delivery systems
- maintenance of cutting process (flat bed and in-line)
- cutting machine faults and problems
- machine shut-down procedures
- completion of records
- information sources

NOTE: an additional competency can be achieved by being assessed on an additional THREE processes.

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel or sheet transportation systems
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?
What area of the web control system should be adjusted to maintain correct web tension?

Reel or sheet delivery systems
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What needs to be checked when substrate is removed from the machine?

**Maintenance of cutting process (flat bed and in-line)**

What OH&S factors must be considered when maintaining the cutting process?
What indicators demand the replacement of a knife?
How is cutting pressure adjusted?

**Cutting machine faults and problems**

What OH&S factors must be considered when problem solving on the machine maintaining the cutting process?
What needs to be checked when packing cutting devices?
Explain the procedure for correcting THREE common machine faults.

**Machine shut-down procedures**

What OH&S factors must be considered when conducting machine shut-down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked during the machine shut-down procedure?
What needs to be checked when the cutting devices or knives are cleaned or replaced ready for the next run?
What areas of the machine require cleaning at the end of the run?

**Completion of records**

What production records need to be kept or written up?
What information should be included in this reporting procedure?

**Information sources**

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF35b  Set up machine for basic cutting (rotary)

Elements and Performance Criteria

CF35b–1  Read and interpret job requirements from job documentation or production control system
    CF35b–1.1  Set up is carried out correctly in minimum time with minimum wastage

CF35b–2  Mount rotary cutting devices to cylinders
    CF35b–2.1  Cutting devices are mounted
    CF35b–2.2  Cutting devices are registered and proofed

CF35b–3  Install rotary cutting devices into machine
    CF35b–3.1  Appropriate cutting devices are selected and secured to machine

CF35b–4  Set up reel transportation system on web–fed machine (OR CF35b–5)
    CF35b–4.1  Unwind reel is set up and adjusted to suit job requirements
    CF35b–4.2  Webbing procedures are carried out
    CF35b–4.3  Web–control system is set up and adjusted to suit job requirements
    CF35b–4.4  Reels are spliced / joined to suit job requirements

CF35b–5  Set up sheet transportation system on sheet–fed machine (OR CF35b–4)
    CF35b–5.1  Feeder is set up and adjusted to suit job requirements
    CF35b–5.2  Sheet pick up and transportation system is set up and adjusted to suit job requirements
    CF35b–5.3  Transfer systems are set up and adjusted to suit job requirements

CF35b–6  Set up reel delivery system on web–fed machine (OR CF35b–7)
    CF35b–6.1  Rewind reel is set up and adjusted to suit job requirements
    CF35b–6.2  Folder is set up and adjusted to suit job requirements
    CF35b–6.3  Sheeter is set up and adjusted to suit job requirements

CF35b–7  Set up sheet delivery system on sheet–fed machine (OR CF35b–6)
    CF35b–7.1  Delivery is set up and adjusted to suit job requirements
    CF35b–7.2  Substrate is removed from process according to job instructions
    CF35b–7.3  Sheet transfer and control system is set up and adjusted to suit job requirements

CF35b–8  Set up machine for basic cutting (rotary)
    CF35b–8.1  Rotary cutting devices are set up and adjusted to suit job requirements
    CF35b–8.2  Cutting pressures are set up and adjusted to suit job requirements
    CF35b–8.3  Counter knives / anvils are set in correct position

CF35b–9  Set up in–line unit(s) for basic process(es)
    CF35b–9.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
    CF35b–9.2  Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)
CF35b–10 Conduct sample run
  CF35b–10.1 Material to be used for sample is organised correctly
  CF35b–10.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF35b–11 Organise sample inspection and/or testing
  CF35b–11.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF35b–12 Readjust settings
  CF35b–12.1 Results are interpreted to determine adjustment requirements
  CF35b–12.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Cutting process
  Rotary kiss cutting, perforating, sprocket hole punching, slotting, sheeting, slitting, creasing, scoring. (Die cutting and embossing are covered in CF27b)

Shapes
  Simple or single shapes

Range of cutting (rotary) units
  A range of machines with dies or cutting formes and manual, semi–automated, fully automated or computerised process control

In–line processes
  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
  Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
  Working to defined procedures under limited supervision

Evidence Guide

Context
  Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
  Demonstrate all safety devices on the machine.
  Competence must be demonstrated on any THREE different processes. For each process set up TWO jobs changing the type and size of substrates and design of finished patterns according to job specifications, manufacturer's specifications and listed performance criteria.
  Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
  Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
  Demonstrate detailed knowledge of:
    ∗ documentation
    ∗ mounting and installing rotary cutting devices
    ∗ reel transportation system on web fed machines OR sheet transportation system on sheet fed machines
    ∗ reel delivery system on web fed machines OR sheet delivery system on sheet fed machines
• setting machine for basic cutting (rotary)
• basic in–line processes
• quality assurance
• information sources

NOTE: an additional competency can be achieved by being assessed on an additional THREE processes.

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning rotary hole punching / indexing / creasing and scoring can be expected to be found in the job documentation or production control system?

Mounting and installing rotary cutting devices
What needs to be checked when cutting devices are mounted on a cylinder?
What needs to be checked when the cutting devices are attached to the machine?

Reel transportation system on web fed machines
What OH&S concerns are there when setting up reel transportation systems?
What adjustments to the unwind reel may be needed to suit various jobs?
What are the important areas to be considered during webbing procedures?

Sheet transportation system on sheet fed machines
What OH&S concerns are there when setting up sheet transportation systems?
What are FOUR important areas to check when the feeder unit set–up?.

Reel delivery system on web fed machines
What important areas of the reel delivery system may need to be adjusted to suit job requirements?
What steps should be taken to ensure that the delivery system operates effectively?

Sheet delivery system on sheet fed machines
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What needs to be checked when substrate is removed from machine?
What are FOUR ways in which the finished product can be secured for dispatch?

Setting machine for basic cutting (rotary)
What OH&S factors must be considered when setting cutting devices?
How is the machine pressure determined?
How are the machine cutting depths determined?

Basic in–line processes
When would it be necessary to adjust in–line units?

Quality assurance
What details of the completed sample should be examined to ensure correctness with the customer's requirements?
How should the cutting edges, counter knives ( anvils) be stored to guard against damage and deterioration?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF36b Produce basic cut (rotary) product

Elements and Performance Criteria

CF36b–1 Maintain operation of reel transportation system on web-fed machine (OR CF36b–2)
   CF36b–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
   CF36b–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
   CF36b–1.3 Substrate is added to process according to job instructions

CF36b–2 Maintain operation of sheet transportation system on sheet-fed machine (OR CF36b–1)
   CF36b–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
   CF36b–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
   CF36b–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
   CF36b–2.4 Substrate is added to process according to job instructions

CF36b–3 Maintain operation of reel delivery system on web-fed machine (OR CF36b–4)
   CF36b–3.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
   CF36b–3.2 Substrate is removed from process according to job instructions
   CF36b–3.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF36b–4 Maintain operation of sheet delivery system on sheet-fed machine (OR CF36b–3)
   CF36b–4.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF36b–5 Maintain basic cutting (rotary) process
   CF36b–5.1 Cutting edges and knife condition are monitored and adjusted to ensure the quality of product meets the standard of the approved sample
   CF36b–5.2 Cutting pressures are monitored and adjusted to ensure the quality of product meets the standard of approved sample
   CF36b–5.3 Registration of cutting devices and knife(s) are monitored and adjusted to ensure quality of product meets the standard of approved sample
   CF36b–5.4 Packing of cutting devices is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF36b–6 Maintain basic in-line process(es)
   CF36b–6.1 Basic in-line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF36b–7 Maintain production process
   CF36b–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
   CF36b–7.2 Production is maintained within OH&S requirements and company and manufacturer’s specifications
CF36b–7.3 Manual and/or automatic control is used as per specification

CF36b–7.4 Performance is monitored and verified using the process control system in accordance with company procedures

CF36b–7.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention

CF36b–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF36b–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF36b–7.8 Waste is sorted according to enterprise procedures

CF36b–8 Liaise with customers

CF36b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF36b–9 Identify and investigate cutting (rotary) machine operating problem

CF36b–9.1 Problem in cutting (rotary) machine is identified and reported in accordance with enterprise requirements

CF36b–10 Rectify minor cutting (rotary) machine faults

CF36b–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

CF36b–10.2 Cutting (rotary) machine operation is checked to ensure correct operation

CF36b–11 Conduct shut down of production process

CF36b–11.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

CF36b–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF36b–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF36b–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF36b–11.5 Repair / adjustment is verified prior to resumption of operations

CF36b–12 Clean cutting (rotary) machine at end of run

CF36b–12.1 Cutting devices and knife(s) are replaced or cleaned ready for next run

CF36b–12.2 Cutting devices and knife(s) are sharpened correctly

CF36b–12.3 Machine bed is cleaned ready for next run

CF36b–12.4 Cutting machine is disengaged and cleaned ready for next run

CF36b–12.5 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF36b–12.6 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF36b–12.7 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF36b–13 Complete records

CF36b–13.1 Production records or other documentation are accurately completed where required by enterprise procedures
Range of Variables

Cutting process  Rotary die and forme cutting, kiss cutting, perforating, sprocket hole punching, slotting, slitting, sheeting, creasing, scoring and embossing

Shapes  Simple or single shapes

Range of cutting (rotary) units  A range of machines with dies or cutting formes and manual, semi–automated, fully automated or computerised process control

Substrates  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

In–line processes  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate handling  Wide or narrow reel or large or small sheet handling systems

Degree of autonomy  Working to defined procedures under limited supervision

Evidence Guide

Context

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence

Competence must be demonstrated on any THREE different processes. For each process produce TWO jobs with different types and sizes of substrate and design of finished patterns according to job specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

∗ reel or sheet transportation systems
∗ reel or sheet delivery systems
∗ maintenance of cutting process (rotary)
∗ cutting machine faults and problems
∗ machine shut–down procedures
∗ quality assurance
∗ information sources

NOTE: an additional competency can be achieved by being assessed on an additional THREE processes.

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel or sheet transportation systems

What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble–free operation?

Reel or sheet delivery systems

What OH&S factors must be considered when setting and/or operating machine delivery systems?
What needs to be checked when substrate is removed from machine?

Maintenance of cutting process (rotary)
What OH&S factors must be considered when maintaining the cutting process?
What are FOUR important points to monitor when maintaining the rotary cutting process
What are THREE sectors of the basic in–line printing / converting / binding / finishing process that may need to be monitored and adjusted to meet the approved standards?
What production difficulties can be expected during production runs?

Cutting machine faults and problems
What OH&S factors must be considered when problem solving on the rotary machine cutting process?
Explain the procedure for correcting THREE common machine faults.

Machine shut–down procedures
What OH&S factors must be considered when conducting machine shut–down procedures?
What needs to be checked when waste is removed from the machine and surrounding area for disposal or recycling?
What needs to be checked when cutting devices or knives are cleaned, stored or replaced ready for the next run?
What areas of the machine require cleaning at the end of the run?

Quality assurance
What quality aspects should be considered in a completed rotary cutting job?
What production areas may have to be adjusted to meet customer requirements?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF41b  Set up machine for basic folding (single / continuous)

Elements and Performance Criteria

CF41b–1   Read and interpret job requirements from job documentation or production control system

  CF41b–1.1   Set up is carried out correctly in minimum time with minimum wastage

CF41b–2   Set up reel transportation system on web–fed machine (OR CF41b–3)

  CF41b–2.1   Unwind reel is set up and adjusted to suit job requirements
  CF41b–2.2   Webbing procedures are carried out
  CF41b–2.3   Web–control system is set up and adjusted to suit job requirements
  CF41b–2.4   Reels are spliced / joined to suit job requirements

CF41b–3   Set up sheet transportation system on sheet–fed machine (OR CF41b–2)

  CF41b–3.1   Feeder is set up and adjusted to suit job requirements
  CF41b–3.2   Sheet pick up and transportation system is set up and adjusted to suit job requirements
  CF41b–3.3   Transfer systems are set up and adjusted to suit job requirements

CF41b–4   Set up sheet delivery system on sheet–fed machine

  CF41b–4.1   Delivery is set up and adjusted to suit job requirements
  CF41b–4.2   Substrate is removed from process according to job instructions
  CF41b–4.3   Sheet transfer and control system is set up and adjusted to suit job requirements

CF41b–5   Set up machine for basic folding (single / continuous)

  CF41b–5.1   Folding units are set up and adjusted to suit job requirements
  CF41b–5.2   Folding rollers / belts / rails are set up and adjusted to suit job requirements

CF41b–6   Set up in–line unit(s) for basic process(es)

  CF41b–6.1   Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  CF41b–6.2   Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

CF41b–7   Conduct sample run

  CF41b–7.1   Material to be used for sample is organised correctly
  CF41b–7.2   Machine is set up and operated in accordance with OH&S requirements and manufacturer’s and enterprise requirements to produce a specified sample

CF41b–8   Organise sample inspection and/or testing

  CF41b–8.1   Sample is visually inspected to determine adjustment requirements

CF41b–9   Readjust settings

  CF41b–9.1   Results are interpreted to determine adjustment requirements
CF41b–9.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Folding process
Single, parallel or continuous folding

Range of folding units
A range of machines with manual, semi-automated, fully automated or computerised process control

In-line processes
Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (e.g. flat bed cutting, folding etc.) it should be assessed as such.

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Demonstrate all safety devices on the machine.

Set up TWO jobs (if possible using different sizes and weights of substrate); EITHER with a single fold to run continuously OR a single quire fold on a sheet gather / stitch / fold / trim machine OR an automatic web fed machine to achieve a single fold in accordance with job specifications, manufacturer's specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- reel transportation systems on web fed machine OR
- sheet transportation and delivery systems on sheet fed machine
- setting machine for basic folding (single / continuous)
- basic in-line processes
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning folding requirements can be expected to be found in the job documentation or production control system?

Reel transportation systems on web fed machine
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?

Sheet transportation and delivery systems on sheet fed machine
What OH&S factors MUST be considered when setting folder transportation and delivery systems?
What areas of the sheet-fed transportation system should be monitored to ensure trouble-free operation?
What areas of the delivery system should be observed to prevent damage to the finished product?
What are FOUR ways that folded sheets can be secured for dispatch?

Setting machine for basic folding (single / continuous)
What OH&S factors MUST be considered when setting and/or adjusting the folding unit?
What can cause scratching / scuffing of substrate during transportation?
What determines the speed of the machine?
What problems can be expected if machine is running too fast?
How can roller pressures be checked for correctness?
What needs to be adjusted if the sheet is out of square?
What are FOUR possible reasons for the sheet being out of square?
What can be adjusted to ensure that the sheets are not smudging / "scuffing"?
What needs to be adjusted if the sheet will not leave the folding unit?

Basic in-line processes
What OH&S factors MUST be considered when adjusting machine units?
What steps should be taken to ensure correct alignment of in-line processes / units?
What adjustments are made to keep units correctly positioned?

Quality assurance
What segments of quality assurance would be inspected at the completion of the sample run?
What communication action should be instigated if job is out of square?
What communication action should be instigated if ink is too wet for production?
What communication action should be instigated if job does not coincide with sample?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF41d  Set up machine for complex folding (sequenced / multiple)

Elements and Performance Criteria

CF41d–1 Read and interpret job requirements from job documentation or production control system
   CF41d–1.1 Set up is planned and carried out correctly in minimum time with minimum wastage

CF41d–2 Set up reel transportation system on web–fed machine
   CF41d–2.1 Unwind reel is set up and adjusted to suit job requirements
   CF41d–2.2 Webbing procedures are carried out
   CF41d–2.3 Web–control system is set up and adjusted to suit job requirements
   CF41d–2.4 Reels are spliced / joined to suit job requirements

CF41d–3 Set up sheet transportation system on sheet–fed machine
   CF41d–3.1 Feeder is set up and adjusted to suit job requirements
   CF41d–3.2 Double / misfeed detectors are set up to suit job requirements
   CF41d–3.3 Sheet pick up and transportation system is set up and adjusted to suit job requirements
   CF41d–3.4 Transfer systems are set up and adjusted to suit job requirements

CF41d–4 Set up reel delivery system on web–fed machine
   CF41d–4.1 Rewind reel is set up and adjusted to suit job requirements
   CF41d–4.2 Folder is set up and adjusted to suit job requirements
   CF41d–4.3 Sheeter is set up and adjusted to suit job requirements

CF41d–5 Set up sheet delivery system on sheet–fed machine
   CF41d–5.1 Delivery is set up and adjusted to suit job requirements
   CF41d–5.2 Substrate is removed from process according to job instructions
   CF41d–5.3 Sheet transfer and control system is set up and adjusted to suit job requirements

CF41d–6 Set up machine for complex folding (sequenced / multiple)
   CF41d–6.1 Buckle / knife folding units are set up and adjusted to suit job requirements
   CF41d–6.2 Folding rollers / belts / rails are set up and adjusted to suit job requirements

CF41d–7 Set up in–line unit(s)
   CF41d–7.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
   CF41d–7.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

CF41d–8 Conduct sample run
   CF41d–8.1 Material to be used for sample is organised correctly
   CF41d–8.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample
CF41d–9 Organise sample inspection and/or testing

CF41d–9.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF41d–10 Readjust settings

CF41d–10.1 Results are interpreted to determine adjustment requirements

CF41d–10.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Folding process
Sequenced, multiple folding or gussetting

Range of folding units
A range of machines with manual, semi–automated, fully automated or computerised process control

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working independently to ensure production requirements are met

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Set up THREE multiple sequenced folding jobs (letter folds, concertina folds etc) OR gusseting (envelope adjuster) jobs, using different sizes and weights (eg 45 gsm – 110 gsm) of substrates and including use of a gluing unit and/or gate fold unit, according to job specifications, manufacturer's specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

∗ documentation
∗ reel transportation and delivery systems OR
∗ sheet transportation and delivery systems
∗ machine setting for complex folding
∗ in–line processes
∗ checking and adjustment
∗ information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.
Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

**Documentation**
- What information concerning folding requirements can be expected to be found in the job documentation or production control system?
- How should this information be interpreted to ensure smooth work flow throughout the factory?
- What factors must be considered when planning a folding sample?

**Reel transportation and delivery systems**
- What OH&S factors must be considered when setting and/or operating machine transport systems?
- What areas of the reel stand should be monitored to ensure trouble-free operation?
- What area of the web control system should be adjusted to maintain correct web tension?
- What area of the web control system should be adjusted to maintain correct positioning of the web?

**Sheet transportation and delivery systems**
- What OH&S factors must be considered when setting folder transportation and delivery systems?
- What areas of the sheet–fed transportation system should be monitored to ensure trouble–free operation?
- What parts of the sheet pick–up system should be adjusted to ensure accurate and continuous sheet handling?
- What areas of the delivery system should be observed to maintain neat delivery of finished work?
- What areas of the delivery system should be observed to prevent damage to the finished product?
- What needs to be checked when substrate is removed from machine?
- List FOUR ways in which the folded sheets can be secured for dispatch.

**Machine setting for complex folding**
- What OH&S factors must be considered when setting and/or adjusting the folding unit?
- What is the largest / smallest size sheet that can be processed on this machine?
- In what ways can the machine be adapted to facilitate smaller / larger stock?
- What determines the accuracy of sheets entering folding rollers?
- What can cause scratching / scuffing of substrate during transportation?
- What determines the speed of the machine?
- What needs to be adjusted if the sheet is not reaching the fold unit?
- What needs to be adjusted if the sheet is turned on the transportation unit?
- What problems can be expected if machine is running too fast?
- What problems can be expected if machine rollers set too loose?
- What problems can be expected if there is too much roller pressure?
- What problems can be expected if delivery system not set correctly?
- What determines the correct roller pressure for a given job?
- How can roller pressures be checked for correctness?
- What needs to be adjusted if the sheet is out of square?
- Give FOUR reasons for the sheet being out of square?
- What can be adjusted to ensure that the sheets are not smudging / "scuffing"?
- What needs to be adjusted if the sheet will not leave the folding unit?

**In–line processes**
- What OH&S factors must be considered when adjusting machine units?
- What steps are taken to ensure correct alignment of in–line processes / units?
- What needs to be checked when operating the electronic gate fold unit?
- Why would you use a gate fold unit?
- When would a gluing unit be required on a job?
- What adhesive is used in the gluing unit.
- How is the length of the glue line adjusted?

**Checking and adjustment**
- Name SIX causes of out of square folding and explain how each may be corrected.
- What segments of quality assurance would be inspected at the completion of the sample run?
- What communication action should be instigated if job is out of square?
- What communication action should be instigated if ink is too wet for production?
- What communication action should be instigated if job does not coincide with sample?
- What areas of the machine should be adjusted if sheet is creasing?
- What areas of the machine should be adjusted if sheet is caught in fold plate?
- What areas of the machine should be adjusted if sheet not entering machine?
- List FOUR items that must be checked against the customer's sample.
Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF42b  Produce basic folded (single / continuous) product

   Elements and Performance Criteria

CF42b–1  Maintain operation of reel transportation system on web–fed machine (OR CF42b–2)
   CF42b–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
   CF42b–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
   CF42b–1.3  Substrate is added to process according to job instructions

CF42b–2  Maintain operation of sheet transportation system on sheet–fed machine (OR CF42b–1)
   CF42b–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
   CF42b–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
   CF42b–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
   CF42b–2.4  Substrate is added to process according to job instructions

CF42b–3  Maintain operation of sheet delivery system on sheet–fed machine
   CF42b–3.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF42b–4  Maintain basic folding (single / continuous) process
   CF42b–4.1  Registration and squareness of fold are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF42b–5  Maintain basic in–line process(es)
   CF42b–5.1  Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF42b–6  Maintain production process
   CF42b–6.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
   CF42b–6.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
   CF42b–6.3  Manual and/or automatic control is used as per specification
   CF42b–6.4  Performance is monitored and verified using the process control system in accordance with company procedures
   CF42b–6.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
   CF42b–6.6  Process adjustments to eliminate problems are reported in accordance with company procedures
   CF42b–6.7  Faulty performance of equipment is identified and reported in accordance with company procedures
   CF42b–6.8  Waste is sorted according to enterprise procedures

CF42b–7  Liaise with customers
CF42b–7.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

**CF42b–8 Identify and investigate folding (single / continuous) machine operating problem**

CF42b–8.1 Problem in folding (single / continuous) machine operation is identified and reported in accordance with enterprise requirements

**CF42b–9 Rectify minor folding (single / continuous) machine faults**

CF42b–9.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

CF42b–9.2 Folding (single / continuous) machine operation is checked to ensure correct operation

**CF42b–10 Conduct shut down of production process**

CF42b–10.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

CF42b–10.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF42b–10.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF42b–10.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF42b–10.5 Repair / adjustment is verified prior to resumption of operations

**CF42b–11 Clean folding (single / continuous) machine at end of run**

CF42b–11.1 Folding units are disengaged and cleaned ready for next run

CF42b–11.2 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF42b–11.3 Reel feed and transportation systems are disengaged and cleaned ready for next run

CF42b–11.4 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

**CF42b–12 Complete records**

CF42b–12.1 Production records or other documentation are accurately completed where required by enterprise procedures

**Range of Variables**

- **Folding process**: Single, parallel or continuous folding
- **Range of folding units**: A range of machines with manual, semi–automated, fully automated or computerised process control
- **In–line processes**: Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
- **Substrate types**: Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
- **Substrate handling**: Wide or narrow reel or large or small sheet handling systems
- **Degree of autonomy**: Working to defined procedures under limited supervision
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Produce TWO jobs (if possible using different sizes and weights of substrate); EITHER with a single fold to run continuously OR a single quire fold on a sheet gather / stitch / fold / trim machine OR an automatic web fed machine to achieve a single fold in accordance with job specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel transportation systems on web fed machines OR
- sheet transportation and delivery systems
- maintaining basic folding processes
- faults and minor problem solving
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel transportation systems on web fed machines
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?

Sheet transportation and delivery systems
What OH&S factors must be considered when setting and/or operating machine delivery systems?
What areas of the sheet-fed feeder should be monitored to ensure trouble-free operation?
What needs to be checked when substrate is removed from machine?

Maintaining basic folding processes
What OH&S factors must be considered when using the folding machine?
What are THREE areas to continually observe to ensure the smooth trouble-free operation of the machine?
What areas of the in-line process should be monitored to assure the quality of the product?

Faults and minor problem solving
What OH&S factors must be considered when adjusting / correcting the machine?
What are TWO causes of out of square folding and explain how each may be corrected?
What segments of quality assurance would be inspected at the completion of the sample run?
What communication action should be instigated if job is out of square?
What communication action should be instigated if ink too wet for production?
What communication action should be instigated if job does not coincide with sample?
What part(s) of the machine should be adjusted if sheet is creasing

Machine shut down and cleaning
What OH&S factors must be considered when cleaning the machine?
What important tasks must be performed to correctly close down the machine?
How should the finished work be prepared for dispatch?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?

Quality assurance
What quality aspects should be considered in a completed folded job?
In what way might production need to be altered to meet customer requirements?

**Information sources**

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
CF42c  Produce complex folded (sequenced / multiple) product

Elements and Performance Criteria

CF42c–1  Maintain operation of reel transportation system on web–fed machine (OR CF42c–2)

CF42c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation

CF42c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation

CF42c–1.3  Substrate is added to process according to job instructions

CF42c–2  Maintain operation of sheet transportation system on sheet–fed machine (OR CF42c–1)

CF42c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine

CF42c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation

CF42c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation

CF42c–2.4  Substrate is added to process according to job instructions

CF42c–3  Maintain operation of reel delivery system on web–fed machine (OR CF42c–4)

CF42c–3.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product

CF42c–3.2  Substrate is removed from process according to job instructions

CF42c–3.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF42c–4  Maintain operation of sheet delivery system on sheet–fed machine (OR CF42c–3)

CF42c–4.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF42c–5  Maintain complex folding (sequenced / multiple) process

CF42c–5.1  Registration and squareness of fold are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF42c–6  Maintain operation of in–line processes

CF42c–6.1  In–line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF42c–7  Maintain operation of production process

CF42c–7.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

CF42c–7.2  Production is maintained within OH&S requirements and company and manufacturer's specifications

CF42c–7.3  Manual and/or automatic control is used as per specification

CF42c–7.4  Performance is monitored and verified using the process control system in accordance with company procedures

CF42c–7.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF42c–7.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF42c–7.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF42c–7.8 Waste is sorted according to enterprise procedures

CF42c–8 Liaise with customers

CF42c–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF42c–9 Identify and investigate folding (sequenced / multiple) machine problem

CF42c–9.1 Problem in folding (sequenced multiple) machine operation is identified and reported in accordance with enterprise requirements

CF42c–10 Rectify minor folding (sequenced / multiple) machine faults

CF42c–10.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level

CF42c–10.2 Folding (sequenced multiple) machine operation is checked to ensure correct operation

CF42c–11 Conduct shut down of production process

CF42c–11.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures

CF42c–11.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF42c–11.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF42c–11.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF42c–11.5 Repair / adjustment is verified prior to resumption of operations

CF42c–12 Clean folding (sequenced / multiple) machine at end of run

CF42c–12.1 Folding unit is disengaged and cleaned ready for next run

CF42c–12.2 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF42c–12.3 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF42c–12.4 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF42c–13 Complete records

CF42c–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

**Range of Variables**

Folding process

- Sequenced, multiple folding or gusseting

Range of folding units

- A range of machines with manual, semi–automated, fully automated or computerised process control

In–line processes

- Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a
major in-line process is defined as a separate competency (e.g., flat bed cutting, folding etc.) it should be assessed as such

Substrate types Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling Wide or narrow reel or large or small sheet handling systems

Degree of autonomy Working under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Produce THREE multiple sequenced folding jobs (letter folds, concertina folds etc.) OR gusseting (envelope adjuster) jobs, using different sizes and weights (e.g., 45 gsm – 110 gsm) of substrates and including use of a gluing unit and/or gate fold unit, according to job specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- reel transportation and delivery systems OR
- sheet transportation and delivery systems
- complex folding processes
- in-line processes
- problem solving
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Reel transportation and delivery systems
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?
What area of the web control system should be adjusted to maintain correct web tension?
What area of the web control system should be adjusted to maintain correct positioning of the web?

Sheet transportation and delivery systems
What OH&S factors must be considered when setting and/or operating sheet transport and delivery systems?
What areas of the sheet-fed feeder should be monitored to ensure trouble-free operation?
What parts of the sheet pick-up system is to be adjusted to ensure accurate and continuous sheet feeding?
What areas of the delivery system should be observed to maintain tension?
What areas of the delivery system should be observed to prevent damage to the finished product?
Explain where the use of a vertical delivery is necessary.
What needs to be checked when substrate is removed from machine?

Complex folding processes
What OH&S factors must be considered when using the folding machine?
List FOUR areas to continually observe to ensure the smooth trouble-free operation of the machine.
What areas of the gluing unit should be continuously monitored?
Explain the terms: buckle folding; knife folding; side lay; pharmaceutical folding; deflector; glue line.

In–line processes
What areas of the in–line process should be monitored to assure the quality of the product?

Problem solving
What OH&S factors must be considered when adjusting / correcting the machine?
Name SIX causes of out of square folding and explain how each may be corrected.
What segments of quality assurance would be inspected at the completion of the sample run?
What action should be taken if gate fold unit is out of timing?
What action should be taken if viscosity of adhesive in gluing unit is too low / high?
What action should be taken if gluing unit is out of timing?
What action should be taken if right angle fold is out of square?
What areas of the machine should be adjusted if sheet is creasing?
What areas of the machine should be adjusted if sheet caught in fold plate?
What areas of the machine should be adjusted if sheet not entering machine?
What areas of the machine should be adjusted if sheets not entering delivery neatly?
Explain how to remedy the following problems: job is out of square; ink too wet for production; job does not coincide with sample; sheet is creasing; sheet caught in fold plate; sheet not entering machine; sheet falls out of machine after folding?

Machine shut down and cleaning
What occupational health and safety factors must be considered when cleaning the machine?
What needs to be checked when correctly closing down the machine?
What needs to be checked when the finished work is prepared for dispatch?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?
What are the recommended cleaning agents?

Quality assurance
What production records need to be kept or written up?
What information should be included in this reporting procedure?
What quality aspects should be considered in a completed folded job?
What steps should be taken to ensure that important features of the production control system are followed?
In what way might production need to be altered to meet customer requirements?
List FOUR items to be checked against the customer's sample.

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF43b Set up machine for basic collating (sheet / section)

Elements and Performance Criteria

CF43b–1 Read and interpret job requirements from job documentation or production control system
   CF43b–1.1 Set up is carried out correctly in minimum time with minimum wastage

CF43b–2 Set up sheet / section transportation system on machine
   CF43b–2.1 Feeder is set up and adjusted to suit job requirements
   CF43b–2.2 Double / misfeed detectors set to suit job requirements
   CF43b–2.3 Sheet / section pick up and transportation system is set up and adjusted to suit job requirements
   CF43b–2.4 Transfer systems are set up and adjusted to suit job requirements

CF43b–3 Set up sheet / section delivery system on machine
   CF43b–3.1 Delivery is set up and adjusted to suit job requirements
   CF43b–3.2 Sheet / section transfer and control system is set up and adjusted to suit job requirements

CF43b–4 Set up machine for basic collating (sheet / section)
   CF43b–4.1 Collating system is set up and adjusted to suit job requirements

CF43b–5 Conduct sample run
   CF43b–5.1 Material to be used for sample is organised correctly
   CF43b–5.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF43b–6 Organise sample inspection and/or testing
   CF43b–6.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF43b–7 Readjust settings
   CF43b–7.1 Results are interpreted to determine adjustment requirements
   CF43b–7.2 Adjustment changes are carried out in accordance with product and machine specifications

Range of Variables

Collating process Collating / inserting of sheets, book sections or other products of identical or varied form, weight, shape

Substrate types Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling Large or small sheet / sections

Degree of autonomy Working to defined procedures under limited supervision
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Demonstrate all safety devices on the machine.
Set up a collating machine for basic collating for TWO different jobs (if possible ONE sheet and ONE section) involving at LEAST four or five sheets / sections, to enterprise standards according to manufacturer's specifications and listed performance criteria.
Demonstrate computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- documentation
- transport and delivery systems
- paper sizes and weights
- machine operation and maintenance
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

Documentation
What important information, concerning collating, will be included in the job documentation or production control system?

Transport and delivery systems
What OH&S factors need to be considered when setting sheet / section transportation and delivery systems?
List FOUR important factors to consider when setting the feeder.
Explain the setting of the double / misfeed sheet calliper system.
What should be considered to ensure smooth transportation and delivery of the sheets or sections through the machine?
Name the different types of sheet / section delivery systems.

Paper sizes and weights
What is the largest and smallest sheet or section size that can be run through this machine?
Which areas of the machine should be adjusted to allow for 42 gsm stock?

Machine operation and maintenance
What are the major OH&S factors to consider when running this machine?
What factors govern the speed at which the machine can operate?
What would indicate the machine was in need of lubrication?

Quality assurance
What OH&S factors need to be considered before readjusting the machine?
What would constitute an acceptable collating result?
What would cause the creasing of sheets in the machine delivery?
How should the machine be adjusted to alleviate "bruising" of NCR paper?
Under what circumstances would the machine need to be adjusted?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF43c  Set up machine for complex collating (sheet / section / reel)

Elements and Performance Criteria

CF43c–1  Read and interpret job requirements from job documentation or production control system
  CF43c–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

CF43c–2  Set up reel transportation system on web-fed machine (OR CF43c–3)
  CF43c–2.1  Unwind reel is set up and adjusted to suit job requirements
  CF43c–2.2  Webbing procedures are carried out
  CF43c–2.3  Web-control system is set up and adjusted to suit job requirements
  CF43c–2.4  Reels are spliced / joined to suit job requirements

CF43c–3  Set up sheet / section transportation system on sheet-fed machine (OR CF43c–2)
  CF43c–3.1  Feeder is set up and adjusted to suit job requirements
  CF43c–3.2  Sheet / section / reel pick up and transportation system is set up and adjusted to suit job requirements
  CF43c–3.3  Transfer systems are set up and adjusted to suit job requirements

CF43c–4  Set up sheet / section delivery system on sheet-fed machine
  CF43c–4.1  Delivery is set up and adjusted to suit job requirements
  CF43c–4.2  Substrate is removed from process according to job instructions
  CF43c–4.3  Sheet / section / reel transfer and control system is set up and adjusted to suit job requirements

CF43c–5  Set up machine for complex collating (sheet / section / reel)
  CF43c–5.1  Collating system is set up and adjusted to suit job requirements

CF43c–6  Set up in-line unit(s)
  CF43c–6.1  Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  CF43c–6.2  Assistance is given in set up of major in-line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

CF43c–7  Conduct sample run
  CF43c–7.1  Material to be used for sample is organised correctly
  CF43c–7.2  Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF43c–8  Organise sample inspection and/or testing
  CF43c–8.1  Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF43c–9  Readjust settings
  CF43c–9.1  Results are interpreted to determine adjustment requirements
Range of Variables

Collating process  Collating / inserting of sheets or book sections, or reels (may include tabs, crimping etc) of varied form, weight or shape

Range of collating units  A range of machines with manual, semi-automated, fully automated or computerised process control

In-line processes  Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (e.g. flat bed cutting, folding etc.) it should be assessed as such

Substrate types  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling  Wide or narrow or large or small sheet handling systems

Degree of autonomy  Working under limited supervision

Evidence Guide

Context

Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence

Set machines for complex collating (at LEAST four or five sheets / sections) including in-line processes on FOUR occasions: if possible TWO sheet jobs each using different sizes and weights of substrate and TWO section jobs with and without lip / lap, according to job requirements, manufacturer's specifications and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- documentation
- reel transportation system OR
- sheet transportation and delivery systems
- machine set up
- in-line processes
- checking and adjustment
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Documentation

What important information, concerning collating, will be included in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What elements must be considered when planning a collated sample?
Reel transportation system
What OH&S factors must be considered when setting and/or operating machine transport systems?
What areas of the reel stand should be monitored to ensure trouble-free operation?
What area of the web control system should be adjusted to maintain correct web tension?
What area of the web control system should be adjusted to maintain correct positioning of the web?

Sheet transportation and delivery systems
What are the important factors to consider when setting the feeder?
Explain the setting of the double / misfeed sheet calliper system.
What should be considered to ensure smooth transportation of the sheets or sections to through the machine?
Name the different types of sheet / section delivery systems.

Machine set up
Consideration should be given to what areas of OH&S when machine is operating?
What is the largest / smallest sheet / section size possible to be run on the machine?
Which area(s) of the machine should be adjusted to allow for 42 gsm stock?
What is the largest / smallest size sheet that can be processed on this machine?
In what ways can the machine be adapted to facilitate smaller / larger stock?
What factors govern the speed at which the machine will operate?
What would indicate that the machine was in need of lubrication?

In-line processes
What OH&S factors must be considered when adjusting machine units?
What steps should be taken to ensure correct alignment of in-line processes / units?
What adjustments should be made to keep units correctly positioned?

Checking and adjustment
What OH&S factors are to be considered before readjusting machine?
What would constitute an acceptable collating result?
What would be the cause of creasing of sheets in the machine delivery?
How should the machine be adjusted to alleviate "bruising" of NCR paper?
List FOUR items that must be checked against the customer's sample.
Under what circumstances would the machine need to be adjusted?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF44b Produce basic collated (sheet / section) product

Elements and Performance Criteria

CF44b–1 Maintain operation of sheet / section transportation system on machine
  CF44b–1.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
  CF44b–1.2 Sheet / section pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
  CF44b–1.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
  CF44b–1.4 Substrate is added to process according to job instructions

CF44b–2 Maintain operation of sheet / section delivery system on sheet-fed machine
  CF44b–2.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF44b–3 Maintain basic collating (sheet / section) process
  CF44b–3.1 Collating process is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF44b–4 Maintain production process
  CF44b–4.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  CF44b–4.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
  CF44b–4.3 Manual and/or automatic control is used as per specification
  CF44b–4.4 Performance is monitored and verified using the process control system in accordance with company procedures
  CF44b–4.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
  CF44b–4.6 Process adjustments to eliminate problems are reported in accordance with company procedures
  CF44b–4.7 Faulty performance of equipment is identified and reported in accordance with company procedures
  CF44b–4.8 Waste is sorted according to enterprise procedures

CF44b–5 Maintain basic in-line process(es)
  CF44b–5.1 Basic in-line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF44b–6 Identify and investigate collating (sheet / section) machine operating problem
  CF44b–6.1 Problem in collating (sheet / section) machine is identified and reported in accordance with enterprise requirements

CF44b–7 Rectify minor collating (sheet / section) machine faults
  CF44b–7.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
CF44b–7.2 Collating (sheet / section) machine operation is checked to ensure correct operation

CF44b–8 Liaise with customers
CF44b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF44b–9 Conduct shut down of production process
CF44b–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
CF44b–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF44b–9.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF44b–9.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF44b–9.5 Repair / adjustment is verified prior to resumption of operations

CF44b–10 Clean collating (sheet / section) machine at end of run
CF44b–10.1 Collating machine is cleaned ready for next run
CF44b–10.2 In–line printing / converting / binding / finishing units are cleaned ready for next run
CF44b–10.3 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF44b–11 Complete records
CF44b–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Collating process Collating / inserting of sheets or book sections of identical form, weight, shape

Range of collating units A range of suction and friction feed machines with manual, semi–automated, fully automated or computerised process control

In–line processes Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling Large or small sheet / section handling systems

Degree of autonomy Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
Use a collating machine for basic collating (gathering AND/OR inserting) for TWO different jobs (if possible ONE sheet and ONE section) involving at LEAST four or five sheets / sections, to enterprise standards according to listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- machine operation
- problems and fault correction
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

**Machine operation**
- What OH&S factors should be considered when operating machine?
- What factors govern the speed at which the machine will operate?
- What would indicate that the machine was in need of lubrication?

**Problems and fault correction**
- What OH&S factors should be considered before readjusting machine?
- What method of correction is needed to prevent double sheet feeds?
- Under what circumstances would the machine need to be adjusted?

**Machine shut down and cleaning**
- What needs to be checked when closing down the machine correctly?
- What areas of the machine need regular cleaning?
- What materials need to be cleaned from the machine?
- How can the machine be kept clear of surface rust (condensation)?

**Quality assurance**
- What would constitute an acceptable collating result?
- What are FOUR items that must be checked against customer’s sample?

**Information sources**
- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
CF44c  Produce complex collated (sheet / section / reel) product

Elements and Performance Criteria

CF44c–1  Maintain operation of reel transportation system on web-fed machine (OR CF44c–2)
- CF44c–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
- CF44c–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
- CF44c–1.3  Substrate is added to process according to job instructions

CF44c–2  Maintain operation of sheet transportation system on sheet-fed machine (OR CF44c–1)
- CF44c–2.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
- CF44c–2.2  Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
- CF44c–2.3  Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
- CF44c–2.4  Substrate is added to process according to job instructions

CF44c–3  Maintain operation of sheet delivery system on sheet-fed machine
- CF44c–3.1  Collating process is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF44c–4  Maintain complex collating (sheet / section / reel) process
- CF44c–4.1  Collating process is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF44c–5  Maintain operation of in-line processes
- CF44c–5.1  In-line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF44c–6  Maintain operation of production process
- CF44c–6.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- CF44c–6.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
- CF44c–6.3  Manual and/or automatic control is used as per specification
- CF44c–6.4  Performance is monitored and verified using the process control system in accordance with company procedures
- CF44c–6.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
- CF44c–6.6  Process adjustments to eliminate problems are reported in accordance with company procedures
- CF44c–6.7  Faulty performance of equipment is identified and reported in accordance with company procedures
- CF44c–6.8  Waste is sorted according to enterprise procedures
CF44c–7 Liaise with customers
CF44c–7.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF44c–8 Identify and investigate collating (sheet / section / reel) machine operating problem
CF44c–8.1 Problem in collating (sheet / section / reel) machine is identified and reported in accordance with enterprise requirements

CF44c–9 Rectify minor collating (sheet / section / reel) machine faults
CF44c–9.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
CF44c–9.2 Collating (sheet / section / reel) machine operation is checked to ensure correct operation

CF44c–10 Conduct shut down of production process
CF44c–10.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
CF44c–10.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
CF44c–10.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF44c–10.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF44c–10.5 Repair / adjustment is verified prior to resumption of operations

CF44c–11 Clean collating (sheet / section / reel) machine at end of run
CF44c–11.1 Collating machine is cleaned ready for next run
CF44c–11.2 In–line printing / converting / binding / finishing units are cleaned ready for next run
CF44c–11.3 Reel feed transportation and delivery systems are disengaged and cleaned ready for next run
CF44c–11.4 Sheet feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF44c–12 Complete records
CF44c–12.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Collating process  Collating / inserting of sheets or book sections, or reels (may include tabs, crimping etc) of varied form, weight or shape
Range of collating units  A range of machines with manual, semi–automated, fully automated or computerised process control
In–line processes  Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types  Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
Substrate handling  Wide or narrow reel or large or small sheet handling systems
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Operate machines for complex collating (at LEAST four or five sheets / sections) including in–line processes on FOUR occasions: if possible TWO sheet jobs using different sizes and weight of substrate and TWO section jobs with and without lip / lap, according to job requirements and listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate a detailed knowledge of:

- collating machine operation
- machine problems and faults
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Collating machine operation
Consideration should be given to what areas of OH&S when machine is operating?
What factors govern the speed at which the machine will operate?
What would indicate that the machine was in need of lubrication?
Under what circumstances would the machine need to be adjusted?
What occupational health and safety factors are to be considered before readjusting machine?

Machine problems and faults
What areas of the machine would cause sheets to crease during production?
What would cause sheets to misfeed during production?
How would creasing of sheets be corrected?
What method of correction is needed to prevent double sheet feeds?
What adjustment must be made to prevent "bruising" of NCR sheets?
What areas are to be checked when sections are failing to open on the chain?

Machine shut down and cleaning
What needs to be checked when correctly closing down the machine?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?
What are the recommended cleaning agents?

Quality assurance
What production records need to be kept or written up?
What information should be included in this reporting procedure?
What steps should be taken to ensure that important features of the production control system are followed?
What would constitute an acceptable collating result?
What would be the cause of creasing of sheets in the machine delivery?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF45b  Set up and produce hand collated product

**Elements and Performance Criteria**

**CF45b–1** Read and interpret job requirements from job documentation or production control system
  - CF45b–1.1 Set up is carried out correctly in minimum time with minimum wastage

**CF45b–2** Set up for hand collating / inserting
  - CF45b–2.1 Collating / inserting system is set up to suit job requirements

**CF45b–3** Conduct sample run
  - CF45b–3.1 Material to be used for sample is organised correctly
  - CF45b–3.2 Collating system is set up and operated in accordance with OH&S requirements and manufacturer’s and enterprise requirements to produce a specified sample

**CF45b–4** Organise sample inspection and/or testing
  - CF45b–4.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

**CF45b–5** Readjust collating system
  - CF45b–5.1 Results are interpreted to determine adjustment requirements
  - CF45b–5.2 Adjustment changes are carried out in accordance with product specifications

**CF45b–6** Maintain basic hand collating (sheet / section) process
  - CF45b–6.1 Hand collating process is monitored and adjusted to ensure quality of product meets the standard of approved sample

**CF45b–7** Maintain production process
  - CF45b–7.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  - CF45b–7.2 Production is maintained within OH&S requirements and company and manufacturer’s specifications
  - CF45b–7.3 Performance is monitored and verified using the process control system in accordance with company procedures
  - CF45b–7.4 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
  - CF45b–7.5 Process adjustments to eliminate problems are reported in accordance with company procedures
  - CF45b–7.6 Waste is sorted according to enterprise procedures

**CF45b–8** Liaise with customers
  - CF45b–8.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

**CF45b–9** Clean collator (sheet / section) at end of run
  - CF45b–9.1 Collating area is cleaned ready for next run
  - CF45b–9.2 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF45b–10 Complete records

CF45b–10.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

<table>
<thead>
<tr>
<th>Collating process</th>
<th>Manual collating / inserting of sheets, book sections or other products of identical or varied form, weight, shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substrate types</td>
<td>Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal</td>
</tr>
<tr>
<td>Substrate handling</td>
<td>Large or small sheet / sections</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working to defined procedures under limited supervision</td>
</tr>
</tbody>
</table>

Evidence Guide

Required evidence

Demonstrate all safety devices on the machine.

Set up and collate TWO different jobs (at least FIVE sheets / sections, and if possible ONE sheet job and ONE section job) by hand to enterprise standards in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- sheet handling
- sequencing
- quality assurance
- housekeeping
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation

What important information concerning this task would be found on the production control job ticket?

What steps should be taken to ensure that the important features of the production control system are followed?

What production records need to be kept or written up?

What information should be included in this reporting procedure and why?

Sheet handling

What ergonomic and OH&S factors should be considered when setting out the job to facilitate ease of operation?

What facilities are available to assist with the picking up of sheets / sections by hand?

What precautions should be taken when handling NCR paper?

What methods can be used to separate finished sets of sheets / sections?

What can assist the opening of sections to be inserted?

What adjustment should be made to the set up to facilitate a two or three person operation?

Sequencing
What printed images on sections ensure correct sequencing?  
How do these images assure the correct sequence of sections?

**Quality assurance**
- What steps should be taken to ensure that important features of the production control system are followed?  
- What areas of the finished product should be inspected?  
- What steps should be taken if the test sample is incorrect?

**Housekeeping**
- How should remaining sheets (overs) be processed at the completion of the job?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?  
- What information is included in these documents?
CF61b  Set up machine for basic fastening (adhesive / mechanical / thermal)

Elements and Performance Criteria

CF61b–1 Read and interpret job requirements from job documentation or production control system
  CF61b–1.1 Set up is carried out correctly in minimum time with minimum wastage

CF61b–2 Set up reel transportation system on web-fed machine (OR CF61b–3)
  CF61b–2.1 Unwind reel is set up and adjusted to suit job requirements
  CF61b–2.2 Webbing procedures are carried out
  CF61b–2.3 Web-control system is set up and adjusted to suit job requirements
  CF61b–2.4 Reels are spiced / joined to suit job requirements

CF61b–3 Set up sheet / section transportation system on sheet-fed machine (OR CF61b–2)
  CF61b–3.1 Feeder is set up and adjusted to suit job requirements
  CF61b–3.2 Sheet / section pick up and transportation system is set up and adjusted to suit job requirements
  CF61b–3.3 Transfer systems are set up and adjusted to suit job requirements

CF61b–4 Set up sheet / section delivery system on sheet-fed machine
  CF61b–4.1 Delivery is set up and adjusted to suit job requirements
  CF61b–4.2 Substrate is removed from process according to job instructions
  CF61b–4.3 Sheet / section transfer and control system is set up and adjusted to suit job requirements

CF61b–5 Set up equipment for basic fastening (adhesive, mechanical, thermal etc)
  CF61b–5.1 Fastening system is set up and adjusted to suit job requirements

CF61b–6 Set up in-line unit(s) for basic process(es)
  CF61b–6.1 Minor in-line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  CF61b–6.2 Assistance is given in set up of major in-line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

CF61b–7 Conduct sample run
  CF61b–7.1 Raw material to be used for sample is organised correctly
  CF61b–7.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

CF61b–8 Organise sample inspection and/or testing
  CF61b–8.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF61b–9 Readjust settings
  CF61b–9.1 Results are interpreted to determine adjustment requirements
CF61b–9.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

Fastening processes
- Adhesive fastening such as cold and hot melt gluing, taping
- Mechanical fastening such as riveting, string and wire stitching, and wire binding
- Thermal fastening such as high frequency and head welding

Range of fastening units
- A range of machines with manual, semi–automated, fully automated or computerised process control

Complexity
- Basic refers to simple hand fed or single head adhesive and thermal machines, single head mechanical machines

In–line processes
- Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
- Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
- Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
- Working to defined procedures under limited supervision

**Evidence Guide**

**Context**
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

**Required evidence**
Demonstrate all safety devices on the machine.

Set up machine on TWO occasions for adhesive OR mechanical OR thermal fastening, using different weights and sizes of substrate according to job specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- documentation
- reel transport and delivery systems OR
- sheet / section transportation and delivery systems
- machine set up
- basic in–line processes
- quality assurance
- information sources

NOTE: An additional competency can be achieved by being assessed on a different process.

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances.
Documentation
What information concerning binding requirements can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What elements must be considered when planning a binding sample?

Reel transport and delivery systems
What OH&S areas must be addressed when setting these areas of the machine?
What are three webbing procedures commonly used in the transportation area?
What are three areas to consider when setting up the web control system?
What are three problem areas likely to be encountered when setting up the sheeter?

Sheet / section transportation and delivery systems
What OH&S factors must be considered when setting the delivery systems?
What special delivery problems are associated with adhesive machines?
In what way are these problems overcome?
What needs to be checked when using the delivery systems present on the various machines?
What are FOUR ways in which the completed work can be secured for dispatch?

Machine set up
What OH&S areas must be addressed when setting these areas of the machine?
What OH&S safeguards are necessary with hot melt adhesives?
What determines the correct binding technique for a job?
Explain the methods of adhesive metering present on the machine.
What care should be taken to ensure a neat and clean adhesive binding job?
What parts of the wire stitcher would need to be adjusted to process books of different thicknesses?
What determines the position of the wire stitches on the book?
What is the difference between a staple and a wire stitch?
How is the appropriate wire calliper for a particular job determined?

Basic in–line processes
What OH&S factors must be addressed when setting these areas of the machine?
What in–line units are available for these binding processes?

Quality assurance
What OH&S factors are to be considered before readjusting machine?
Under what circumstances would the machine need to be adjusted?
What quality aspects should be considered in the completed binding job?
What steps should be taken to ensure that important features of the production control system are addressed?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF61c  Set up machine for complex fastening (adhesive / mechanical / sewing)

**Elements and Performance Criteria**

**CF61c–1** Read and interpret job requirements from job documentation or production control system

- **CF61c–1.1** Set up is planned and carried out correctly in minimum time with minimum wastage

**CF61c–2** Set up sheet / section transportation system on sheet–fed machine

- **CF61c–2.1** Feeder is set up and adjusted to suit job requirements
- **CF61c–2.2** Sheet / section pick up and transportation system is set up and adjusted to suit job requirements
- **CF61c–2.3** Transfer systems are set up and adjusted to suit job requirements

**CF61c–3** Set up sheet / section delivery system on sheet–fed machine

- **CF61c–3.1** Delivery is set up and adjusted to suit job requirements
- **CF61c–3.2** Substrate is removed from process according to job instructions
- **CF61c–3.3** Sheet / section transfer and control system is set up and adjusted to suit job requirements

**CF61c–4** Set up machine for complex fastening (adhesive / mechanical / sewing)

- **CF61c–4.1** Fastening system is set up and adjusted to suit job requirements

**CF61c–5** Set up in–line unit(s)

- **CF61c–5.1** Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
- **CF61c–5.2** Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

**CF61c–6** Conduct sample run

- **CF61c–6.1** Material to be used for sample is organised correctly
- **CF61c–6.2** Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

**CF61c–7** Organise sample inspection and/or testing

- **CF61c–7.1** Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

**CF61c–8** Readjust settings

- **CF61c–8.1** Results are interpreted to determine adjustment requirements
- **CF61c–8.2** Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

Fastening process: Adhesive fastening (such as cold and hot melt gluing, taping) of substrates of varied form, weight or shape, eg hard case making,
casing in, spine lining
Mechanical fastening (such as wire stitching, loop stitching) of substrates of varied form, weight or shape
Section sewing

Range of fastening units
A range of machines with manual, semi–automated, fully automated or computerised process control

Complexity
Complex refers to use of automatic adhesive and thermal machines; multiple head mechanical machines; section sewers

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Large or small sheet / section handling systems

Degree of autonomy
Working under limited supervision

**Evidence Guide**

**Context**
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

**Required evidence**
Competence must be demonstrated in any ONE of adhesive, thermal, mechanical or section sewing. For each process set up (including replacing adhesive, thread, wire etc) TWO complex jobs using different sizes and weights of substrate according to job specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- sheet / section transport and delivery systems
- fastening equipment setting
- in–line processes
- checking and adjustment
- information sources

**NOTE:** An additional competency can be achieved by being assessed on a different process.

**Sample Questions for Underpinning Knowledge**

*These questions are only examples.*
*They do not represent everything you need to know. Other questions may be asked.*

**Documentation**
What information concerning binding requirements can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What elements must be considered when planning a binding sample?

**Sheet / section transport and delivery systems**
What OH&S concerns are there when setting up transportation systems?
What special delivery problems are associated with adhesive machines?
In what way are these problems overcome?
Explain TWO different section feeding systems.
What needs to be monitored on the delivery systems present on the various machines?
List FOUR ways in which the completed work can be secured for dispatch.
What is the largest / smallest size sheet that can be processed on this machine?
In what ways can the machine be adapted to facilitate smaller / larger stock?

Fastening equipment setting
What OH&S areas must be addressed when setting these areas of the machine?
What determines the correct binding technique for a job?
What OH&S safeguards are necessary with hot melt adhesives?
Explain the methods of adhesive metering present on the machine.
What care should be taken to ensure a neat and clean adhesive binding job?
What can be expected if sewing is not in the right position?
What parts of the wire stitcher would need to be adjusted to process books of different thicknesses?
What determines the position of the wire stitches on the book?
What is the difference between a staple and a wire stitch?
How is the appropriate wire calliper for a particular job determined?
What is the largest / smallest size sheet that can be processed on each machine?
In what ways can the machines be adapted to facilitate smaller / larger stock?

In–line processes
What OH&S areas must be addressed when setting these areas of the machine?
What in–line units are available for these binding processes?

Checking and adjustment
What OH&S factors should be considered before readjusting machine?
Under what circumstances would the machine need to be adjusted?
What quality aspects should be considered in the completed binding job?
What steps should be taken to ensure that important features of the production control system are addressed?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF62b Produce basic fastened (adhesive / mechanical / thermal) product

Elements and Performance Criteria

CF62b–1 Maintain operation of reel transportation system on web–fed machine (OR CF62b–2)

CF62b–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation

CF62b–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation

CF62b–1.3 Substrate is added to process according to job instructions

CF62b–2 Maintain operation of sheet transportation system on sheet–fed machine (OR CF62b–1)

CF62b–2.1 Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine

CF62b–2.2 Sheet pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operations

CF62b–2.3 Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation

CF62b–2.4 Substrate is added to process according to job instructions

CF62b–3 Maintain operations of sheet delivery system on sheet–fed machine

CF62b–3.1 Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF62b–4 Maintain basic fastening (adhesive / mechanical / thermal) process

CF62b–4.1 Registration of fastening is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF62b–4.2 Wire straightness, length, cut off and clinching pressures are monitored and adjusted to ensure quality of product meets the standard of approved sample OR

CF62b–4.3 Adhesion is monitored and adjusted to ensure quality of product meets the standard of approved sample OR

CF62b–4.4 Power current and dwell time is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF62b–5 Maintain basic in–line process(es)

CF62b–5.1 Basic in–line printing / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF62b–6 Maintain production process

CF62b–6.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule

CF62b–6.2 Production is maintained within OH&S requirements and company and manufacturer's specifications

CF62b–6.3 Manual and/or automatic control is used as per specification

CF62b–6.4 Performance is monitored and verified using the process control system in accordance with company procedures

CF62b–6.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF62b–6.6 Process adjustments to eliminate problems are reported in accordance with company procedures

CF62b–6.7 Faulty performance of equipment is identified and reported in accordance with company procedures

CF62b–6.8 Waste is sorted according to enterprise procedures

CF62b–7 Liaise with customers

CF62b–7.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF62b–8 Identify and investigate fastening (adhesive / mechanical / thermal) machine operating problem

CF62b–8.1 Problem in fastening (adhesive, mechanical, thermal) machine is identified and reported in accordance with enterprise requirements

CF62b–9 Rectify minor fastening (adhesive / mechanical / thermal) machine faults

CF62b–9.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

CF62b–9.2 Fastening (adhesive, mechanical, thermal) machine operation is checked to ensure correct operation

CF62b–10 Conduct shut down of production process

CF62b–10.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

CF62b–10.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF62b–10.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF62b–10.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF62b–10.5 Repair / adjustment is verified prior to resumption of operations

CF62b–11 Clean fastening (adhesive / mechanical / thermal) machine at end of run

CF62b–11.1 Mechanical fastening unit is disengaged and cleaned ready for next run

CF62b–11.2 Thermal fastening unit is disengaged and cleaned ready for next run

CF62b–11.3 Glue system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

CF62b–11.4 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF62b–11.5 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF62b–11.6 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF62b–12 Complete records

CF62b–12.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Fastening processes
- Adhesive fastening such as cold and hot melt gluing, taping
- Mechanical fastening such as riveting, string and wire stitching, and wire binding
- Thermal fastening such as high frequency and heat welding
Range of fastening units
A range of machines with manual, semi–automated, fully automated or computerised process control

Complexity
Basic refers to simple hand fed or single head adhesive and thermal machines, single head mechanical machines

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate delivery
Wide or narrow reel or large or small sheet handling systems

Degree of autonomy
Working to defined procedures under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used.

Required evidence
On TWO occasions produce adhesive OR mechanical OR thermal fastened products, using different weights and sizes of substrate, according to job specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
∗ reel transportation system on web fed machine OR
∗ sheet transportation and delivery system
∗ maintaining basic fastening (adhesive / mechanical / thermal) process
∗ operating problems and minor fault correction
∗ shut down and cleaning procedures
∗ quality assurance
∗ information sources

NOTE: An additional competency can be achieved by being assessed on a different process.

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel transportation system on web fed machine
What OH&S factors must be considered when operating web machine transport systems?
What areas of the reel stand should be monitored to ensure trouble–free operation?

Sheet transportation and delivery system
What OH&S factors must be considered when operating sheet fed transportation and delivery systems?
What areas of the sheet–fed feeder should be monitored to ensure trouble–free operation?
What areas of the delivery system should be observed to maintain tension?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine

Maintaining basic fastening (adhesive / mechanical / thermal) process
What OH&S factors must be considered when using hot melt adhesive?
What safety clothing is available for use when operating adhesive binders?
What OH&S factors are to be considered before readjusting machines?
What areas of the in–line process should be monitored to assure the quality of the product?
Name TWO sectors to observe to ensure that the production process is trouble–free and continuous.

Operating problems and minor fault correction

When would the machine need to be adjusted?
For an adhesive binder how is adhesive application adjusted?
For a wire stitcher how can the wire be straightened in the wire feed?
For a high frequency welder what are TWO possible reasons for the welding being unsuccessful?

Shut down and cleaning procedures

What OH&S factors must be considered when closing down and cleaning the machine?
What areas of the machines need regular cleaning?
What materials need to be cleaned from the machine?
How can the machines be kept clear of surface rust (condensation)?

Quality assurance

What quality aspects should be considered in a completed adhesive bound job?
What quality aspects should be considered in a completed high frequency welded job?
What quality aspects should be considered in a completed wire stitched job?
In what way might production need to be altered to meet customer requirements?

Information sources

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF62c  Produce complex fastened (adhesive / mechanical / sewing) product

Elements and Performance Criteria

CF62c–1  Maintain operation of sheet / section transportation system
  CF62c–1.1  Feeder is monitored and adjusted to ensure continuous and efficient feeding to machine
  CF62c–1.2  Sheet / section pick up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation
  CF62c–1.3  Sheet / section transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation
  CF62c–1.4  Substrate is added to process according to job instructions

CF62c–2  Maintain operation of sheet / section delivery system
  CF62c–2.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery

CF62c–3  Maintain operation of sheet / section delivery system
  CF62c–3.1  Delivery is monitored and adjusted to ensure quality and efficient product delivery
  CF62c–3.2  Wire straightness, length, cut off and clinching pressures are monitored and adjusted to ensure quality of product meets the standard of approved sample
  CF62c–3.3  Adhesion is monitored and adjusted to ensure quality of product meets the standard of approved sample
  CF62c–3.4  Thread tension and stitch quality are monitored and adjusted to ensure quality of product meets standard of approved sample

CF62c–4  Maintain operation of in–line processes
  CF62c–4.1  In–line printing / converting / binding / finishing processes are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF62c–5  Maintain operation of production process
  CF62c–5.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  CF62c–5.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
  CF62c–5.3  Manual and/or automatic control is used as per specification
  CF62c–5.4  Performance is monitored and verified using the process control system in accordance with company procedures
  CF62c–5.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
  CF62c–5.6  Process adjustments to eliminate problems are reported in accordance with company procedures
  CF62c–5.7  Faulty performance of equipment is identified and reported in accordance with company procedures
  CF62c–5.8  Waste is sorted according to enterprise procedures

CF62c–6  Liaise with customers
CF62c–6.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF62c–7 Identify and investigate fastening (adhesive / mechanical / sewing) machine operating problem

CF62c–7.1 Problem in fastening (sewing) machine is identified and reported in accordance with enterprise requirements

CF62c–8 Rectify minor fastening (adhesive / mechanical / sewing) machine faults

CF62c–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level

CF62c–8.2 Fastening (sewing) machine operation is checked to ensure correct operation

CF62c–9 Conduct shut down of production process

CF62c–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures

CF62c–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements

CF62c–9.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures

CF62c–9.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person

CF62c–9.5 Repair / adjustment is verified prior to resumption of operations

CF62c–10 Clean fastening (adhesive / mechanical / sewing) machine at end of run

CF62c–10.1 Sewing unit is disengaged and cleaned ready for next run

CF62c–10.2 Mechanical fastening unit is disengaged and cleaned ready for next run

CF62c–10.3 Glue system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements

CF62c–10.4 In–line printing / converting / binding / finishing units are cleaned ready for next run

CF62c–10.5 Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run

CF62c–11 Complete records

CF62c–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Fastening process
Adhesive fastening (such as cold and hot melt gluing, taping) of substrates of varied form, weight or shape, eg hard case making, casing in, spine lining
Mechanical fastening (such as wire stitching, loop stitching) of substrates of varied form, weight or shape
Section sewing

Range of fastening units
A range of machines with manual, semi–automated, fully automated or computerised process control

In–line processes
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types
Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal

Substrate handling
Large or small sheet / section handling systems

Degree of autonomy
Working under limited supervision

Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Competence must be demonstrated in any ONE of adhesive, thermal, mechanical or section sewing. For each process produce TWO complex jobs using different sizes and weights of substrate according to job specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- sheet transportation and delivery system
- complex fastening processes
- in–line processes
- machine problems and faults
- machine shut down and cleaning
- quality assurance
- information sources

NOTE: An additional competency can be achieved by being assessed on a different process.

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Sheet transportation and delivery system
What OH&S factors must be considered when operating sheet fed transportation and delivery systems?
What areas of the sheet–fed feeder should be monitored to ensure trouble–free operation?
What parts of the sheet pick–up system is to be adjusted to ensure accurate and continuous sheet feeding?
What areas of the delivery system should be observed to maintain tension?
What areas of the delivery system should be observed to prevent damage to the finished product?
What needs to be checked when substrate is removed from machine?

Complex fastening processes
What OH&S factors must be considered when maintaining or adjusting the operation of the machines?
What OH&S factors must be considered when using hot melt adhesive?
What safety clothing is available for use when operating adhesive binders?
What determines the speed of production?
Name FOUR sectors to observe to guarantee that the production process is trouble–free and continuous.

In–line processes
What areas of the in–line process should be monitored to assure the quality of the product?

Machine problems and faults
When would the machine need to be adjusted?
When would the machine need to be slowed down?
When can machine speed be increased?
On an adhesive binder how is adhesive application adjusted?
On an adhesive binder how can more spine milling be achieved?
On a wire stitcher how is the wire length adjusted?
On a wire stitcher how can the wire be straightened in the wire feed?
On a high frequency welder when should dwell time be increased / decreased?
On a high frequency welder when should current be increased / decreased?

Machine shut down and cleaning
What OH&S factors must be considered when cleaning hot melt from the machine?
What needs to be checked when shutting down a given machine?
Give the important reasons for FOUR shut-down operations.
What areas of the machines need regular cleaning?
What materials need to be cleaned from the machine?
What are the recommended cleaning agents?
How can the machines be kept clear of surface rust (condensation)?

Quality assurance
What production records need to be kept or written up?
What information should be included in this reporting procedure?
What quality aspects should be considered in a completed adhesive bound job?
What quality aspects should be considered in a completed high frequency welded job?
What quality aspects should be considered in a completed wire stitched job?
What steps should be taken to ensure that important features of the production control system are followed?
In what way might production need to be altered to meet customer requirements?
List FOUR items that must be checked against the customer's sample.

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF63b  Set up and produce hand fastened product

**Elements and Performance Criteria**

**CF63b–1 Read and interpret job requirements from job documentation or production control system**
- CF63b–1.1 Set up is carried out correctly in minimum time with minimum wastage

**CF63b–2 Set up equipment for basic hand–fastening (adhesive, mechanical, thermal etc)**
- CF63b–2.1 Fastening system is set up and adjusted to suit job requirements

**CF63b–3 Conduct sample run**
- CF63b–3.1 Raw material to be used for sample is organised correctly
- CF63b–3.2 Equipment is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

**CF63b–4 Organise sample inspection and/or testing**
- CF63b–4.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

**CF63b–5 Readjust settings**
- CF63b–5.1 Results are interpreted to determine adjustment requirements
- CF63b–5.2 Adjustment changes are carried out in accordance with product and equipment specifications

**CF63b–6 Maintain basic fastening (adhesive, mechanical) process (OR CF63b–7)**
- CF63b–6.1 Registration of fastening is monitored and adjusted to ensure quality of product meets the standard of approved sample
- CF63b–6.2 Wire straightness, length, cut off and clinching pressures are monitored and adjusted to ensure quality of product meets the standard of approved sample OR
- CF63b–6.3 Adhesion is monitored and adjusted to ensure quality of product meets the standard of approved sample

**CF63b–7 Maintain hand sewing process (OR CF63b–6)**
- CF63b–7.1 Appropriate sewing supports are selected and spaced to suit job requirements
- CF63b–7.2 Consistent thread tension is maintained during sewing
- CF63b–7.3 Sections are aligned at the head
- CF63b–7.4 Swelling is monitored and controlled

**CF63b–8 Maintain production process**
- CF63b–8.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- CF63b–8.2 Production is maintained within OH&S requirements and company and manufacturer's specifications
- CF63b–8.3 Performance is monitored and verified using the process control system in accordance with company procedures
- CF63b–8.4 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
CF63b–8.5 Process adjustments to eliminate problems are reported in accordance with company procedures
CF63b–8.6 Faulty performance of equipment is identified and reported in accordance with company procedures
CF63b–8.7 Waste is sorted according to enterprise procedures

CF63b–9 Liaise with customers
CF63b–9.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF63b–10 Identify and investigate fastening (adhesive, mechanical) equipment operating problem
CF63b–10.1 Problem in fastening (adhesive, mechanical) equipment is identified and reported in accordance with enterprise requirements

CF63b–11 Rectify minor fastening (adhesive, mechanical) equipment faults
CF63b–11.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
CF63b–11.2 Fastening (adhesive, mechanical) equipment operation is checked to ensure correct operation

CF63b–12 Clean fastening (adhesive, mechanical) equipment at end of run
CF63b–12.1 Mechanical fastening unit is disengaged and cleaned ready for next run OR
CF63b–12.2 Glue system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
CF63b–12.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
CF63b–12.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
CF63b–12.5 Repair / adjustment is verified prior to resumption of operations

CF63b–13 Complete records
CF63b–13.1 Production records or other documentation are accurately completed where required by enterprise procedures

**Range of Variables**

- **Fastening process**: Adhesive fastening such as cold and hot melt gluing, taping; Mechanical fastening such as wire stitching, velo, comb and wire binding; Hand section sewing
- **Range of fastening units**: A range of manually operated equipment with manual, semi–automated or fully automated process control
- **Substrate types**: Range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal
- **Substrate handling**: Large or small sheet handling systems
- **Degree of autonomy**: Working to defined procedures under limited supervision

**Evidence Guide**

**Context**
Competence elements and performance criteria are achieved within the limitations of the process or machinery used
**Required evidence**

Demonstrate all safety devices on the machine.

Competence must be demonstrated in TWO areas of: adhesive / thermal (drawn on cover or heated binding tape application); mechanical (wire stitcher or heavy duty stapler including saddle and flat stitching); hand sewing (single and multi-section books). For each area set up equipment and produce TWO basic hand–fastened products of different thickness and spine length to demonstrate equipment adjusting according to job specifications, manufacturer's specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- documentation
- equipment set up, operation and adjustment
- lubrication and cleaning of equipment
- maintenance of production flow
- problems associated with binding processes
- quality assurance
- information sources

**Sample Questions for Underpinning Knowledge**

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a limited range of circumstances.

**Documentation**

- What information concerning binding can be expected to be found in the job documentation or production control system?

**Equipment set up, operation and adjustment**

- What OH&S factors need to be addressed when adjusting machinery?
- Under what circumstances would a machine need to be adjusted?
- What determines the correct binding technique for a job?
- What safety measures should be taken when setting and operating this equipment?
- What parts of the wire stitcher would need to be adjusted to process books of different thicknesses?
- What determines the position of the wire stitches on the book?
- What is the difference between a staple and a wire stitch?
- How is the appropriate wire calliper for a particular job determined?
- What care should be taken to ensure a neat and clean adhesive binding job?
- Explain where the sewing stages should be positioned on the book.
- Explain the term "Kettle stitch"
- List three common sewing problems likely to be met when sewing a multi–section book.
- Explain the purpose of sewing frames.
- What can be done to ensure that hand sewing remains firmly together?

**Lubrication and cleaning of equipment**

- What problems are associated with oiling a wire stitcher?
- What problems can occur if equipment is not properly cleaned and maintained?

**Maintenance of production flow**

- What steps can be taken to ensure the smooth passage of work through the factory?

**Problems associated with binding processes**

- How can production problems occur during processing?
- What measures can be used to prevent production interruptions?

**Quality assurance**

- What would constitute an acceptable binding result?
- What can be expected if wire stitches are not in the right position?
- What would cause a book to be "stab" stitched?
- What special problems may be encountered with "stab" stitching?
What determines if a job is to be "saddle" stitched or "flat" / "side" stitched?

**Information sources**
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
**CF65d  Set up and produce hand bound book**

*Some elements of this competency are also included in CF67d Restore Books.*

**Elements and Performance Criteria**

**CF65d–1  Adhesive binding – tipping by hand**
- **CF65d–1.1** Sheets fanned and masked every 3–4mm
- **CF65d–1.2** A thin even coating is applied on area of sheet designated for tipping
- **CF65d–1.3** Correct adhesive applied with a good bond achieved
- **CF65d–1.4** Tipped sheet accurately positioned

**CF65d–2  Numbering by hand**
- **CF65d–2.1** Sheets are in correct sequence and numbered correctly as per job specifications
- **CF65d–2.2** Numbering machine is set for appropriate number of copies (e.g., duplicate, triplicate, etc.)
- **CF65d–2.3** Sheets are knocked up squarely without damage

**CF65d–3  Indexing by hand**
- **CF65d–3.1** Index is spaced correctly and evenly
- **CF65d–3.2** Square, clean and neat cut tabs or cut outs are of durable construction
- **CF65d–3.3** Headings are legible and permanent

**CF65d–4  Dissecting / pulling down**
- **CF65d–4.1** Original page securing method and section structure determined
- **CF65d–4.2** Minimal damage to cover / end papers if to be re–used
- **CF65d–4.3** Minimal damage to text with all stitches and thread removed
- **CF65d–4.4** Sheets and sections clean with minimal damage
- **CF65d–4.5** Dog ears straightened with old joints flattened
- **CF65d–4.6** Wire stitches or sewing thread removed
- **CF65d–4.7** Original adhesive removed
- **CF65d–4.8** Book is pressed

**CF65d–5  Adhesive binding / padding by hand**
- **CF65d–5.1** Sheets / sections knocked up squarely to spine and head with boards inserted between pads
- **CF65d–5.2** Spine folds completely removed from sections in guillotine
- **CF65d–5.3** Adequate spine margin is preserved
- **CF65d–5.4** Appropriate number of saw cuts made in sawn in work
- **CF65d–5.5** Edge of spine is roughened sufficiently to improve adhesion
- **CF65d–5.6** Thin even application of appropriate adhesive
- **CF65d–5.7** Book fanned before gluing (except for pads) to ensure increased surface coverage
- **CF65d–5.8** Book dries squarely with thorough adhesion

**CF65d–6  Section sewing by hand**
CF65d–6.1 Appropriate sewing supports are selected and spaced to suit job requirements
CF65d–6.2 Consistent thread tension is maintained during sewing
CF65d–6.3 Sections are aligned at the head
CF65d–6.4 Swelling is monitored and controlled

CF65d–7 Forwarding the book by hand
CF65d–7.1 Spine is glued, rounded and backed
CF65d–7.2 Spine lining is attached
CF65d–7.3 Text block is covered (board attached)
CF65d–7.4 Text block is cased in

CF65d–8 Blocking by hand
CF65d–8.1 Image is blocked into required position as per job specifications

CF65d–9 Hand finishing
CF65d–9.1 Book is hand finished as per job specifications
CF65d–9.2 Appropriate typeface size and type applied
CF65d–9.3 Design is in keeping with the period
CF65d–9.4 An even impression is applied

Range of Variables

Types of machines
Competence must be demonstrated in the use of a range of tools, equipment and machines

Degree of autonomy
Competence must be demonstrated in working to defined procedures and in consulting with other relevant persons to ensure production requirements have been met

Workplace procedures
Competence must be demonstrated in performing tasks in accordance with workplace quality standards

Workplace quality standards
Competence must be demonstrated in performing tasks to meet workplace quality standards

Evidence Guide

Required evidence

Set up for and produce AT LEAST THREE hand bound books that between them incorporate each of the listed elements (pulling down and section sewing to be done on multi-section (minimum ten sections) book) and use a range of substrates according to job specifications, manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- adhesive binding / tipping
- numbering
- indexing
- dissecting / pulling down
- adhesive binding / padding
- section sewing
- book forwarding
- blocking
- hand finishing
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

OH&S

What OH&S concerns are there when hand binding?

Adhesive binding / tipping

Explain the term "viscosity"
What part does grain direction play in the tipping operation?
What is the recommended tipping width for endpapers?
What is the recommended adhesive to be used in tipping?

Numbering

What needs to be checked when the numbering machine is set for duplicate / triplicate numbering?
What needs to be checked when the numbering machine is re-inked?
Explain how a given number is set on the machine.

Indexing

List FOUR different types of indices.
Give THREE ways to reinforce an index.
Explain how an index is evenly and correctly spaced down the sheet.

Dissecting / pulling down

List SIX different page securing methods
Explain the method of removing endpapers with minimal damage.
Explain the method of cleaning sections without damage.
Explain the terms "dog–ears" and "joints"
What special care should be taken when removing wire stitches / sewing thread?
List FOUR items to be checked against the customer's sample.
Describe THREE methods of removing the adhesive from the book spine.
What types of adhesive can be expected to be found on book spines?
Describe the methods of removing each particular adhesive.

Adhesive binding / padding

What adhesives are not recommended for padding?
Explain why some adhesives are not suitable for padding.
Explain the terms "pH", "viscosity", "open time", "tack", "specific adhesion", "molecular adhesion", "mechanical adhesion"
Name FOUR techniques that are available to ensure the permanent adhesion of the padded sheets?
Name FOUR ways in which the padding operation can be accelerated.

Section sewing

Name FOUR methods of hand sewing
Name FOUR important considerations to be addressed when setting up for sewing.
Why should you use a sewing frame?
What "cord" (calliper) thread is suitable for sewing 8pp sections?
What needs to be checked when the sewing thread is joined during the sewing operation?
What needs to be checked when the sewing operation is finished off?
What would result if the sewing is too loose / too tight?

Book forwarding

What important result must be achieved when gluing the spine of the book?
What would result if the spine glue was too thick / too thin?
How is a correct round in a book spine is recognised?
What problem(s) may occur if too much round is applied to the spine?
What problem(s) may occur if insufficient round is applied to the spine?
Name SIX different spine linings.
State the reasons for spine linings.
What special techniques are applied to 2–on 2–off spine linings?
Give FOUR important considerations to be given to spine linings.
In what direction should the grain be directed in spine linings?
What would result if the grain direction in the spine lining was incorrect?
How can a good corner be recognised?
What is the recommended turn–in?
List FOUR steps to ensure a clean job.
What is trimming–out a case?
What determines the correct board calliper on a book?
What micron board is recommended on a book 5mm thick?
What needs to be monitored when casing–in a book?

Blocking
Name FOUR procedures that ensure a good blocking result.
What needs to be checked when positioning type on the spine of a book?
What needs to be checked when positioning type on the front of a book?
Explain the term “blind blocking”.

Hand finishing
Name FOUR methods of hand finishing a book cover.
What criteria are used to ensure an appropriate typeface is selected?
What criteria are used to ensure the design chosen corresponds with the era of the book?
What considerations should be given to the hand finishing of the book?
What can be the result of uneven impressions?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF67d  Restore books

Some elements of this competency are also included in CF65d Set up and produce hand bound book.

Elements and Performance Criteria

CF67d–1  Assess physical condition of book to be rebound / restored
  CF67d–1.1  Physical construction and binding style of the book and materials used are identified
  CF67d–1.2  Areas of damage and weakness are identified and recorded

CF67d–2  Identify and select treatment options
  CF67d–2.1  Paper and cover cleaning options are assessed
  CF67d–2.2  Paper and cover repair options are assessed
  CF67d–2.3  Ethical / rarity / value cost alternatives are evaluated
  CF67d–2.4  Treatment options discussed with owner

CF67d–3  Assemble materials for binding
  CF67d–3.1  Materials and equipment are assembled as per job specifications
  CF67d–3.2  Binding equipment set up as per job specification

CF67d–4  Dissecting / pulling down
  CF67d–4.1  Original page securing method and section structure determined
  CF67d–4.2  Minimal damage to cover / end papers if to be re–used
  CF67d–4.3  Minimal damage to text with all stitches and thread removed
  CF67d–4.4  Sheets and sections clean with minimal damage
  CF67d–4.5  Dog ears straightened with old joints flattened
  CF67d–4.6  Wire stitches or sewing thread removed
  CF67d–4.7  Original adhesive removed
  CF67d–4.8  Book is pressed

CF67d–5  Paper treatment
  CF67d–5.1  Paper is cleaned using dry or wet methods as appropriate
  CF67d–5.2  Paper is deacidified if necessary by most appropriate method
  CF67d–5.3  Paper is repaired and/or reinforced using appropriate methods
  CF67d–5.4  Paper is re–sized if necessary
  CF67d–5.5  New paper is tinted to resemble original if requested

CF67d–6  Resew book
  CF67d–6.1  Appropriate sewing supports are selected and spaced to suit job requirements
  CF67d–6.2  Consistent thread tension is maintained during sewing
  CF67d–6.3  Sections are aligned at the head
  CF67d–6.4  Swelling is monitored and controlled
CF67d–6.5  Headbands are resewn if necessary

**CF67d–7  Forwarding the book by hand**

CF67d–7.1  Old spine and sides and turn-ins are lifted and reattached if re-backing is necessary

CF67d–7.2  Edges are knocked up into original alignment

CF67d–7.3  Spine is glued, rounded and backed

CF67d–7.4  Spine lining is attached

CF67d–7.5  Appropriate corner repairs on cover boards are carried out

CF67d–7.6  Boards are reattached

CF67d–7.7  New covering material is tinted to resemble original if requested

CF67d–7.8  Text block is covered or re-backed

CF67d–7.9  End papers are pasted down or inner hinge relined

CF67d–7.10  Book is opened after pressing

**CF67d–8  Hand finishing**

CF67d–8.1  Book is hand finished as per job specifications

CF67d–8.2  Appropriate typeface size and type applied

CF67d–8.3  Design is in keeping with the period

CF67d–8.4  An even impression is applied

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**Range of Variables**

**Types of machines**  Competence must be demonstrated in the use of a range of tools, equipment and machines

**Degree of autonomy**  Competence must be demonstrated in working to defined procedures and in consulting with other relevant persons to ensure production requirements have been met

**Workplace Procedures**  Competence must be demonstrated in performing tasks in accordance with workplace procedures

**Workplace quality standards**  Competence must be demonstrated in performing tasks to meet workplace quality standards

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**Evidence Guide**

**Required evidence**

Assess the physical condition of TWO books to be restored / rebound (one requiring rebacking and one requiring rebinding) and carry out restoration according to job requirements and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- determining the physical condition of a book to be rebound / restored
- identifying and selecting treatment options
- assembling materials for binding
- dissecting / pulling down
- section sewing
- book forwarding
- hand finishing
- quality assurance
- information sources
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.

Determining the physical condition of a book to be rebound / restored

- What factors would render a book unsuitable for restoration / rebinding?
- What could be the suggested options for a book unsuitable for restoration / rebinding?
- What areas of a book are most commonly in need of attention?
- How are areas of weakness and damage identified and recorded?

Identifying and selecting treatment options

- What paper and cover cleaning options are available?
- What are THREE methods of repairing a tear in paper?
- How do you replace a missing corner on a book page?
- When would the re–backing a book be necessary?
- What steps should be taken when repairing a coverboard corner?
- Explain FOUR methods of treating aged leather.

Assembling materials for binding

- What OH&S factors need to be considered when restoring books?
- Name FOUR tools used when gold finishing books.
- Name THREE adhesives used in book restoration and repair and describe under what circumstances each would be used.
- List SIX covering materials and indicate where each would be used.
- Name and explain FOUR styles of book edge decoration.
- Name and describe the methods of tanning leather.
- How is a covering material selected for a given job?
- What needs to be monitored when paring leather?
- What needs to be monitored when sharpening knives for leather paring?
- Name EIGHT types of leather commonly used in bookbinding.
- Explain the term "skiver".

Dissecting / pulling down

- List SIX different page securing methods
- Explain the method of removing endpapers with minimal damage.
- Explain the method of cleaning sections without damage.
- Explain the terms "dog–ears" and "joints"
- What special care should be taken when removing wire stitches / sewing thread?
- Describe THREE methods of removing the adhesive from the book spine.
- What types of adhesive can be expected to be found on book spines?
- Describe the methods of removing each particular adhesive.

Section sewing

- Name FOUR methods of hand sewing
- Name FOUR important considerations to be addressed when setting up for sewing.
- Why should you use a sewing frame?
- How would you choose the thickness of thread to use?
- What needs to be checked when the sewing thread is joined during the sewing operation?
- What needs to be checked when the sewing operation is finished off?
- What would result if the sewing is too loose / too tight?
- Describe FOUR hand worked headband styles.

Book forwarding

- What important result must be achieved when gluing the spine of the book?
- What would result if the spine glue was too thick / too thin?
- How is a correct spine shape recognised?
- What problem(s) may occur if too much round is applied to the spine?
- What problem(s) may occur if insufficient round is applied to the spine?
- Name SIX different spine linings and the styles on which they are used.
- State the reasons for spine linings.
- What special techniques are applied to 2–on 2–off spine linings?
Give FOUR important considerations to be given to spine linings.
How can a good corner be recognised?
What is the recommended turn–in?
List FOUR steps to ensure a clean job.
What is trimming–out?
What determines the correct board calliper on a book?
What micron board is recommended on a book 5mm thick?
What needs to be monitored when casing–in a book?

Hand finishing
Name FOUR methods of hand finishing a book cover.
What criteria are used to ensure an appropriate typeface is selected?
What criteria are used to ensure the design chosen corresponds with the era of the book?
What can be the result of uneven impressions?
Describe a method that could be used to correct an error in finishing the title.

Quality assurance
What quality aspects would be found in a competently restored book?
What steps should be taken to ensure the cost effectiveness of book restoration?
What can be done to ensure the rarity component of a book is maintained?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF69c  Set up for and produce hand made box

Elements and performance Criteria

CF69c–1  Determine dimensions and style of box
  CF69c–1.1  Discuss options for style and cost with client
  CF69c–1.2  Measure article to be contained or obtain written dimensions
  CF69c–1.3  Determine and confirm final job specifications

CF69c–2  Select materials
  CF69c–2.1  Select board weight, covering and lining materials to meet job specifications
  CF69c–2.2  Determine grain direction if relevant

CF69c–3  Cut board, cover material and lining to size
  CF69c–3.1  Cut board, cover material and lining to correct size
  CF69c–3.2  Score board to appropriate depth if necessary
  CF69c–3.3  Remove waste areas if applicable
  CF69c–3.4  Ensure that lids allow for the thickness of covering material if necessary

CF69c–4  Fold and score corners (OR CF69c–5)
  CF69c–4.1  Ensure folds are straight and corners are at correct angles
  CF69c–4.2  Secure corners with reinforcing material if necessary

CF69c–5  Glue and butt join (OR CF69c–4)
  CF69c–5.1  Ensure that walls are at correct angles to base
  CF69c–5.2  Ensure joins are flush
  CF69c–5.3  Ensure there is adequate adhesion

CF69c–6  Attach covering material and lining
  CF69c–6.1  Ensure that corners are cut correctly
  CF69c–6.2  Ensure there is adequate and smooth adhesion
  CF69c–6.3  Ensure that material is rubbed into corners of box

CF69c–7  Press box if necessary
  CF69c–7.1  Make up block for pressing
  CF69c–7.2  Ensure that pressure is even

CF69c–8  Decorate or furnish box if required
  CF69c–8.1  Use appropriate decorating techniques
  CF69c–8.2  Attach appropriate furnishings (clasps, hinges etc) if required

Range of Variables

Types of boxes  range of boxes including: loose lid, hinged lid, drop front, clamshell, book box, cruciform box, slip case, solander box
Materials: range of materials including board, paper, bookcloth, buckram
Degree of autonomy: working independently

Evidence Guide

Required evidence
Produce TWO boxes in different styles and materials, at least one of which must have a lid, according to job specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- OH&S
- materials
- box styles and purposes
- corner cutting techniques
- adhesives
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

OH&S
What OH&S concerns are there when making boxes?

Materials
How do you determine necessary board calliper for a box? How is the maximum calliper for a folded box? How can corner reinforcements be made inconspicuous? How do you determine appropriate covering material and style?

Box styles and purposes
How do you determine what style of box is appropriate? What would be the recommended allowances in a box box? In slip cases what techniques can be used to reduce scuffing of a book cover?

Corner cutting techniques
What can be done to reduce corner bulk when using heavyweight board? What techniques can be used when cutting the turn ins for a rounded spine? When would you need to cover the edge of a board before attaching the main covering?

Adhesives
What is the consequence of adhesives that are too thick or too thin? How does the open time of an adhesive affect the covering process?

Quality assurance
What criteria are used to evaluate a finished box? How do you ensure a clean finished job?

Information sources
What manuals, safety documentation, etc are relevant to this task and where are they kept? What information is included in these documents? What other sources of information are available?
CF71c  Decorate paper

Elements and Performance Criteria

CF71c–1  Prepare surface to be decorated
- CF71c–1.1 Edges are trimmed, scraped and sanded as appropriate to the technique being used
- CF71c–1.2 Appropriate size, mordant or glair is prepared and applied

CF71c–2  Carry out marbling
- CF71c–2.1 Bath is prepared with gum or water as appropriate to technique being used
- CF71c–2.2 Equipment is selected and set up
- CF71c–2.3 Colours are mixed to correct consistency for required spread
- CF71c–2.4 Books are tied up if edges are to be marbled
- CF71c–2.5 Bath is skimmed
- CF71c–2.6 Colours are thrown onto bath
- CF71c–2.7 Colours are combed and patterned if necessary
- CF71c–2.8 Substrate is dipped and removed
- CF71c–2.9 Substrate is rinsed and dried
- CF71c–2.10 Substrate is prepared for next operation (eg ironed, sized, burnished etc)

CF71c–3  Gild edges with leaf
- CF71c–3.1 Book is loaded into laying press
- CF71c–3.2 Red bole or black lead (graphite) is mixed and applied to edge, allowed to dry and brushed
- CF71c–3.3 Gold is cut to size
- CF71c–3.4 Glair (or size) is applied
- CF71c–3.5 Gold is laid on and allowed to dry
- CF71c–3.6 Edge is burnished

CF71c–4  Gild edges mechanically
- CF71c–4.1 Substrate is loaded into press
- CF71c–4.2 Substrate is sanded with coarse and fine sanding belts and dust removed
- CF71c–4.3 Gilding machine is set up with appropriate pressure, heat and dwell time
- CF71c–4.4 Substrate in press is taken to gilding machine
- CF71c–4.5 Gilding foil is placed on substrate
- CF71c–4.6 Foil is rolled with machines heated roller
- CF71c–4.7 If foil fails to take appropriate additives are used

CF71c–5  Carry out gauffering
- CF71c–5.1 Draw up design to be transferred
- CF71c–5.2 Select and prepare tools
- CF71c–5.3 Book is locked into laying press
CF71c–5.4 Impressions are made ensuring even result

**CF71c–6 Carry out staining or sprinkling or spraying**
- CF71c–6.1 Books or papers are positioned and clamped or weighted
- CF71c–6.2 Colour is prepared
- CF71c–6.3 Colour is applied with sponge or spray gun or roller or sprinkling brush as appropriate ensuring even application and allowed to dry

**CF71c–7 Apply graphite**
- CF71c–7.1 Book is locked into laying press
- CF71c–7.2 Graphite powder is mixed with paste to required consistency
- CF71c–7.3 Mixture is applied and allowed to dry
- CF71c–7.4 Edges are burnished

**CF71c–8 Carry out burnishing**
- CF71c–8.1 Book is locked up in laying press
- CF71c–8.2 Select bloodstone or agate tools as appropriate
- CF71c–8.3 Apply beeswax in fine film or work through waxed paper
- CF71c–8.4 Burnish across edges of book using appropriate pressure

**CF71c–9 Make paste paper**
- CF71c–9.1 Paste is prepared to correct consistency
- CF71c–9.2 Colour is added to paste
- CF71c–9.3 Paper is laid out and paste is applied
- CF71c–9.4 Patterns are created using brushes, combs, dies, pulling off etc

**Range of Variables**

- **Types of decoration** includes marbling, edge gilding, gauffering, staining and sprinkling, graphite, burnishing, paste paper
- **Location of decoration** includes edges, foredges (flat and round) and paper surfaces
- **Degree of autonomy** working independently

**Evidence Guide**

**Context**
Paper decoration should be tasteful and appropriate to the job and free from technical flaws.

**Required evidence**
Competency must be demonstrated in TWO processes of which one must be marbling or gilding OR any THREE processes. For each process produce TWO jobs if possible using different sizes, styles and substrates according to job specifications and listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- surface preparation
- marbling techniques and materials
- gilding techniques and materials
- gauffering techniques and materials
- staining and sprinkling and spraying techniques and materials
- graphite techniques and materials
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

**OH&S**
What OH&S concerns are there in the various methods of paper decoration?

**Surface preparation**
How do you determine which size / mordant / glair to use for a particular process and its appropriate strength?
List TWO methods of application and describe where each is used.
How long before treatment should the surface be prepared (give TWO examples)?
Why is it important that substrate should be free of dust?

**Marbling techniques and materials**
List THREE different gums that can be used in the bath.
How do you determine correct consistency of the bath?
Describe the techniques used to produce FIVE different patterns or effects.
What are likely causes of blank spots on the substrate?
How do you control the spread of colour?
How does temperature affect the marbling process?

**Gilding techniques and materials**
List THREE reasons for gold not sticking.
How would you repair a break in a gilt edge?
List TWO methods of picking up gold leaf for edge gilding.
What technique is used for gilding in the round?
How does antique gilding differ from a solid gilt edge?
Why are red bole or black lead used with the gold?

**Gauffering techniques and materials**
What technique is used to obtain an even impression?
What is the consequence of inappropriate pressure?

**Staining and sprinkling and spraying techniques and materials**
How do you ensure that you have an even finish?
How can you minimise colour absorption in absorbent stocks?
What methods can be used to prevent colour appearing on an adjacent edge?

**Graphite techniques and materials**
How do you determine correct consistency of graphite / paste mixture?
How do you ensure an even coating?

**Burnishing techniques and materials**
What is the most common fault with burnished edges?
What steps can be taken to ensure a smooth result?

**Paste paper techniques and materials**
How do you determine the correct consistency for paste?
How do you ensure colour fastness?
Describe the techniques used to produce FOUR different patterns.

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF81b  Set up machine for basic laminating

**Elements and Performance Criteria**

- **CF81b–1** Read and interpret job requirements from job documentation or production control system
  - CF81b–1.1 Set up is carried out correctly in minimum time with minimum wastage

- **CF81b–2** Set up reel transportation system on web–fed machine
  - CF81b–2.1 Unwind reel is set up and adjusted to suit job requirements
  - CF81b–2.2 Webbing procedures are carried out
  - CF81b–2.3 Web–control system is set up and adjusted to suit job requirements
  - CF81b–2.4 Reels are spliced / joined to suit job requirements

- **CF81b–3** Set up reel delivery system on web–fed machine
  - CF81b–3.1 Rewind reel is set up and adjusted to suit job requirements
  - CF81b–3.2 Sheeter is set up and adjusted to suit job requirements

- **CF81b–4** Set up machine for basic laminating
  - CF81b–4.1 Application system cylinder is set up and adjusted to suit job requirements
  - CF81b–4.2 Adhesive application system is set up and adjusted to suit job requirements
  - CF81b–4.3 Binding pressures are set up and adjusted to suit job requirements
  - CF81b–4.4 Drying system is set up and adjusted to suit job requirements

- **CF81b–5** Set up in–line unit(s)
  - CF81b–5.1 Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
  - CF81b–5.2 Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

- **CF81b–6** Conduct sample run
  - CF81b–6.1 Raw material to be used for sample is organised correctly
  - CF81b–6.2 Machine is set up and operated in accordance with OH&S requirements and manufacturer's and enterprise requirements to produce a specified sample

- **CF81b–7** Organise sample inspection and/or testing
  - CF81b–7.1 Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

- **CF81b–8** Readjust settings
  - CF81b–8.1 Results are interpreted to determine adjustment requirements
  - CF81b–8.2 Adjustment changes are carried out in accordance with product and machine specifications

**Range of Variables**

- Adhesives: Range of single or two component adhesives used in basic laminating
Laminating process Moisture, chemical and thermal cured, and extrusion process
Range of laminating units Range of manual, semi–automated, fully automated and computerised process control
In–line processes Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
Substrate types Range of absorbent and non–absorbent, transparent and non–transparent substrates within the major categories of paper, plastics and metals
Substrate handling Wide and narrow reel handling systems
Degree of autonomy Working to defined procedures under limited supervision

Evidence Guide

Required evidence

Demonstrate all safety devices on the machine.
Set up laminating machine to complete TWO two–ply laminating jobs on different substrates and of different sizes (if possible including one in–line process) in minimum time according to job and customer specifications, manufacturer's specifications and the listed performance criteria.
Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:

∗ documentation
∗ reel transport and delivery systems
∗ machine setting
∗ basic in–line processes
∗ quality assurance
∗ information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Documentation
What information concerning laminating requirements can be expected to be found in the job documentation or production control system?

Reel transport and delivery systems
What OH&S areas must be addressed when setting these areas of the machine?
Explain three problem areas likely to be encountered setting up the sheeter.

Machine setting
What OH&S areas must be addressed when setting these areas of the machine?
What factors determine the setting of the binding pressures?

Basic in–line processes
What OH&S areas must be addressed when setting these areas of the machine?
What in–line units are available for the laminating process?

Quality assurance
What OH&S factors are to be considered before readjusting machine?
What quality aspects should be considered in a completed laminating job?

**Information sources**

- What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
CF81c  Set up machine for complex laminating

Elements and Performance Criteria

CF81c–1  Read and interpret job requirements from job documentation or production control system
   CF81c–1.1  Set up is planned and carried out correctly in minimum time with minimum wastage

CF81c–2  Set up reel transportation system on web–fed machine
   CF81c–2.1  Unwind reel is set up and adjusted to suit job requirements
   CF81c–2.2  Webbing procedures are carried out
   CF81c–2.3  Web–control system is set up and adjusted to suit job requirements
   CF81c–2.4  Reels are spliced / joined to suit job requirements

CF81c–3  Set up reel delivery system on web–fed machine
   CF81c–3.1  Rewind reel is set up and adjusted to suit job requirements
   CF81c–3.2  Sheeter is set up and adjusted to suit job requirements

CF81c–4  Set up machine for complex laminating
   CF81c–4.1  Application system cylinder is set up and adjusted to suit job requirements
   CF81c–4.2  Adhesive application system is set up and adjusted to suit job requirements
   CF81c–4.3  Binding pressures are set up and adjusted to suit job requirements
   CF81c–4.4  Drying system is set up and adjusted to suit job requirements

CF81c–5  Set up in–line unit(s)
   CF81c–5.1  Minor in–line printing / converting / binding unit(s) are set up for basic process(es) and adjusted to suit machine and job requirements
   CF81c–5.2  Assistance is given in set up of major in–line printing / converting / binding unit(s). (NOTE: if entire set up is done refer to appropriate competency standards)

CF81c–6  Conduct sample run
   CF81c–6.1  Raw material to be used for sample is organised correctly
   CF81c–6.2  Machine is set up and operated in accordance with OH&S requirements and manufacturer’s and enterprise requirements to produce a specified sample

CF81c–7  Organise sample inspection and/or testing
   CF81c–7.1  Sample is visually inspected and/or tested or laboratory testing organised in accordance with enterprise procedures

CF81c–8  Readjust settings
   CF81c–8.1  Results are interpreted to determine adjustment requirements
   CF81c–8.2  Adjustment changes are carried out in accordance with product and machine specifications
Range of Variables

**Adhesives**
Range of one or two component adhesives used in complex laminating

**Fastening process**
Moisture, chemical and thermal cured, and extrusion process

**Range of laminating units**
Range of manual, semi–automated, fully automated and computerised process control

**In–line processes**
Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

**Substrate types**
Range of absorbent and non–absorbent, transparent and non–transparent substrates within the major categories of paper, plastics and metals

**Substrate handling**
Wide and narrow reel handling systems

**Degree of autonomy**
Working under limited supervision

Evidence Guide

**Context**
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used. At least one machine used must be fully automated.

**Required evidence**
Competence must be demonstrated on any TWO of moisture, chemical and extrusion laminating. For each process set up a laminating machine (2 or more ply) to complete TWO jobs on different substrates and of different sizes (large / small formats including one in–line process) while demonstrating splicing techniques in minimum time according to job and customer requirements, manufacturer's specifications and the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- documentation
- reel transport and delivery systems
- laminating machine set up
- in–line processes
- checking and adjustment
- information sources

Sample Questions for Underpinning Knowledge

*These questions are only examples. They do not represent everything you need to know. Other questions may be asked.*

Answers need to show knowledge required when working in a wide range of circumstances.

**Documentation**
What information concerning laminating requirements can be expected to be found in the job documentation or production control system?
How should this information be interpreted to ensure smooth work flow throughout the factory?
What elements must be considered when planning a laminating sample?

**Reel transport and delivery systems**
What OH&S areas must be addressed when setting these areas of the machine?
List THREE webbing procedures commonly used in the transportation area.
List THREE areas to consider when setting up the web control system.
Explain THREE problem areas likely to be encountered setting up the sheeter
List TWO methods of splicing a web on the laminating process.

Laminating machine set up
What OH&S areas must be addressed when setting these areas of the machine?
What needs to be checked when setting up (and adjusting) the application system cylinder?
What needs to be checked when setting up (and adjusting) the adhesive application system?
What factors determine the setting of the binding pressures?
What important matters are to be examined when setting the drying system?
What is the largest / smallest size sheet that can be processed on this machine?
In what ways can the machine be adapted to facilitate smaller / larger stock?

In–line processes
What OH&S areas must be addressed when setting these areas of the machine?
What in–line units are available for the laminating process?

Checking and adjustment
What OH&S factors are to be considered before readjusting machine?
Under what circumstances would the machine need to be adjusted?
What quality aspects should be considered in a completed laminating job?
What steps should be taken to ensure that important features of the production control system are addressed?
List FOUR items to be checked against the customer’s sample.

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
CF82b  Produce basic laminated product

Elements and Performance Criteria

CF82b–1  Maintain operation of reel transportation system on web–fed machine
  CF82b–1.1  Reel stand is monitored and adjusted to ensure efficient continuous operation
  CF82b–1.2  Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
  CF82b–1.3  Substrate is added to process according to job instructions

CF82b–2  Maintain operation of reel delivery system on web–fed machine
  CF82b–2.1  Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
  CF82b–2.2  Substrate is removed from process according to job instructions
  CF82b–2.3  Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF82b–3  Maintain basic laminating process
  CF82b–3.1  Registration of laminating is monitored and adjusted to ensure quality of product meets the standard of approved sample
  CF82b–3.2  Pressures are monitored and adjusted to ensure quality of product meets the standard of approved sample
  CF82b–3.3  Adhesion is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF82b–4  Maintain basic in–line process(es)
  CF82b–4.1  Basic in–line printing / coating / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF82b–5  Maintain production process
  CF82b–5.1  Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
  CF82b–5.2  Production is maintained within OH&S requirements and company and manufacturer's specifications
  CF82b–5.3  Manual and/or automatic control is used as per specification
  CF82b–5.4  Performance is monitored and verified using the process control system in accordance with company procedures
  CF82b–5.5  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
  CF82b–5.6  Process adjustments to eliminate problems are reported in accordance with company procedures
  CF82b–5.7  Faulty performance of equipment is identified and reported in accordance with company procedures
  CF82b–5.8  Waste is sorted according to enterprise procedures

CF82b–6  Liaise with customers
  CF82b–6.1  Production is maintained or adjusted in consultation with customer to meet customer requirements
CF82b–7 **Identify and investigate laminating machine operating problem**
- CF82b–7.1 Problem in laminating machine is identified and reported in accordance with enterprise requirements

CF82b–8 **Rectify minor laminating machine faults**
- CF82b–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator's skill level
- CF82b–8.2 Laminating machine operation is checked to ensure correct operation

CF82b–9 **Conduct shut down of production process**
- CF82b–9.1 Correct shut down sequence is followed in accordance with manufacturer's specifications and company procedures
- CF82b–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
- CF82b–9.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
- CF82b–9.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
- CF82b–9.5 Repair / adjustment is verified prior to resumption of operations

CF82b–10 **Clean laminating machine at end of run**
- CF82b–10.1 Laminating machine is disengaged and cleaned ready for next run
- CF82b–10.2 Adhesive system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
- CF82b–10.3 In-line printing / coating / converting / binding / finishing units are cleaned ready for next run
- CF82b–10.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF82b–11 **Complete records**
- CF82b–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

**Range of Variables**
- **Adhesives**: Range of single or two component adhesives used in basic laminating
- **Laminating process**: Moisture, chemical and thermal cured and extrusion process
- **Range of laminating units**: Range of manual, semi-automated, fully automated and computerised process control
- **In-line processes**: Minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such
- **Substrate types**: Range of absorbent and non-absorbent, transparent and non-transparent substrates within the major categories of paper, plastics and metals
- **Substrate delivery**: Wide and narrow reel handling systems
- **Degree of autonomy**: Working to defined procedures under limited supervision
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used

Required evidence
Operate laminating machine to complete TWO two–ply jobs on different substrates and of different sizes (if possible including one in–line process) to suit job and customer requirements according to the listed performance criteria.

Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel transportation and delivery systems
- maintaining laminating production processes
- operating problems and minor fault correction
- shut down and cleaning procedures
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

Reel transportation and delivery systems
What OH&S factors must be considered when operating web machine transport and delivery systems?
What areas of the reel stand should be monitored to ensure trouble–free operation?
What needs to be checked when substrate is removed from machine?

Maintaining laminating production processes
What OH&S factors must be considered when maintaining the laminating and in–line processes?
How is registration of laminating assured?
What areas of the in–line processes should be monitored to ensure a quality product?

Operating problems and minor fault correction
What are TWO laminating problems that may occur during the operation of the machine?
What adjustments or correction procedures may need to be made to ensure accurate operation of the process?

Shut down and cleaning procedures
What important tasks must be performed to correctly close down the machine?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?

Quality assurance
What quality aspects should be considered in a completed laminated job?
In what way might production need to be altered to meet customer requirements?

Information sources
What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
CF82c Produce complex laminated product

Elements and Performance Criteria

CF82c–1 Maintain operation of reel transportation system on web-fed machine
- CF82c–1.1 Reel stand is monitored and adjusted to ensure efficient continuous operation
- CF82c–1.2 Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation
- CF82c–1.3 Substrate is added to process according to job instructions

CF82c–2 Maintain operation of reel delivery system on web-fed machine
- CF82c–2.1 Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product
- CF82c–2.2 Substrate is removed from process according to job instructions
- CF82c–2.3 Sheeting section is monitored and adjusted to ensure quality and efficient product delivery

CF82c–3 Maintain complex laminating process
- CF82c–3.1 Registration of laminating is monitored and adjusted to ensure quality of product meets the standard of approved sample
- CF82c–3.2 Pressures are monitored and adjusted to ensure quality of product meets the standard of approved sample
- CF82c–3.3 Adhesion is monitored and adjusted to ensure quality of product meets the standard of approved sample

CF82c–4 Maintain in-line process(es)
- CF82c–4.1 In-line printing / coating / converting / binding / finishing process(es) are monitored and adjusted to ensure the quality of product meets the standard of the approved sample

CF82c–5 Maintain production processes
- CF82c–5.1 Production process is operated in association with fellow workers and in accordance with company specifications and planned daily schedule
- CF82c–5.2 Production is maintained within OH&S requirements and company and manufacturer’s specifications
- CF82c–5.3 Manual and/or automatic control is used as per specification
- CF82c–5.4 Performance is monitored and verified using the process control system in accordance with company procedures
- CF82c–5.5 Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention
- CF82c–5.6 Process adjustments to eliminate problems are reported in accordance with company procedures
- CF82c–5.7 Faulty performance of equipment is identified and reported in accordance with company procedures
- CF82c–5.8 Waste is sorted according to enterprise procedures

CF82c–6 Liaise with customers
CF82c–6.1 Production is maintained or adjusted in consultation with customer to meet customer requirements

CF82c–7 Identify and investigate laminating machine operating problem
   CF82c–7.1 Problem in laminating machine is identified and reported in accordance with enterprise requirements

CF82c–8 Rectify minor laminating machine faults
   CF82c–8.1 Adjustments or corrections are carried out in accordance with specified procedures and consistent with operator’s skill level
   CF82c–8.2 Laminating machine operation is checked to ensure correct operation

CF82c–9 Conduct shut down of production process
   CF82c–9.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and company procedures
   CF82c–9.2 Shut down is conducted in association with fellow workers and in compliance with OH&S requirements
   CF82c–9.3 Substrate waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and company procedures
   CF82c–9.4 Machine faults requiring repair are identified and reported, according to company procedures to designated person
   CF82c–9.5 Repair / adjustment is verified prior to resumption of operations

CF82c–10 Clean laminating machine at end of run
   CF82c–10.1 Laminating machine is disengaged and cleaned ready for next run
   CF82c–10.2 Adhesive system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements
   CF82c–10.3 In–line printing / coating / converting / binding / finishing units are cleaned ready for next run
   CF82c–10.4 Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run

CF82c–11 Complete records
   CF82c–11.1 Production records or other documentation are accurately completed where required by enterprise procedures

Range of Variables

Adhesives
   Range of one or two component adhesives used in complex laminating

Fastening processes
   Moisture, chemical and thermal cured and extrusion process
   Thermal fastening such as high frequency and head welding

Range of laminating units
   Range of manual, semi–automated, fully automated and computerised process control

In–line processes
   Minor processes that are integral to this competency can include basic in–line operations such as perforating, numbering, slitting that do not in themselves constitute another defined unit of competency. Where a major in–line process is defined as a separate competency (eg flat bed cutting, folding etc.) it should be assessed as such

Substrate types
   Range of absorbent, non–absorbent, transparent and non–transparent substrates within the major categories of paper, plastics and metals

Substrate delivery
   Wide and narrow reel handling systems
Evidence Guide

Context
Competence on elements and performance criteria is achieved within the limitations of the process or machinery used. At least one machine used must be fully automated.

Required evidence
Competence must be demonstrated on any TWO of moisture, chemical and extrusion laminating. For each process operate a laminating machine (2 or more ply) to complete TWO jobs on different substrates and of different sizes (large / small formats including one in–line process) while demonstrating splicing techniques in minimum time according to job and customer requirements and the listed performance criteria. Demonstrate use of computerised control, monitoring and data entry systems if available and appropriate. Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- reel transportation and delivery systems
- complex laminating processes
- in–line processes
- machine problems and faults
- machine shut down and cleaning
- quality assurance
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances.

Reel transportation and delivery systems
- What OH&S factors must be considered when operating web machine transport and delivery systems?
- What areas of the reel stand should be monitored to ensure trouble–free operation?
- What area of the web control system should be adjusted to maintain correct web tension?
- What area of the web control system should be adjusted to maintain correct positioning of the web?
- What areas of the delivery system should be observed to maintain tension?
- What areas of the delivery system should be observed to prevent damage to the finished product?
- What needs to be checked when substrate is removed from machine?

Complex laminating processes
- What OH&S factors must be considered when maintaining the laminating process?
- How is registration of laminating assured?
- How is any adjustment achieved?
- How can the pressure be adjusted during production?
- What areas of production must be monitored to ensure trouble–free operations?

In–line processes
- What OH&S factors must be considered when maintaining the complex in–line processes?
- What areas of the in–line processes should be monitored to ensure a quality product?

Machine problems and faults
- List FOUR laminating problems that may occur during the operation of the machine.
- What adjustments or correction procedures may need to be made to ensure accurate operation of the process?

Machine shut down and cleaning
- What OH&S factors must be considered when shutting down and cleaning the machine?
- What needs to be checked when correctly closing down the machine?
What areas of the machine need regular cleaning?
What materials need to be cleaned from the machine?
How can the machine be kept clear of surface rust (condensation)?
What are the recommended cleaning agents?

**Quality assurance**

What production records need to be kept or written up?
What information should be included in this reporting procedure?
What quality aspects should be considered in a completed laminated job?
What steps should be taken to ensure that important features of the production control system are followed?
In what way might production need to be altered to meet customer requirements?
List FOUR items that must be checked against the customer's sample.

**Information sources**

What machine manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
What other sources of information are available?
Printing Engineering

Printing engineering covers installation, servicing, relocation and decommissioning printing related equipment.

Printing engineers need units from this section as well as from the Support Units, and possibly Printing Units, Converting Binding and Finishing Units and National Generic Units.

Printing Engineering:
PE11d Install new small basic machine
PE12d Install new small complex machine
PE13d Install new large basic machine (mechanical)
PE14d Install new large basic machine (electronics)
PE15d Install new large complex machine (mechanical)
PE16d Install new large complex machine (electronics)
PE21d Service small basic machine
PE22d Service small complex machine
PE23d Service large basic machine (mechanical)
PE24d Service large basic machine (electronics)
PE25d Service large complex machine (mechanical)
PE26d Service large complex machine (electronics)
PE31d Remove and relocate small basic machine
PE32d Remove and relocate small complex machine
PE33d Remove and relocate large basic machine (mechanical)
PE34d Remove and relocate large basic machine (electronics)
PE35d Remove and relocate large complex machine (mechanical)
PE36d Remove and relocate large complex machine (electronics)
PE41d Decommission and detail small basic machine
PE42d Decommission and detail small complex machine
PE43d Decommission and detail large basic machine (mechanical)
PE44d Decommission and detail large basic machine (electronics)
PE45d Decommission and detail large complex machine (mechanical)
PE46d Decommission and detail large complex machine (electronics)

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
PE11d Install new small basic machine

**Elements and Performance Criteria**

**PE11d–1 Inspect site for access and facilities**
- **PE11d–1.1** Check truck access for unloading
- **PE11d–1.2** Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
- **PE11d–1.3** Assess requirements for special equipment and materials eg plyboard, masonite, timber blocks, jacks etc. and arrange for them to be available
- **PE11d–1.4** Check that at machine location floor meets machine load requirements
- **PE11d–1.5** Check that there will be required working space around the press
- **PE11d–1.6** Check that required facilities eg water supply, electric power requirements are available

**PE11d–2 Transport machine to new site**
- **PE11d–2.1** Load machine onto truck using appropriate lifting gear
- **PE11d–2.2** Ensure machine is secure for transport to new site
- **PE11d–2.3** At new site unload machine from truck using appropriate lifting gear
- **PE11d–2.4** Fit relevant lifting and/or transporting device
- **PE11d–2.5** Move machine to required location
- **PE11d–2.6** Once in position, square machine to room or to existing machines, ensuring that required working space exists.

**PE11d–3 Install and adjust machine**
- **PE11d–3.1** Any components are fitted in correct order according to manufacturer's specifications
- **PE11d–3.2** Level machine according to manual and manufacturer's specifications
- **PE11d–3.3** Wind over machine manually and ensure smooth operation
- **PE11d–3.4** Connect machine to mains power supply (must be done by holder of electrical licence)
- **PE11d–3.5** Turn on machine and check correct direction of rotation using INCH button
- **PE11d–3.6** Start machine. Run up and down through speed range
- **PE11d–3.7** Check function of all safety guards and devices
- **PE11d–3.8** Ensure all tools, accessories and manuals are with machine
- **PE11d–3.9** Ensure machine is clean without grease or hand marks on guards etc

**PE11d–4 Arrange for demonstration and training**
- **PE11d–4.1** Fit rollers, blankets and packing as appropriate according to manufacturer's specifications
- **PE11d–4.2** Arrange for demonstration of machine by demonstrator
- **PE11d–4.3** Ensure that appropriate training has been arranged
Range of Variables

Types of machine
Small machines doing a single printing or converting or finishing operation, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. May have simple computerised controls.

Degree of autonomy
Working in consultation with others

Evidence Guide

Required evidence
Install TWO different new small basic printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Statutory requirements
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE12d  Install new small complex machine

Elements and Performance Criteria

PE12d–1  Inspect site for access and facilities

PE12d–1.1  Check truck access for unloading
PE12d–1.2  Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
PE12d–1.3  Assess requirements for special equipment and materials eg plyboard, masonite, timber blocks, jacks etc. and arrange for them to be available
PE12d–1.4  Check that at machine location floor meets machine load requirements
PE12d–1.5  Check that there will be required working space around the press
PE12d–1.6  Check that required facilities eg water supply, electric power, pneumatic air supply requirements are available
PE12d–1.7  If appropriate check temperature control (air conditioning)
PE12d–1.8  Notify customer of any specific facilities required for the installation. Check again 2 to 5 days before actual installation

PE12d–2  Transport machine to new site

PE12d–2.1  Load machine onto truck using appropriate lifting gear
PE12d–2.2  Ensure machine is secure for transport to new site
PE12d–2.3  At new site unload machine from truck using appropriate lifting gear
PE12d–2.4  Fit relevant lifting and/or transporting device
PE12d–2.5  Move machine to required location
PE12d–2.6  Once in position square machine to room or to existing machines, ensuring that required working space exists.

PE12d–3  Install machine

PE12d–3.1  Level machine according to manual and manufacturer's specifications
PE12d–3.2  Fit all required pumps, compressors, accessories, eg blowers, powder spray units, wash-up devices, refrigeration units etc, footboards and guards according to manufacturer's specifications
PE12d–3.3  Fill any oil tanks to correct level with required oil
PE12d–3.4  Wind over machine manually and ensure smooth operation
PE12d–3.5  Remove any chocks or wedges from drive motor brake

PE12d–4  Adjust machine

PE12d–4.1  Connect machine to mains power supply (must be done by holder of electrical licence)
PE12d–4.2  Check and adjust settings of any limit or position switches and pressure gauges eg delivery pile limit switches, pneumatic pressure gauge settings etc
PE12d–4.3  Turn on machine and check correct direction of rotation using INCH button
PE12d–4.4  Check correct operation of all earlier installed accessories
PE12d–4.5  Start machine. Run up and down through speed range. Ensure smooth operation
PE12d–4.6  Check function of all safety guards and devices, ie press should NOT start with open guard
PE12d–4.7 Ensure all tools, accessories and manuals are with machine
PE12d–4.8 Ensure machine is clean without grease or hand marks on guards etc

PE12d–5 \textbf{Arrange for demonstration and training}

PE12d–5.1 Fit rollers, blankets and packing as appropriate according to manufacturer's specifications
PE12d–5.2 Arrange for demonstration of machine by demonstrator
PE12d–5.3 Ensure that appropriate training has been arranged

\textbf{Range of Variables}

\begin{itemize}
\item \textbf{Types of machine} Small machines doing multiple printing or converting or finishing operations, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. They will have computerised controls and may involve pneumatic power.
\item \textbf{Degree of autonomy} Working in consultation with others
\end{itemize}

\textbf{Evidence Guide}

\textbf{Required evidence}
Install TWO different new small complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
\begin{itemize}
\item OH&S
\item Different machine types
\item Statutory requirements
\item Information sources
\end{itemize}

\textbf{Sample Questions for Underpinning Knowledge}

\emph{Specific questions will depend on the context of the workplace.}

\emph{Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.}
PE13d  Install new large basic machine (mechanical)

Elements and Performance Criteria

PE13d–1  Inspect site for access and facilities

PE13d–1.1  Check truck access for unloading
PE13d–1.2  Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
PE13d–1.3  Assess requirements for special equipment and materials eg plywood, masonite, timber blocks, jacks etc. and arrange for them to be available
PE13d–1.4  Take bore sample of concrete floor to ensure that it is at least 30cm. This should probably involve a structural engineer. If it is less inform customer that new slab will be needed
PE13d–1.5  Check that there will be required working space around the press
PE13d–1.6  Check that required facilities eg water supply, electric power, overhead lighting, heat extraction requirements are available
PE13d–1.7  Check floor level to determine height of levelling blocks on first unit. If floor is too uneven arrange for customer to fix it.
PE13d–1.8  Notify customer of any specific facilities required for the installation. Check again 2 to 5 days before actual installation

PE13d–2  Transport machine to new site

PE13d–2.1  Load machine onto truck using appropriate lifting gear
PE13d–2.2  Ensure machine is secure for transport to new site
PE13d–2.3  At new site unload machine from truck using appropriate lifting gear
PE13d–2.4  Fit relevant lifting and/or transporting device. Note that when installing a multi unit machine units must be delivered in correct order.
PE13d–2.5  Determine machine position and mark out a centre line on the slab to have a starting and parallel point for the machine
PE13d–2.6  Move machine to required location

PE13d–3  Install machine

PE13d–3.1  Level first unit according to manual and manufacturer's specifications
PE13d–3.2  Monitor machine level each day of installation to detect any floor movement
PE13d–3.3  Connect other units and level them according to manufacturer's specifications
PE13d–3.4  Any components are fitted in correct order according to manufacturer's specifications
PE13d–3.5  Wind over machine manually and ensure smooth operation
PE13d–3.6  Arrange for connection of mains power supply and associated wiring (must be done by holder of electrical licence)
PE13d–3.7  Arrange for installation of water and hot air extraction systems

PE13d–4  Adjust machine

PE13d–4.1  Turn on machine and check correct direction of rotation using INCH button
PE13d–4.2  Start machine. Run up and down through speed range
PE13d–4.3  Check function of all safety guards and devices
PE13d–4.4 Ensure all tools, accessories and manuals are with machine
PE13d–4.5 Ensure machine is clean without grease or hand marks on guards etc

**PE13d–5 Arrange for demonstration and training**

PE13d–5.1 Fit rollers, blankets and packing as appropriate according to manufacturer’s specifications
PE13d–5.2 Arrange for demonstration of machine by demonstrator
PE13d–5.3 Ensure that appropriate training has been arranged

**Range of Variables**

Types of machine
Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy
Working in consultation with others

**Evidence Guide**

*Required evidence*
Install the mechanical part of TWO different new large basic printing or converting or finishing machines according to manufacturer’s specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Statutory requirements
- Information sources

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
PE14d  Install new large basic machine (electronics)

Elements and Performance Criteria

PE14d–1  Inspect site
   PE14d–1.1  Check with customer that correct power requirements are available

PE14d–2  Install electrical electronic parts of machine
   PE14d–2.1  Check that all mechanical units are in place
   PE14d–2.2  Position main electrical cabinet
   PE14d–2.3  Run all cables to electrical cabinet
   PE14d–2.4  Connect all wiring and plugs in accordance with manufacturer’s specifications
   PE14d–2.5  Connect main power
   PE14d–2.6  Check machine operation, guard switch and motor directions

PE14d–3  Check installation
   PE14d–3.1  In conjunction with print demonstrator check that machine feeds paper and that impression operates correctly and all other equipment operates correctly

Range of Variables

Types of machine
   Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy
   Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence
Install the electrical / electronic part of TWO different new large basic printing or converting or finishing machines according to manufacturer’s specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
   - OH&S
   - Different machine types
   - Statutory requirements
   - Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE15d  Install new large complex machine (mechanical)

Elements and Performance Criteria

PE15d–1  Inspect site for access and facilities
    PE15d–1.1  Check truck access for unloading
    PE15d–1.2  Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
    PE15d–1.3  Assess requirements for special equipment and materials eg plywood, masonite, timber blocks, jacks etc. and arrange for them to be available
    PE15d–1.4  Take bore sample of concrete floor to ensure that it is at least 30cm. If it is less inform customer that new slab will be needed.
    PE15d–1.5  Check that there will be required working space around the press
    PE15d–1.6  Check that required facilities eg water supply, electric power, overhead lighting, heat extraction requirements are available
    PE15d–1.7  Check floor level to determine height of levelling blocks on first unit. If floor is too uneven arrange for customer to fix it.
    PE15d–1.8  Notify customer of any specific facilities required for the installation. Check again 2 to 5 days before actual installation

PE15d–2  Transport machine to new site
    PE15d–2.1  Load machine onto truck using appropriate lifting gear
    PE15d–2.2  Ensure machine is secure for transport to new site
    PE15d–2.3  At new site unload machine from truck using appropriate lifting gear
    PE15d–2.4  Fit relevant lifting and/or transporting device. Note that when installing a multi unit machine units must be delivered in correct order.
    PE15d–2.5  Determine machine position and mark out a centre line on the slab to have a starting and parallel point for the machine
    PE15d–2.6  Move machine to required location

PE15d–3  Install machine
    PE15d–3.1  Level first unit according to manual and manufacturer’s specifications
    PE15d–3.2  Monitor machine level each day of installation to detect any floor movement
    PE15d–3.3  Position second unit carefully and align with first unit. Match up gearing and level unit according to manufacturer’s specifications
    PE15d–3.4  Follow same procedure for following units.
    PE15d–3.5  Any components are fitted in correct order according to manufacturer’s specifications
    PE15d–3.6  Wind over machine manually and ensure smooth operation
    PE15d–3.7  Arrange for connection of mains power supply, operating system and computer control units and associated wiring (must be done by holder of electrical licence)
    PE15d–3.8  Arrange for installation of water and hot air extraction systems
    PE15d–3.9  Fit feeder and delivery systems to machine according to manufacturer’s specifications
    PE15d–3.10  Fit smaller parts including guards, pumps and footboards
PE15d–3.11 If required fit IR–UV units, and ink temperature control unit (may require a plumber)

**PE15d–4 Adjust machine**

PE15d–4.1 Turn on machine and check correct direction of rotation using INCH button
PE15d–4.2 Start machine. Run up and down through speed range
PE15d–4.3 Check function of all safety guards and devices
PE15d–4.4 Ensure all tools, accessories and manuals are with machine
PE15d–4.5 Ensure machine is clean without grease or hand marks on guards etc

**PE15d–5 Arrange for demonstration and training**

PE15d–5.1 Fit rollers, blankets and packing as appropriate according to manufacturer’s specifications or arrange for demonstrator to do so
PE15d–5.2 Arrange for demonstration of machine by demonstrator
PE15d–5.3 Make any necessary adjustments during initial setting
PE15d–5.4 Ensure that appropriate training has been arranged

**Range of Variables**

- **Types of machine**: Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.
- **Degree of autonomy**: Working in consultation with others

**Evidence Guide**

**Required evidence**
Install the mechanical part of TWO different new large complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different machine types
- Statutory requirements
- Information sources

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
PE16d  Install new large complex machine (electronics)

Elements and Performance Criteria

PE16d–1  Inspect site
   PE16d–1.1  Check with customer that correct power requirements are available

PE16d–2  Install electrical electronic parts of machine
   PE16d–2.1  Check that all mechanical units are in place
   PE16d–2.2  Position main electrical cabinet
   PE16d–2.3  Run cables from cabinet to distribution boxes, motors and other units
   PE16d–2.4  Connect all wiring and plugs in accordance with manufacturer’s specifications
   PE16d–2.5  Connect main power
   PE16d–2.6  Check machine operation, guard switch and motor directions
   PE16d–2.7  Calibrate IR unit
   PE16d–2.8  Test perfecting for operation

PE16d–3  Check installation
   PE16d–3.1  In conjunction with print demonstrator check that machine feeds paper and that impression operates correctly and all other equipment operates correctly

Range of Variables

Types of machine  Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence
Install the electrical / electronic part of TWO different new large complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Statutory requirements
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.
Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE21d  Service small basic machine

Elements and Performance Criteria

PE21d–1  Identify fault or problem by phone
- PE21d–1.1  Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic
- PE21d–1.2  Advise customer of any simple solutions if appropriate
- PE21d–1.3  If service call is required discuss urgency and advise customer of when work will be done
- PE21d–1.4  Assemble appropriate spare parts and equipment.

PE21d–2  Identify fault or problem on site
- PE21d–2.1  Speak to operator about cause and location of fault and inspect work samples
- PE21d–2.2  Determine if fault is operational, mechanical or electrical / electronic
- PE21d–2.3  Advise operator of any operational solutions if appropriate
- PE21d–2.4  Determine if faulty parts need adjustment or replacement
- PE21d–2.5  If a lot of expensive parts need replacing advise customer of cost before starting work

PE21d–3  Repair and adjust the machine
- PE21d–3.1  Adjust or replace faulty parts according to manufacturer's specifications
- PE21d–3.2  Check and adjust to manufacturer's settings and specifications all sections of machine working from in–feed to delivery. Clean and lubricate as required
- PE21d–3.3  Check all safety guards and sensors
- PE21d–3.4  Clear all debris and old parts from site

PE21d–4  Test machine
- PE21d–4.1  With operator do a test run of machine to confirm fault has been eliminated
- PE21d–4.2  Advise operator of procedures for correcting operational faults

PE21d–5  Complete paper work
- PE21d–5.1  Confirm with operator and plant supervisor that they are satisfied with work done
- PE21d–5.2  Complete and sign work docket that includes job details, cost of repairs and any future work required and get docket signed by customer

Range of Variables

Types of machine  Small machines doing a single printing or converting or finishing operation, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. May have simple computerised controls.

Degree of autonomy  Working in consultation with others
Evidence Guide

Required evidence

Service TWO different small basic printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different machine types
- Machine fault diagnosis
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE22d  Service small complex machine

**Elements and Performance Criteria**

**PE22d–1  Identify fault or problem by phone**

- PE22d–1.1  Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic.
- PE22d–1.2  Advise customer of any simple solutions if appropriate.
- PE22d–1.3  If service call is required discuss urgency and advise customer of when work will be done.
- PE22d–1.4  Assemble appropriate spare parts and equipment.

**PE22d–2  Identify fault or problem on site**

- PE22d–2.1  Speak to operator about cause and location of fault and inspect work samples.
- PE22d–2.2  Determine if fault is operational, mechanical or electrical / electronic.
- PE22d–2.3  Advise operator of any operational solutions if appropriate.
- PE22d–2.4  Determine if faulty parts need adjustment or replacement.
- PE22d–2.5  If a lot of expensive parts need replacing advise customer of cost before starting work.

**PE22d–3  Repair and adjust the machine**

- PE22d–3.1  Adjust or replace faulty parts according to manufacturer's specifications.
- PE22d–3.2  Check and adjust to manufacturer's settings and specifications all sections of machine working from in–feed to delivery. Clean and lubricate as required.
- PE22d–3.3  Check all safety guards and sensors.
- PE22d–3.4  Clear all debris and old parts from site.

**PE22d–4  Test machine**

- PE22d–4.1  With operator do a test run of machine to confirm fault has been eliminated.
- PE22d–4.2  Advise operator of procedures for correcting operational faults.

**PE22d–5  Complete paper work**

- PE22d–5.1  Confirm with operator and plant supervisor that they are satisfied with work done.
- PE22d–5.2  Complete and sign work docket that includes job details, cost of repairs and any future work required and get docket signed by customer.

**Range of Variables**

**Types of machine**  
Small machines doing multiple printing or converting or finishing operations, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. They will have computerised controls and may involve pneumatic power.

**Degree of autonomy**  
Working in consultation with others.
Evidence Guide

Required evidence
Service TWO different small complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Machine fault diagnosis
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE23d Service large basic machine (mechanical)

Elements and Performance Criteria

PE23d–1 Identify fault or problem by phone
- PE23d–1.1 Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic
- PE23d–1.2 Advise customer of any simple solutions if appropriate
- PE23d–1.3 If service call is required discuss urgency and advise customer of when work will be done
- PE23d–1.4 Assemble appropriate spare parts and equipment.

PE23d–2 Identify fault or problem on site
- PE23d–2.1 Speak to operator about cause and location of fault and inspect work samples
- PE23d–2.2 Determine if fault is operational, mechanical or electrical / electronic. If problem is operational or electric / electronic call in demonstrator or electrician
- PE23d–2.3 Advise operator of any operational solutions if appropriate
- PE23d–2.4 Determine if faulty parts need adjustment or replacement
- PE23d–2.5 If a lot of expensive parts need replacing advise customer of cost before starting work

PE23d–3 Repair and adjust the machine
- PE23d–3.1 Adjust or replace faulty parts according to manufacturer's specifications and OH&S requirements
- PE23d–3.2 Check and adjust to manufacturer's settings and specifications all sections of machine working from in–feed to delivery. Clean and lubricate as required
- PE23d–3.3 Check all safety guards and sensors
- PE23d–3.4 Clear all debris and old parts from site

PE23d–4 Test machine
- PE23d–4.1 With operator do a test run of machine to confirm fault has been eliminated
- PE23d–4.2 Advise operator of procedures for correcting operational faults

PE23d–5 Complete paper work
- PE23d–5.1 Confirm with operator and plant supervisor that they are satisfied with work done
- PE23d–5.2 Complete and sign work docket that includes job details, cost of repairs if possible, and any future work required and get docket signed by customer
- PE23d–5.3 Ensure that any extra paperwork, costing estimates etc are forwarded to customer as soon as possible

Range of Variables

Types of machine
- Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy
- Working in consultation with others
Evidence Guide

Required evidence
Service the mechanical parts of TWO different large basic printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Machine fault diagnosis
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE24d  Service large basic machine (electronics)

Elements and Performance Criteria

PE24d–1 Identify fault or problem by phone
PE24d–1.1 Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic
PE24d–1.2 Advise customer of any simple solutions if appropriate
PE24d–1.3 If service call is required discuss urgency and advise customer of when work will be done
PE24d–1.4 Assemble appropriate spare parts and equipment.

PE24d–2 Identify fault or problem on site
PE24d–2.1 Speak to operator about cause and location of fault and inspect work samples
PE24d–2.2 Confirm that problem is electrical / electronic. If problem is operational or mechanical call in demonstrator or mechanic
PE24d–2.3 Advise operator of any operational solutions if appropriate

PE24d–3 Repair and adjust the electrical / electronic sections machine
PE24d–3.1 Check, clean and adjust to manufacturer's settings and specifications all electrical / electronic sections of machine including: main motor, auxiliary motors, switches, contractors, sensors, voltages, compressors, operating system and computer control units etc.
PE24d–3.2 Check all safety guards and sensors
PE24d–3.3 Clear all debris and old parts from site

PE24d–4 Test machine
PE24d–4.1 With operator do a test run of machine to confirm fault has been eliminated
PE24d–4.2 Advise operator of procedures for correcting operational faults

PE24d–5 Complete paper work
PE24d–5.1 Confirm with operator and plant supervisor that they are satisfied with work done
PE24d–5.2 Complete and sign work docket that includes job details, cost of repairs and any future work required and get docket signed by customer

Range of Variables

Types of machine  Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence.
Service the electrical / electronic parts of TWO different large basic printing or converting or finishing machines according to manufacturer’s specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different machine types
- Machine fault diagnosis
- Information sources

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
PE25d  Service large complex machine (mechanical)

Elements and Performance Criteria

PE25d–1  Identify fault or problem by phone
  PE25d–1.1  Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic. If problem is operational or electric / electronic call in demonstrator or electrician
  PE25d–1.2  Advise customer of any simple solutions if appropriate
  PE25d–1.3  If service call is required discuss urgency and advise customer of when work will be done
  PE25d–1.4  Assemble appropriate spare parts and equipment.

PE25d–2  Identify fault or problem on site
  PE25d–2.1  Speak to operator about cause and location of fault and inspect work samples
  PE25d–2.2  Determine if fault is operational, mechanical or electrical / electronic
  PE25d–2.3  Advise operator of any operational solutions if appropriate
  PE25d–2.4  Determine if faulty parts need adjustment or replacement
  PE25d–2.5  If a lot of expensive parts need replacing advise customer of cost before starting work

PE25d–3  Repair and adjust the machine
  PE25d–3.1  Adjust or replace faulty parts according to manufacturer's specifications and OH&S requirements
  PE25d–3.2  Check and adjust to manufacturer's settings and specifications all sections of machine working from in–feed to delivery. Clean and lubricate as required
  PE25d–3.3  Check all safety guards and sensors
  PE25d–3.4  Clear all debris and old parts from site

PE25d–4  Test machine
  PE25d–4.1  With operator do a test run of machine to confirm fault has been eliminated
  PE25d–4.2  Advise operator of procedures for correcting operational faults

PE25d–5  Complete paper work
  PE25d–5.1  Confirm with operator and plant supervisor that they are satisfied with work done
  PE25d–5.2  Complete and sign work docket that includes job details, cost of repairs and any future work required and get docket signed by customer

Range of Variables

- Types of machine: Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.
- Degree of autonomy: Working in consultation with others
Evidence Guide

Required evidence
Service the mechanical parts of TWO different large complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* OH&S
* Different machine types
* Machine fault diagnosis
* Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE26d  Service large complex machine (electronics)

Elements and Performance Criteria

PE26d–1 Identify fault or problem by phone
   PE26d–1.1 Speak to customer and try to establish whether fault is operational, mechanical or electrical / electronic
   PE26d–1.2 Advise customer of any simple solutions if appropriate
   PE26d–1.3 If service call is required discuss urgency and advise customer of when work will be done
   PE26d–1.4 Assemble appropriate spare parts and equipment.

PE26d–2 Identify fault or problem on site
   PE26d–2.1 Speak to operator about cause and location of fault and inspect work samples
   PE26d–2.2 Confirm that problem is electrical / electronic. If problem is operational or mechanical call in demonstrator or mechanic
   PE26d–2.3 Advise operator of any operational solutions if appropriate

PE26d–3 Repair and adjust the electrical / electronic sections machine
   PE26d–3.1 Check, clean and adjust to manufacturer's settings and specifications all electrical / electronic sections of machine including: main motor, auxiliary motors, switches, contractors, sensors, voltages, compressors, operating system and computer control units etc.
   PE26d–3.2 Check all safety guards and sensors
   PE26d–3.3 Clear all debris and old parts from site

PE26d–4 Test machine
   PE26d–4.1 With operator do a test run of machine to confirm fault has been eliminated
   PE26d–4.2 Advise operator of procedures for correcting operational faults

PE26d–5 Complete paper work
   PE26d–5.1 Confirm with operator and plant supervisor that they are satisfied with work done
   PE26d–5.2 Complete and sign work docket that includes job details, cost of repairs and any future work required and get docket signed by customer

Range of Variables

Types of machine
Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.

Degree of autonomy
Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence.
Service the electrical / electronic parts of TWO different large complex printing or converting or finishing machines according to manufacturer’s specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different machine types
- Machine fault diagnosis
- Information sources

Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE31d  Remove and relocate small basic machine

**Elements and Performance Criteria**

**PE31d–1  Identify equipment and crew requirements**
- **PE31d–1.1** Appropriate equipment: rollers, gantries etc are identified and organised
- **PE31d–1.2** Crew requirements are identified and crew is organised and briefed

**PE31d–2  Prepare machine for removal**
- **PE31d–2.1** Remove footboards and drain water from trough if necessary
- **PE31d–2.2** Disconnect main power
- **PE31d–2.3** Disconnect pumps if appropriate and place and secure on machine

**PE31d–3  Move machine to new location**
- **PE31d–3.1** Lift machine onto rollers, wheels or gantry for transport to new internal location or truck ensuring OH&S requirements are met
- **PE31d–3.2** If truck is being used attach lifting gear to top of machine and lift into truck
- **PE31d–3.3** Secure machine in truck for transport to new site
- **PE31d–3.4** Use appropriate lifting gear to unload machine at new site and rollers, wheels or gantries to move to new location

**PE31d–4  Install machine at new location**
- **PE31d–4.1** Remove machine from transport equipment and place in correct position
- **PE31d–4.2** Level machine according to manufacturer's specifications
- **PE31d–4.3** Relocate and reconnect pumps if appropriate
- **PE31d–4.4** Remount footboards
- **PE31d–4.5** Reconnect power (must be done by holder of electrical licence)
- **PE31d–4.6** Check that running direction of machine is correct

**Range of Variables**

**Types of machine**
Small machines doing a single printing or converting or finishing operation, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. May have simple computerised controls.

**Lifting and transport equipment**
Includes rollers, wheels, gantries cranes

**Degree of autonomy**
Working in consultation with others

**Evidence Guide**

**Required evidence**
Relocate TWO different small basic printing or converting or finishing machines in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE32d  Remove and relocate small complex machine

Elements and Performance Criteria

PE32d–1 Identify equipment and crew requirements
PE32d–1.1 Appropriate equipment: rollers, gantries etc are identified and organised
PE32d–1.2 Crew requirements are identified and crew is organised and briefed

PE32d–2 Prepare machine for removal
PE32d–2.1 Remove footboards and drain water from trough if necessary
PE32d–2.2 Disconnect main power
PE32d–2.3 Disconnect pumps if appropriate and place and secure on machine

PE32d–3 Move machine to new location
PE32d–3.1 Lift machine onto rollers, wheels or gantry for transport to new internal location or truck ensuring OH&S requirements are met
PE32d–3.2 If truck is being used attach lifting gear to top of machine and lift into truck
PE32d–3.3 Secure machine in truck for transport to new site
PE32d–3.4 Use appropriate lifting gear to unload machine at new site and rollers, wheels or gantries to move to new location

PE32d–4 Install machine at new location
PE32d–4.1 Remove machine from transport equipment and place in correct position
PE32d–4.2 Level machine according to manufacturer's specifications
PE32d–4.3 Relocate and reconnect pumps if appropriate
PE32d–4.4 Remount footboards
PE32d–4.5 Reconnect power (must be done by holder of electrical licence)
PE32d–4.6 Check that running direction of machine is correct

Range of Variables

Types of machine  Small machines doing a single printing or converting or finishing operation, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. May have simple computerised controls.
Lifting and transport equipment  Includes rollers, wheels, gantries cranes
Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Relocate TWO different small complex printing or converting or finishing machines in accordance with manufacturer’s specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE33d  Remove and relocate large basic machine (mechanical)

Elements and Performance Criteria

PE33d–1  Identify equipment and crew requirements
  PE33d–1.1  Appropriate equipment: rollers, gantries etc are identified and organised
  PE33d–1.2  Crew requirements are identified and crew is organised and briefed

PE33d–2  Confirm suitability of destination location
  PE33d–2.1  Check truck access for unloading
  PE33d–2.2  Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
  PE33d–2.3  Take bore sample of concrete floor to ensure that it is at least 30cm. If it is less inform customer that new slab will be needed.
  PE33d–2.4  Check that there will be required working space around the press
  PE33d–2.5  Check that required facilities eg water supply, electric power, overhead lighting, heat extraction requirements are available
  PE33d–2.6  Check floor level to determine height of levelling blocks on first unit. If floor is too uneven arrange for customer to fix it.

PE33d–3  Prepare machine for removal
  PE33d–3.1  Arrange for power to be disconnected by electrician
  PE33d–3.2  Drain oil from machine and store of dispose safely
  PE33d–3.3  Remove guards on both sides of machine and disconnect individual units
  PE33d–3.4  Tag all parts to facilitate reassembly
  PE33d–3.5  Check that all wires / electrical units have been disconnected by electrician

PE33d–4  Move machine to new location
  PE33d–4.1  Lift machine with gantry and mount on wooden base ensuring OH&S requirements are met
  PE33d–4.2  Bolt smaller parts to wooden base and load in boxes if required for ease of transport
  PE33d–4.3  Load machine onto truck using appropriate lifting gear
  PE33d–4.4  Ensure machine is secure for transport to new site
  PE33d–4.5  At new site unload machine from truck using appropriate lifting gear
  PE33d–4.6  Fit relevant lifting and/or transporting device, gantry etc. Note that when installing a multi unit machine units must be delivered in correct order.

PE33d–5  Install machine at new location
  PE33d–5.1  Level first unit according to manual and manufacturer’s specifications
  PE33d–5.2  Monitor machine level each day of installation to detect any floor movement
  PE33d–5.3  Connect other units and level them according to manufacturer’s specifications
  PE33d–5.4  Any components are fitted in correct order according to manufacturer’s specifications
PE33d–5.5 Wind over machine manually and ensure smooth operation
PE33d–5.6 Arrange for connection of mains power supply and associated wiring (must be done by holder of electrical licence)
PE33d–5.7 Arrange for installation of water and hot air extraction systems and other auxiliary equipment

PE33d–6 Adjust machine
PE33d–6.1 Turn on machine and check correct direction of rotation using INCH button
PE33d–6.2 Start machine. Run up and down through speed range
PE33d–6.3 Check function of all safety guards and devices
PE33d–6.4 Ensure all tools, accessories and manuals are with machine

PE33d–7 Arrange for demonstration and training
PE33d–7.1 Arrange for demonstration of machine by demonstrator
PE33d–7.2 Ensure that appropriate training has been arranged

Range of Variables

- **Types of machine**: Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.
- **Lifting and transport equipment**: Includes rollers, wheels, gantries cranes
- **Degree of autonomy**: Working in consultation with others

Evidence Guide

**Required evidence**
Relocate the mechanical part of TWO different new large basic printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Lifting and transport equipment
- Different machine types
- Statutory requirements
- Information sources

Sample Questions for Underpinning Knowledge

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
PE34d  Remove and relocate large basic machine (electronics)

Elements and Performance Criteria

PE34d–1  Confirm suitability of destination location
  PE34d–1.1  Check with customer that correct power requirements are available

PE34d–2  Prepare machine for removal
  PE34d–2.1  Disconnect power supply
  PE34d–2.2  Disconnect all electrical cabinets
  PE34d–2.3  Pull operating system computer control system wires away from machine and store them on individual units
  PE34d–2.4  Code wires to facilitate reassembly
  PE34d–2.5  Check mechanical disassembly has been carried out by mechanics

PE34d–3  Reinstall electrical electronic parts of machine
  PE34d–3.1  Check that all mechanical units are in place in new location
  PE34d–3.2  Position main electrical cabinet
  PE34d–3.3  Run all cables to electrical cabinet
  PE34d–3.4  Connect all wiring and plugs in accordance with manufacturer's specifications
  PE34d–3.5  Connect main power
  PE34d–3.6  Check machine operation, guard switch and motor directions

PE34d–4  Check installation
  PE34d–4.1  In conjunction with print demonstrator check that machine feeds paper and that impression operates correctly and all other equipment operates correctly

Range of Variables

Types of machine  Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence.
Relocate the electrical / electronic part of TWO different new large basic printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
  ∗  OH&S
  ∗  Different machine types
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE35d  Remove and relocate large complex machine (mechanical)

Elements and Performance Criteria

PE35d–1  Identify equipment and crew requirements
   PE35d–1.1  Appropriate equipment: rollers, gantries etc are identified and organised
   PE35d–1.2  Crew requirements are identified and crew is organised and briefed

PE35d–2  Confirm suitability of destination location
   PE35d–2.1  Check truck access for unloading
   PE35d–2.2  Check building access: door heights and widths, floor condition, difficult or unusual obstacles including carpet, steps, lifts, ramps etc
   PE35d–2.3  Take bore sample of concrete floor to ensure that it is at least 30cm. This should probably involve a structural engineer. If it is less inform customer that new slab will be needed
   PE35d–2.4  Check that there will be required working space around the press
   PE35d–2.5  Check that required facilities eg water supply, electric power, overhead lighting, heat extraction requirements are available
   PE35d–2.6  Check floor level to determine height of levelling blocks on first unit. If floor is too uneven arrange for customer to fix it.

PE35d–3  Prepare machine for removal
   PE35d–3.1  Arrange for power to be disconnected by electrician
   PE35d–3.2  Drain oil from machine and store of dispose safely
   PE35d–3.3  Remove guards on both sides of machine and disconnect feeder and delivery units
   PE35d–3.4  Disconnect main units starting from the end ensuring that timing marks on drive gears are still visible to facilitate reassembly
   PE35d–3.5  Tag all parts to facilitate reassembly
   PE35d–3.6  Check that all wires / electrical units have been disconnected by electrician

PE35d–4  Move machine to new location
   PE35d–4.1  Lift machine with gantry and mount on wooden base ensuring OH&S requirements are met
   PE35d–4.2  Bolt smaller parts to wooden base for ease of transport
   PE35d–4.3  Load machine onto truck using appropriate lifting gear
   PE35d–4.4  Ensure machine is secure for transport to new site
   PE35d–4.5  At new site unload machine from truck using appropriate lifting gear
   PE35d–4.6  Fit relevant lifting and/or transporting device, gantry etc. Note that when installing a multi unit machine units must be delivered in correct order.

PE35d–5  Install machine at new location
   PE35d–5.1  Level first unit according to manual and manufacturer's specifications
   PE35d–5.2  Monitor machine level each day of installation to detect any floor movement
   PE35d–5.3  Position second unit carefully and align with first unit. Match up gearing and level unit according to manufacturer's specifications
PE35d–5.4 Follow same procedure for following units.
PE35d–5.5 Any components are fitted in correct order according to manufacturer’s specifications
PE35d–5.6 Wind over machine manually and ensure smooth operation
PE35d–5.7 Arrange for connection of mains power supply, operating system and computer control units and associated wiring (must be done by holder of electrical licence)
PE35d–5.8 Arrange for installation of water and hot air extraction systems and other auxiliary equipment
PE35d–5.9 Fit feeder and delivery systems to machine according to manufacturer’s specifications
PE35d–5.10 Fit smaller parts including guards, pumps and footboards

**PE35d–6 Adjust machine**

PE35d–6.1 Turn on machine and check correct direction of rotation using INCH button
PE35d–6.2 Start machine. Run up and down through speed range
PE35d–6.3 Check function of all safety guards and devices
PE35d–6.4 Ensure all tools, accessories and manuals are with machine

**PE35d–7 Arrange for demonstration and training**

PE35d–7.1 Arrange for demonstration of machine by demonstrator
PE35d–7.2 Make any necessary adjustments during initial setting
PE35d–7.3 Ensure that appropriate training has been arranged

**Range of Variables**

<table>
<thead>
<tr>
<th>Types of machine</th>
<th>Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.</th>
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<tbody>
<tr>
<td>Lifting and transport equipment</td>
<td>Includes rollers, wheels, gantries cranes</td>
</tr>
<tr>
<td>Degree of autonomy</td>
<td>Working in consultation with others</td>
</tr>
</tbody>
</table>

**Evidence Guide**

*Required evidence*

Relocate the mechanical part of TWO different new large complex printing or converting or finishing machines according to manufacturer’s specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

* OH&S
* Lifting and transport equipment
* Different machine types
* Statutory requirements
* Information sources

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*
Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE36d  Remove and relocate large complex machine (electronics)

Elements and Performance Criteria

PE36d–1  Confirm suitability of destination location
PE36d–1.1  Check with customer that correct power requirements are available

PE36d–2  Prepare machine for removal
PE36d–2.1  Disconnect power supply
PE36d–2.2  Disconnect all electrical, operating system and computer control unit cabinets and pumps and mount on wooden bases for transport
PE36d–2.3  Pull operating system and computer control unit wires away from machine and store them on individual units or in main electrical control box
PE36d–2.4  Code wires to facilitate reassembly
PE36d–2.5  Check mechanical disassembly has been carried out by mechanics

PE36d–3  Reinstall electrical electronic parts of machine
PE36d–3.1  Check that all mechanical units are in place in new location
PE36d–3.2  Position main electrical cabinet
PE36d–3.3  Run cables from cabinet to distribution boxes, motors and other units
PE36d–3.4  Connect all wiring and plugs in accordance with manufacturer's specifications
PE36d–3.5  Connect main power
PE36d–3.6  Check machine operation, guard switch and motor directions
PE36d–3.7  Calibrate IR unit
PE36d–3.8  Test perfecting for operation

PE36d–4  Check installation
PE36d–4.1  In conjunction with print demonstrator check that machine feeds paper and that impression operates correctly and all other equipment operates correctly

Range of Variables

Types of machine  Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Possess an electrical licence.
Relocate the electrical / electronic part of TWO different new large complex printing or converting or finishing machines according to manufacturer's specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different machine types
- Statutory requirements
- Information sources

**Sample Questions for Underpinning Knowledge**

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE41d Decommission and detail small basic machine

Elements and Performance Criteria

PE41d–1 Assess condition of machine
  
  PE41d–1.1 Check each unit and mechanical section of machine for signs of wear and for faulty or missing parts and record results on report sheet
  
  PE41d–1.2 Check all electrical components and record results on report sheet
  
  PE41d–1.3 Check function of all safety switches and devices
  
  PE41d–1.4 Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE41d–2 Clean and repair machine
  
  PE41d–2.1 Machine is disassembled and all components are cleaned and lubricated as required
  
  PE41d–2.2 Faulty components are repaired or replaced
  
  PE41d–2.3 New components and upgrades are installed in accordance with manufacturer's specifications
  
  PE41d–2.4 Machine is re-aligned and reconnected in accordance with manufacturer's specifications

PE41d–3 Test run machine
  
  PE41d–3.1 Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine
Small machines doing a single printing or converting or finishing operation, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. May have simple computerised controls.

Degree of autonomy
Working in consultation with others

Evidence Guide

Required evidence
Decommission and detail TWO different small basic printing or converting or finishing machines in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different types of machines
- Common faults and defects
- Information sources
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE42d  Decommission and detail small complex machine

Elements and Performance Criteria

PE42d–1  Assess condition of machine
- PE42d–1.1 Check each unit and mechanical section of machine for signs of wear and for faulty or missing parts and record results on report sheet
- PE42d–1.2 Check all electrical components and record results on report sheet
- PE42d–1.3 Check function of all safety switches and devices
- PE42d–1.4 Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE42d–2  Clean and repair machine
- PE42d–2.1 Machine is disassembled and all components are cleaned and lubricated as required
- PE42d–2.2 Faulty components are repaired or replaced
- PE42d–2.3 New components and upgrades are installed in accordance with manufacturer’s specifications
- PE42d–2.4 Machine is re-aligned and reconnected in accordance with manufacturer’s specifications

PE42d–3  Test run machine
- PE42d–3.1 Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine: Small machines doing multiple printing or converting or finishing operations, processing sheets up to A3 size using 240V mains power with a motor of less than 1.1kW. They will have computerised controls and may involve pneumatic power.

Degree of autonomy: Working in consultation with others

Evidence Guide

Required evidence
Decommission and detail TWO different small complex printing or converting or finishing machines in accordance with manufacturer’s specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:
- OH&S
- Different types of machines
- Common faults and defects
- Information sources
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE43d  Decommission and detail large basic machine (mechanical)

Elements and Performance Criteria

PE43d–1  Assess condition of machine
PE43d–1.1  Check each unit and mechanical section of machine for signs of wear and for faulty or missing parts and record results on report sheet
PE43d–1.2  Confirm that electrician has checked all electrical components and recorded results on report sheet
PE43d–1.3  Check function of all safety switches and devices
PE43d–1.4  Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE43d–2  Clean and repair machine
PE43d–2.1  Machine is disassembled and all components are cleaned and lubricated as required
PE43d–2.2  Faulty components are repaired or replaced
PE43d–2.3  New components and upgrades are installed in accordance with manufacturer’s specifications
PE43d–2.4  Machine is re-aligned and reconnected in accordance with manufacturer’s specifications

PE43d–3  Test run machine
PE43d–3.1  Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine  Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.
Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence
Decommission and detail the mechanical parts of TWO different large basic printing or converting or finishing machines in accordance with manufacturer’s specifications and the listed performance criteria.
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate detailed knowledge of:
- OH&S
- Different types of machines
- Common faults and defects
- Information sources
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE44d  Decommission and detail large basic machine (electronics)

Elements and Performance Criteria

PE44d–1  Assess condition of machine

PE44d–1.1  Check all electrical / electronic components: main motor, auxiliary motors, switches, contractors, sensors, voltages, compressors, operating system and computer control units etc. and record results on report sheet

PE44d–1.2  Confirm that mechanic has checked all mechanical components and recorded results on report sheet

PE44d–1.3  Check function of all safety switches and devices

PE44d–1.4  Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE44d–2  Clean and repair machine

PE44d–2.1  Machine is disassembled and all electrical / electronic components are cleaned and lubricated as required

PE44d–2.2  Faulty components are repaired or replaced

PE44d–2.3  New components and upgrades are installed in accordance with manufacturer's specifications

PE44d–2.4  Machine is re-aligned and reconnected in accordance with manufacturer's specifications

PE44d–3  Test run machine

PE44d–3.1  Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine  Large printing or converting or finishing machines with one or two functions using 415V power and/or motors over 1.1kW. May have simple computerised controls.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence

Possess an electrical licence.

Decommission and detail the electrical / electronic parts of TWO different small complex printing or converting or finishing machines in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

∗  OH&S
∗  Different types of machines
∗  Common faults and defects
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE45d  Decommission and detail large complex machine (mechanical)

Elements and Performance Criteria

PE45d–1  Assess condition of machine

PE45d–1.1  Check each unit and mechanical section of machine for signs of wear and for faulty or missing parts and record results on report sheet

PE45d–1.2  Confirm that electrician has checked all electrical components and recorded results on report sheet

PE45d–1.3  Check function of all safety switches and devices

PE45d–1.4  Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE45d–2  Clean and repair machine

PE45d–2.1  Machine is disassembled and all components are cleaned and lubricated as required

PE45d–2.2  Faulty components are repaired or replaced

PE45d–2.3  New components and upgrades are installed in accordance with manufacturer's specifications

PE45d–2.4  Machine is re-aligned and reconnected in accordance with manufacturer's specifications

PE45d–3  Test run machine

PE45d–3.1  Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine  Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence

Decommission and detail the mechanical parts of TWO different large complex printing or converting or finishing machines in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different types of machines
- Common faults and defects
- Information sources
Sample Questions for Underpinning Knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
PE46d  Decommission and detail large complex machine (electronics)

Elements and Performance Criteria

PE46d–1  Assess condition of machine

PE46d–1.1  Check all electrical/electronic components: main motor, auxiliary motors, switches, contractors, sensors, voltages, compressors, operating system and computer control units etc. and record results on report sheet

PE46d–1.2  Confirm that mechanic has checked all mechanical components and recorded results on report sheet

PE46d–1.3  Check function of all safety switches and devices

PE46d–1.4  Decide whether machine can be upgraded in line with the latest technology and make recommendations on report sheet

PE46d–2  Clean and repair machine

PE46d–2.1  Machine is disassembled and all electrical/electronic components are cleaned and lubricated as required

PE46d–2.2  Faulty components are repaired or replaced

PE46d–2.3  New components and upgrades are installed in accordance with manufacturer's specifications

PE46d–2.4  Machine is re-aligned and reconnected in accordance with manufacturer's specifications

PE46d–3  Test run machine

PE46d–3.1  Machine is test run by a demonstrator and adjustments are made if necessary

Range of Variables

Types of machine  Large printing or converting or finishing machines with multiple functions or units using 415V power and/or motors over 1.1kW. Either computer controlled or with some computer monitoring systems.

Degree of autonomy  Working in consultation with others

Evidence Guide

Required evidence

Possess an electrical licence.

Decommission and detail the electrical/electronic parts of TWO different large basic printing or converting or finishing machines in accordance with manufacturer's specifications and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- OH&S
- Different types of machines
- Common faults and defects
- Information sources
Sample Questions for underpinning knowledge

Specific questions will depend on the context of the workplace.

Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.
Ink Manufacture

These units cover manufacture of inks, varnishes, resins and coatings.

Ink manufacturers need units from this section as well as from the Support Units, and possibly National Generic Units.

Ink Manufacture:
IM11b  Select and prepare materials for production
IM21b  Blend chemicals
IM31c  Manufacture inks / coatings
IM35d  Manufacture varnish / resin
IM51b  Filter / pack product
IM71d  Develop and apply industry and enterprise knowledge (technical / laboratory operations)

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
IM11b Select and prepare materials for production

Elements and Performance Criteria

IM11b–1 Read and interpret job requirements and locate materials
  IM11b–1.1 Material requirements and quantities are correctly identified from documentation
  IM11b–1.2 Materials are located and checked in accordance with standard operating procedures
  IM11b–1.3 Required quantities of material are confirmed and shortages and/or defective materials reported / recorded

IM11b–2 Prepare materials
  IM11b–2.1 Weighing / measuring devices are checked for accuracy and reset if required
  IM11b–2.2 Bowls, vats, tanks, pots are selected according to job requirements and checked to ensure they are free from contamination
  IM11b–2.3 Quantities of material are weighed / measured
  IM11b–2.4 Materials are prepared in accordance with standard operating procedures
  IM11b–2.5 Quality checks are undertaken according to standard operating procedures
  IM11b–2.6 Materials are adjusted to meet specifications

IM11b–3 Transfer prepared materials to production area
  IM11b–3.1 Prepared materials are correctly stored / transferred / located

IM11b–4 Complete documentation
  IM11b–4.1 Documentation is accurately completed according to enterprise procedures

Range of Variables

Application
Selection / assembly of materials is typically performed by operators, weighers, mixers or stores personnel working under supervision to ensure production requirements have been met

Documentation
Range of records including formulae, job dockets, work sheets, job cards, manufacturing orders, specifications, labels, material safety data sheets etc

Workplace procedures
Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

OH&S
OH&S includes relevant legislation, regulations and enterprise policies

Materials
Range of raw materials, packaging materials and consumables

Weighing / measuring devices
Measuring equipment including scales, flow meters and graduated vessels

Containers
Vessels that include pans, vats, bowls, tanks, drums, tins, hoppers, bins, pails, pots

Machines / equipment
Includes pallet mover, drum lifter, wheelbarrow
Evidence Guide

Required evidence
Select, measure and prepare TWO batches of materials for use in the production of ink or chemicals, to job specifications and in accordance with workplace procedures and OH&S policies and regulations and the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:

- OH&S and environmental hazard control procedures
- selection, fit and use of appropriate personal protective equipment
- identification and location of required materials
- weighing / measuring
- preparation of containers
- preparation of materials
- conducting quality checks
- transfer and storage procedures
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances.

OH&S and environmental hazard control procedures
  Describe the potential health hazards involved in the selection preparation of materials for ink production.
  What pollution and environmental issues need to be considered when working with the raw materials used in ink production?
  What are the Company procedures and policies that are in place to deal with OH&S and environmental hazards?

Selection, fit and use of appropriate personal protective equipment
  What safety equipment is required and what do you need to check when fitting and using it?

Identification and location of required materials
  What details are required for selection of materials for ink production?
  How do you determine whether a material is defective?
  What is the procedure if there is a material shortage?

Weighing / measuring
  What needs to be checked when measuring each of the types of materials required for ink production.
  Describe the range of measuring devices used in the work area, how accuracy checks are conducted and procedures for resetting the devices.

Preparation of containers
  What needs to be checked when preparing containers for ink production?
  Preparation of materials
  What needs to be checked when preparing materials?

Conducting quality checks
  What are the methods for checking and adjusting materials?
  Who approves prepared materials prior to commencing production?
  What are the procedures for recording the quantities and formulation?

Transfer and storage procedures
  What equipment is used to transfer materials to the preparation area?

Information sources
  What manuals, safety documentation, etc are relevant to this task and where are they kept?
  What information is included in these documents?
IM21b Blend chemicals

Elements and Performance Criteria

IM21b–1 Read and interpret job requirements from documentation
IM21b–1.1 Batches of auxiliary chemical products or inks are manufactured to meet job specifications
IM21b–1.2 Appropriate equipment is selected for the purpose

IM21b–2 Set up machines / equipment
IM21b–2.1 Pre–startup checks are completed and documented in accordance with standard operating procedures
IM21b–2.2 Raw materials / feed lines are checked to ensure availability
IM21b–2.3 Machine / equipment operation is verified in accordance with standard operating procedures

IM21b–3 Maintain blending / homogenising process
IM21b–3.1 Mix is completed according to standard operating procedures and within occupational health and safety requirements
IM21b–3.2 Materials are added to process according to job instructions
IM21b–3.3 Quality inspection / sampling is carried out according to enterprise requirements
IM21b–3.4 Adjustments to mix / equipment are made to correct identified quality problem
IM21b–3.5 Records / log / checklists are completed according to enterprise requirements

IM21b–4 Shut down
IM21b–4.1 Correct shut down sequence is followed in accordance with manufacturer’s specifications and standard operating procedures
IM21b–4.2 Product / materials used in manufacture are removed from operating area where appropriate
IM21b–4.3 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and enterprise procedures

IM21b–5 Clean up
IM21b–5.1 Equipment cleaning requirements are identified
IM21b–5.2 Correct equipment / materials for manual or mechanical cleaning are selected
IM21b–5.3 Cleaning is undertaken in accordance with standard operating procedures and health and safety requirements

Range of Variables

Application Chemical blending / tinting and associated tasks are typically performed by operators working under routine supervision to ensure production requirements have been met

Documentation Range of work instructions including formulae, job dockets, work sheets, specifications, labels, material safety data sheets etc

Workplace procedures Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)
OH&SIncludes relevant legislation, regulations and enterprise policies / guidelines

MaterialsRange of raw materials / consumables, and chemicals used in cleaning

Machines / equipmentMachines / equipment may include high and low speed dispersers, pan washer / scrubbers, pumps, valves, automatic ink dispensing system, homogeniser, de–ioniser, other vessels

Adjustments / correctionsIn the range from normal operating to emergency response

Shut downIn the range from planned shut down to emergency response

Evidence Guide

Required evidence

Use EITHER a mixer / disperser OR a bead mill OR an automatic ink dispensing system to blend TWO batches of chemicals OR tint TWO batches of ink intermediates / concentrates to job specifications in accordance with workplace procedures and OH&S requirements and the listed performance criteria

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:

- safe work practices and hazard avoidance
- selecting raw materials to meet job specifications and process requirements
- measurement of materials according to prescribed specifications
- the mixing / blending properties of raw materials and/or of intermediate and final product
- procedures for chemical blending
- quality assurance
- safe disposal of environmentally hazardous materials
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples.
They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a limited range of circumstances

Safe work practices and hazard avoidance

What are the OH&S considerations when cleaning bowls, vats, pots, etc.? What other health and safety issues arise in the blending of chemicals / use of automated ink dispensing system?

What safety equipment is required and what do you need to check when fitting and using it?

Selecting raw materials to meet job specifications and process requirements

Describe the batch coding system used in the work area and the recording procedures used.

What are the procedures for preparing containers and equipment for blending / tinting?

Measurement of materials according to prescribed specifications

What needs to be checked when measuring chemicals for blending?

The mixing / blending properties of raw materials and/or of intermediate and final product

What procedures apply to adding chemicals according to formulae

Describe the purpose and process of homogenisation.

What is the purpose of de–ionising water when it is to be used in the blending process?

Procedures for chemical blending

What procedures apply to constructing a correct colour according to a formula?

What factors determine the position of the mixing head when blending?

Describe the procedures for testing conductivity, viscosity and pH, where in–process testing is conducted.
Quality assurance
- Describe the sampling and testing process.
- Describe the problems that may occur in the tinting process, and how these may be overcome.
- What recording and labelling procedures apply?

Safe disposal of environmentally hazardous materials
- What environmental issues need to be considered when working with the range of materials used in chemical blending / tinting?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
### IM31c Manufacture inks / coatings

#### Elements and Performance Criteria

**IM31c–1 Read and interpret job requirements from documentation**
- **IM31c–1.1** Batches of ink are manufactured to meet job specifications
- **IM31c–1.2** Appropriate processes are identified / confirmed
- **IM31c–1.3** Appropriate equipment is selected for the purpose

**IM31c–2 Set up machines / equipment**
- **IM31c–2.1** Pre–startup checks are completed and documented in accordance with standard operating procedures
- **IM31c–2.2** Raw materials / feed lines are checked to ensure availability
- **IM31c–2.3** Stirrer, mixer, pots, vats are checked to ensure they are free from contamination
- **IM31c–2.4** Machine / equipment operation is verified in accordance with standard operating procedures

**IM31c–3 Maintain blending process**
- **IM31c–3.1** Mix is completed in association with fellow workers according to standard operating procedures and within occupational health and safety requirements
- **IM31c–3.2** Materials are added to process according to job instructions
- **IM31c–3.3** Quality inspection / sampling is carried out according to enterprise requirements
- **IM31c–3.4** Adjustments to mix / equipment are made to correct identified quality problem

**IM31c–4 Maintain ink / coating milling process**
- **IM31c–4.1** Production process is operated in association with fellow workers and in accordance with standard operating procedures and planned daily schedule
- **IM31c–4.2** Production is maintained within occupational health and safety requirements and enterprise procedures
- **IM31c–4.3** Milling process and equipment are monitored during batch manufacture to ensure operation is maintained
- **IM31c–4.4** Machines / equipment are inspected, adjusted as required and readouts recorded and interpreted
- **IM31c–4.5** Quality inspections / sampling are undertaken in accordance with standard operating procedures
- **IM31c–4.6** Records / log / checklists are completed according to enterprise requirements

**IM31c–5 Maintain operation of equipment / process conditions**
- **IM31c–5.1** Variations / irregularities of equipment operation or process conditions are identified and reported
- **IM31c–5.2** Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention according to standard operating procedures
- **IM31c–5.3** Corrective action is documented and reported as required by enterprise procedures

**IM31c–6 Shut down liquid ink / coating blend / milling process**
IM31c–6.1 Pre – shut down checks are carried out and documented in accordance with standard operating procedures

IM31c–6.2 Correct shut down sequence is followed in accordance with manufacturer’s specifications and standard operating procedures

IM31c–6.3 Shut down is conducted in association with fellow workers and in compliance with occupational health and safety requirements

IM31c–6.4 Product / materials used in manufacture are removed from operating area where appropriate

IM31c–6.5 Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and enterprise procedures

IM31c–7 Clean up

IM31c–7.1 Equipment cleaning requirements are identified

IM31c–7.2 Correct equipment / materials for manual or mechanical cleaning are selected

IM31c–7.3 Cleaning is undertaken in accordance with standard operating procedures and health and safety requirements

Range of Variables

Application Liquid ink / coating manufacture and associated tasks are typically performed by operators working under routine supervision to ensure production requirements have been met

Documentation Range of work instructions including formulae, job dockets, work sheets, specifications, labels, material safety data sheets etc

Workplace procedures Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

OH&S Includes relevant legislation, regulations and enterprise policies / guidelines

Materials Range of raw materials / consumables, pigment, varnish, inks, chemicals used in cleaning

Machines / equipment Machines / equipment may include high and low speed dispersers, mills, pan washer / scrubbers, pumps, valves, other vessels

Adjustments / corrections In the range from normal operating to emergency response

Shut down In the range from planned shut down to emergency response

Evidence Guide

Required evidence

Use a mixer / disperser and EITHER a bead mill OR a 3 roll mill to manufacture TWO batches of ink / coating to job specifications in accordance with workplace procedures and OH&S requirements, and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- safe work practices and hazard avoidance
- selecting raw materials to meet job specifications and process requirements
- measurement of materials according to prescribed specifications
- the mixing / blending properties of raw materials and/or of intermediate and final product
- procedures for ink / coating manufacture
- quality assurance
- safe disposal of environmentally hazardous materials
- information sources
Note: an additional competency can be achieved by being assessed on a different milling process.

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstances

Safe work practices and hazard avoidance
- What are the safety requirements for adding powders during the mixing stage of ink manufacture?
- What are the OH&S considerations when cleaning bowls, vats, pots, etc.?
- What other health and safety issues arise in the manufacture of ink or coatings?
- What safety equipment is required and what do you need to check when fitting and using it?

Selecting raw materials to meet job specifications and process requirements
- Describe the batch coding system used in the work area and the recording procedures used.
- What needs to be checked when preparing containers and equipment for ink / coating manufacture?

Measurement of materials according to prescribed specifications
- What needs to be checked when measuring raw materials for ink production?

The mixing / blending properties of raw materials and/or of intermediate and final product
- What factors determine the position of the mixing head?
- What is the purpose of using low speed early in the mixing process?
- What is the function of antioxidants in the mixing process?
- What is done when the mixture has a skin on it?
- What are the particular requirements for coating manufacture?
- Describe the characteristics of the end product of the mixing phase of ink manufacture.

Procedures for ink / coating manufacture
- What is the purpose of milling ink?
- What are the ideal conditions for milling ink?
- How is a mill adjusted for low or high grind values?
- What are the procedures for potting off the mill?
- What system is in place for labelling containers of ink?

Quality assurance
- What are the sampling and testing procedures used at each stage of the ink or coating manufacture process?
- Where in–process testing is carried out, how is the grind of the ink determined?
- Describe how ink texture and viscosity is checked during the milling process.

Safe disposal of environmentally hazardous materials
- What environmental issues need to be considered when working with the range of materials used in the manufacture of ink / coatings?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
IM35d  Manufacture varnish / resin

Elements and Performance Criteria

IM35d–1  Read and interpret job requirements from documentation
IM35d–1.1  Batches of varnish / resin are manufactured to meet job specifications

IM35d–2  Start up machines / equipment
IM35d–2.1  Pre–startup checks are completed and documented in accordance with standard operating procedures
IM35d–2.2  Utilities are checked to ensure availability
IM35d–2.3  Raw materials / feed lines are checked to ensure availability
IM35d–2.4  Pre–startup conditions are reported according to enterprise procedures
IM35d–2.5  Startup is conducted in accordance with standard operating procedures
IM35d–2.6  Machine / equipment operation is verified in accordance with standard operating procedures

IM35d–3  Maintain varnish / resin production process
IM35d–3.1  Production process is operated in association with fellow workers and in accordance with standard operating procedures and planned daily schedule
IM35d–3.2  Production is maintained within occupational health and safety requirements and enterprise procedures
IM35d–3.3  Process and equipment are monitored during batch manufacture to ensure operation is maintained
IM35d–3.4  Records / log / checklists are completed according to enterprise requirements
IM35d–3.5  Machines / equipment are inspected and readouts recorded and interpreted
IM35d–3.6  Quality inspections / sampling are undertaken in accordance with standard operating procedures
IM35d–3.7  Consumables are monitored and added to process according to job instructions

IM35d–4  Maintain operation of equipment / process conditions
IM35d–4.1  Variations / irregularities of equipment operation or process conditions are identified and reported
IM35d–4.2  Production difficulties are anticipated and preventative action is taken to prevent occurrence by timely intervention according to standard operating procedures
IM35d–4.3  Corrective action is documented and reported as required by enterprise procedures

IM35d–5  Shut down varnish / resin manufacture process
IM35d–5.1  Pre – shut down checks are carried out and documented in accordance with standard operating procedures
IM35d–5.2  Correct shut down sequence is followed in accordance with manufacturer’s specifications and standard operating procedures
IM35d–5.3  Shut down is conducted in association with fellow workers and in compliance with occupational health and safety requirements
IM35d–5.4  Product / materials used in manufacture are removed from operating area where appropriate
IM35d–5.5  Solid and liquid waste is removed from operating area and recycled or disposed of, where required, in accordance with regulatory requirements and enterprise procedures

IM35d–6  Clean up
IM35d–6.1  Equipment cleaning requirements are identified
IM35d–6.2  Correct equipment / materials for manual or mechanical cleaning are selected
IM35d–6.3  Cleaning is undertaken in accordance with standard operating procedures

Range of Variables

Application  Varnish / resin manufacture and associated tasks are typically performed by operators working under routine supervision to ensure production requirements have been met

Documentation  Range of work instructions including formulae, job doockets, work sheets, specifications, labels, material safety data sheets etc

Workplace procedures  Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

OH&S  Includes relevant legislation, regulations and enterprise policies / guidelines

Materials  Range of raw materials / consumables; chemicals used in utilities and in cleaning

Processes  Fusion cooking or reaction

Machines / equipment  Machines / equipment may include gel tanks, reactors, tanks, refrigeration units, air compressor, pan washer / scrubbers, pumps, valves, other vessels

Adjustments / corrections  In the range from normal operating to emergency response

Shut down  In the range from planned shut down to emergency response

Evidence Guide

Required evidence

Use EITHER fusion cooking OR reaction to manufacture TWO batches of varnish / resin to job specifications, including in-process testing, in accordance with workplace procedures and OH&S requirements, and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate detailed knowledge of:

- safe work practices and hazard avoidance
- selecting raw materials to meet job specifications and process requirements
- measurement of materials according to prescribed specifications
- the mixing / blending properties of raw materials and/or of intermediate and final product
- solution, gellation, reaction and filtration principles
- procedures for varnish / resin manufacture
- use of direct and remote monitoring devices (VDU, gauges)
- quality assurance
- safe disposal of environmentally hazardous materials
- information sources

Note an additional competency unit may be gained by being assessed in a different process.
Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge required when working in a wide range of circumstance and being able to cope with the unexpected.

Safe work practices and hazard avoidance
- What are the OH&S concerns related to the production of varnish and/or resin?
- What manual handling issues arise in the manufacture of varnish / resin?
- What safety equipment is required and what do you need to check when fitting and using it?

Selecting raw materials to meet job specifications and process requirements
- What equipment is required for the manufacture of varnish?
- Describe the batch coding system used in the work area, and the recording procedures used.

Measurement of materials according to prescribed specifications
- What needs to be checked when measuring materials?

The mixing / blending properties of raw materials and/or of intermediate and final product
- What properties does ink gain from the two basic components of varnish – resins and solvents?

Solution, gelation, reaction and filtration principles
- What are the characteristics and end use of gelled and non–gelled varnishes?
- What needs to be checked when preparing for filtration.
- What are the ideal conditions for filtration of varnish / resin product?

Procedures for varnish / resin manufacture
- Describe the pre–startup checks that are required for TWO processes in varnish or resin manufacture.
- What effect does water contamination have on the manufacture of varnish / resin and what steps should be taken to avoid it?
- What are the procedures for adding liquids or solids to a varnish or resin mix?
- What system is in place for labelling containers of varnish / resin?

Use of direct and remote monitoring devices (VDU, gauges)
- What are the monitoring requirements for energy plant operation?
- What inspections / monitoring is carried out during varnish / resin production?

Quality assurance
- What quality checks are required during the filtration process?
- What methods are available for testing viscosity of varnish / resin?
- How is the viscosity of a batch of varnish / resin increased?
- What is the procedure if the viscosity is too low?
- What are the procedures for recording details about the formulations, and in–process testing where required?

Safe disposal of environmentally hazardous materials
- Describe the system for the disposal of liquid and solid waste.
- What are the environmental issues that need to be considered when working with varnish, resin, and chemicals / additives used in their manufacture?

Information sources
- What manuals, safety documentation, etc are relevant to this task and where are they kept?
- What information is included in these documents?
- What other sources of information are available?
**IM51b Filter / pack product**

### Elements and Performance Criteria

**IM51b–1 Read and interpret job requirements from documentation**
- IM51b–1.1 Product to be filtered is identified from job instructions
- IM51b–1.2 Type / size of packing container is identified from job instructions

**IM51b–2 Set up for filtering and packing**
- IM51b–2.1 Filtering requirements are identified from job instructions
- IM51b–2.2 The correct filter is selected and fitted according to standard operating procedures
- IM51b–2.3 Appropriate packaging containers are identified and selected according to job instructions
- IM51b–2.4 Containers are checked to ensure that they are free from contamination

**IM51b–3 Filter and pack product**
- IM51b–3.1 Product is filtered in accordance with standard operating procedures and occupational health and safety requirements
- IM51b–3.2 Product is sampled and tested in accordance with standard operating procedures
- IM51b–3.3 The correct amount of approved product is tinned off in accordance with standard operating procedures
- IM51b–3.4 Container is correctly labelled according to standard operating procedures
- IM51b–3.5 Packed product is stored / despatched in accordance with job instructions

**IM51b–4 Complete documentation**
- IM51b–4.1 Documentation is completed according to enterprise requirements

### Range of Variables

**Application**
Filtering and packing of product is typically performed by operators working under supervision to ensure that quality standards are maintained

**Documentation**
Range of work instructions including formulae, job dockets, work sheets, standard operating procedures (SOPs), manufacturing orders (MOs), specifications, labels, coding systems, material safety data sheets, and computer entry requirements etc

**Workplace procedures**
Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

**OH&S**
Includes relevant legislation, regulations and enterprise policies / guidelines

**Containers**
Range of packaging containers including pails, tins, drums, bins

**Machines / equipment**
Machines / equipment / materials may include pumps, filters, weighing scales, spatulas, cardboard, wax paper, vacuum pack systems, and lifting / shifting devices
Evidence Guide

Required evidence
Filter and pack ink / chemical products into TWO types of packaging container using the correct filtering procedures according to job specifications, workplace procedures, OH&S requirements and the listed performance criteria.

Demonstrate an ability to find and use information relevant to the task from a variety of information sources.

Demonstrate knowledge of:
- OH&S and environmental regulations and requirements
- selection, fit and use of appropriate personal protective equipment
- selection of correct packaging materials / containers
- selection and fitting of filter(s) according to prescribed specifications / standards
- contaminants which affect product properties and quality
- sampling and testing procedures
- operation of pumps
- weighing / measuring
- handling, labelling and storage
- information sources

Sample Questions for Underpinning Knowledge

These questions are only examples. They do not represent everything you need to know. Other questions may be asked.

Answers need to show knowledge when working in a limited range of circumstances

**OH&S and environmental regulations and requirements**
Describe the potential health hazards involved in the filtering and packing of products.
What pollution and environmental issues need to be considered when working with ink / chemical products?
What Company procedures and policies are in place to deal with OH&S and environmental hazards?

**Selection, fit and use of appropriate personal protective equipment**
What safety equipment is required and what do you need to check when fitting and using it?

**Selection of correct packaging materials / containers**
What details are required for the correct selection of packaging containers?

**Selection and fitting of filter(s) according to prescribed specifications / standards**
What details are required for the correct selection of filter(s)?
What factors determine the selection of filters?
What needs to be checked when fitting the filter?

**Contaminants which affect product properties and quality**
What contaminants can be present and how are they eliminated?

**Sampling and testing procedures**
How is the quality of the product (viscosity, skin forming etc) maintained throughout the filter / pack process?
Describe the sampling / testing procedures.

**Operation of pumps**
What problems may occur in extruding the product, and how are they overcome?

**Weighing / measuring**
What weighing methods are used in the work area?

**Handling, labelling and storage**
What system is in place for labelling and storage of packed product?

**Information sources**
What manuals, safety documentation, etc are relevant to this task and where are they kept?
What information is included in these documents?
IM71d  Develop and apply industry and enterprise knowledge (technical / laboratory operations)

**Elements and Performance Criteria**

**IM71d–1 Identify categories of industry and enterprise products and services**

- **IM71d–1.1** The scope of the ink industry, its products, services and customer / supplier profile can be identified
- **IM71d–1.2** Enterprise products and services, their characteristics and their end use, specifically with regard to the printing industry, are identified
- **IM71d–1.3** Printing processes and procedures and their implication for ink manufacture are identified and described

**IM71d–2 Identify enterprise processes and procedures**

- **IM71d–2.1** Manufacturing processes and quality control procedures for ink / coating / varnish / resin / chemical production are understood and explained
- **IM71d–2.2** Occupational health and safety, environmental protection and other relevant regulations are identified
- **IM71d–2.3** Raw material, intermediate and final product testing and recording procedures within the enterprise are identified and described
- **IM71d–2.4** Product research and development capacity and opportunities are identified

**IM71d–3 Develop and apply knowledge**

- **IM71d–3.1** Appropriate testing procedures for each stage of product manufacture are evaluated, improved where required, and applied
- **IM71d–3.2** Assistance and/or training is provided to others within the enterprise who conduct and/or are responsible for in–process testing
- **IM71d–3.3** Workplace quality assurance procedures are monitored and reports referred to appropriate persons within the enterprise
- **IM71d–3.4** Where relevant, formulae for new product is developed and manufacturing processes checked for capacity and suitability

**Range of variables**

**Application**
- This unit applies to the development and application of ink manufacture industry and enterprise knowledge to the skill / knowledge base of chemists, laboratory technicians, quality testing and other research and development personnel

**Documentation**
- Range of records including formulae, job dockets, work sheets, job cards, manufacturing orders, specifications, labels, material safety data sheets etc

**Workplace procedures**
- Range of workplace procedures within defined work area as documented in standard operating procedures (SOPs)

**OH&S and environment**
- OH&S and environment includes relevant legislation, regulations and enterprise policies

**Materials**
- Range of raw materials, intermediate and end products
Testing procedures
In–process and laboratory procedures used in the testing of ink / chemical quality, including colour strength, opacity, cleanliness, traces, grind, viscosity, conductivity, pH, toxicity, homogenisation of emulsions, tack

Weighing / measuring devices
Measuring equipment including scales, flow meters and graduated vessels

**Evidence Guide**

**Required Evidence**
Demonstrate an ability to find and use information relevant to the task from a variety of information sources.
Demonstrate that all performance criteria are satisfied.

**Sample Questions for Underpinning Knowledge**

*Specific questions will depend on the context of the workplace.*

*Answers need to show knowledge required when working in a wide range of circumstances and being able to cope with the unexpected.*
Holistic Knowledge Components

Holistic knowledge components cover knowledge required to work in particular industry sectors. They do not count towards certification.

They are designed to ensure that workers gaining Certificate III have a broad knowledge of their industry and related industry sectors (which in most cases would be acquired through technical units) and to provide a knowledge base about the industry for people entering the industry without a technical background.

Holistic Knowledge Components:
- KN11 Demonstrate knowledge and requirements of graphic pre-press
- KN12 Demonstrate knowledge and requirements of printing machining
- KN13 Demonstrate knowledge and requirements of converting and finishing
- KN14 Demonstrate knowledge and requirements of screen printing
- KN15 Demonstrate knowledge and requirements of multimedia
- KN16 Demonstrate knowledge and requirements of paper and printing processes

Note: On the National Training Information System (NTIS) these standards have the standard identifier prefix ICP and version identifier suffix A.
KN11 Demonstrate knowledge and requirements of graphic pre–press

This standard defines knowledge that is required for a person working in or dealing with the graphic pre–press area of the printing industry. It facilitates technical communication and the ability to work as a team member. Workers with a Certificate III in Graphic Pre–press are likely to pick up most of this knowledge in production units.

**Elements and Performance Criteria**

**KN11–1** Demonstrate knowledge of printing industry terminology and vocabulary
- KN11–1.1 Printing industry terminology and vocabulary are used correctly and accurately

**KN11–2** Demonstrate knowledge of government acts and regulations
- KN11–2.1 Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&S); environmental protection; access and equity; industrial awards.

**KN11–3** Demonstrate knowledge of pre–press processes
- KN11–3.1 Describe basic principles behind the following pre–press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).
- KN11–3.2 Describe different types of images (line, half–tone etc) and their use
- KN11–3.3 Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final product
- KN11–3.4 Identify the different types of output required for different printing processes
- KN11–3.5 Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs

**KN11–4** Demonstrate knowledge of printing processes
- KN11–4.1 Describe basic principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing
- KN11–4.2 Identify the types of jobs and products for which each process is appropriate
- KN11–4.3 Describe the capabilities and limitations of each process

**KN11–5** Demonstrate knowledge of converting and finishing processes
- KN11–5.1 Describe basic characteristics of the following converting and finishing processes: guillotining; flat–bed and rotary cutting; collating; folding; adhesive, mechanical and thermal fastening
- KN11–5.2 Identify the types of jobs and products for which each process is appropriate

**KN11–6** Demonstrate knowledge of substrates and inks
- KN11–6.1 Describe the range of substrates used for each printing process
- KN11–6.2 Describe the relationship of different paper sizes
- KN11–6.3 Explain different weights and callipers of substrates and how they affect pre–press operations
- KN11–6.4 Explain paper grain and describe how it affects pre–press, printing and finishing operations
KN11–6.5 Describe different properties of ink: drying properties; fastness; gloss etc and how they affect pre-press operations

KN11–7 Demonstrate knowledge of pre-press requirements for printing and finishing processes
  KN11–7.1 Identify designs that are appropriate for different printing processes
  KN11–7.2 Describe dot gain and trapping requirements for different printing processes, inks and substrates
  KN11–7.3 Describe use and positioning of trimming and folding marks and how these are affected by different substrates
  KN11–7.4 Describe criteria for evaluating suitability of pre-press outputs for printing processes
  KN11–7.5 Describe criteria for producing folding impositions

KN11–8 Demonstrate basic knowledge of colour theory
  KN11–8.1 Explain colour theory of additive colours (light); RGB
  KN11–8.2 Explain colour theory of subtractive colours (pigments); CMYK
  KN11–8.3 Explain relationship between ranges of visual colour RGB and CMYK
  KN11–8.4 Explain relationship between hue, greyness and substrate for tone and colour correction
  KN11–8.5 Describe colour matching conditions and colour matching systems

KN11–9 Demonstrate basic knowledge of costs of production
  KN11–9.1 Identify the main cost elements in pre-press production
  KN11–9.2 Identify ways of minimising use of materials without affecting the quality of output

Range of Variables

Level of knowledge
  Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer

Degree of autonomy
  Working in consultation with others

Evidence Guide

Context
This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

Required evidence
Assessor must be satisfied that sufficient knowledge and understanding of pre-press and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer

Sample questions for underpinning knowledge
Specific questions will depend on the context of the workplace and the assessment. The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.
KN12 Demonstrate knowledge and requirements of printing machinery

This standard defines knowledge that is required for a person working in or dealing with the printing area of the printing industry. It facilitates technical communication and the ability to work as a team member. Workers with a Certificate III in Printing are likely to pick up most of this knowledge in production units.

Elements and Performance Criteria

KN12–1 Demonstrate knowledge of printing industry terminology and vocabulary

KN12–1.1 Printing industry terminology and vocabulary are used correctly and accurately

KN12–2 Demonstrate knowledge of government acts and regulations

KN12–2.1 Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&S); environmental protection; access and equity; industrial awards.

KN12–3 Demonstrate knowledge of pre-press processes

KN12–3.1 Describe basic principles behind the following pre-press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).

KN12–3.2 Describe different types of images (line, half-tone etc) and their use

KN12–3.3 Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final product

KN12–3.4 Identify the different types of output required for different printing processes

KN12–3.5 Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs

KN12–4 Demonstrate knowledge of printing processes

KN12–4.1 Describe basic principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing

KN12–4.2 Identify the types of jobs and products for which each process is appropriate

KN12–4.3 Describe the capabilities and limitations of each process

KN12–5 Demonstrate knowledge of converting and finishing processes

KN12–5.1 Describe basic characteristics of the following converting and finishing processes: guillotining; flat-bed and rotary cutting; collating; folding; adhesive, mechanical and thermal fastening

KN12–5.2 Identify the types of jobs and products for which each process is appropriate

KN12–6 Demonstrate knowledge of substrates and inks

KN12–6.1 Describe the range of substrates used for each printing process

KN12–6.2 Describe the relationship of different paper sizes

KN12–6.3 Explain different weights and callipers of substrates and how they affect printing operations

KN12–6.4 Explain paper grain and describe how it affects pre-press, printing and finishing operations
KN12–6.5 Describe different properties of ink: drying properties; fastness; gloss etc and how they affect printing and finishing operations

KN12–6.6 Identify inks and coatings that are appropriate and those that are not appropriate for particular finishing processes

**KN12–7 Demonstrate knowledge of printing requirements for pre–press and finishing processes**

KN12–7.1 Identify designs that are appropriate for different printing processes

KN12–7.2 Describe criteria for evaluating suitability of pre–press outputs for printing processes

KN12–7.3 Describe mechanisms and techniques for adjusting image registration and position

KN12–7.4 Describe procedure for determining colour sequence

KN12–7.5 Describe adjustments that can be made so that product matches approved proof

KN12–7.6 Describe criteria for determining impositions and image placements for converting, binding and finishing operations

**KN12–8 Demonstrate basic knowledge of colour theory**

KN12–8.1 Explain colour theory of additive colours (light); RGB

KN12–8.2 Explain colour theory of subtractive colours (pigments); CMYK

KN12–8.3 Explain relationship between ranges of visual colour RGB and CMYK

KN12–8.4 Explain relationship between hue, greyness and substrate for tone and colour correction

KN12–8.5 Describe colour matching conditions and colour matching systems

**KN12–9 Demonstrate basic knowledge of costs of production**

KN12–9.1 Identify the main cost elements in printing production

KN12–9.2 Identify ways of minimising use of materials without affecting the quality of output

**Range of Variables**

Level of knowledge
Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer

Degree of autonomy
Working in consultation with others

**Evidence Guide**

**Context**
This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

**Required evidence**
Assessor must be satisfied that sufficient knowledge and understanding of printing and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer

**Sample questions for underpinning knowledge**

*Specific questions will depend on the context of the workplace and the assessment.*
*The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.*
KN13  Demonstrate knowledge and requirements of converting and finishing

*This standard defines knowledge that is required for a person working in or dealing with the converting and finishing (including carton and corrugating) area of the printing industry. It facilitates technical communication and the ability to work as a team member. Workers with a Certificate III in Print Finishing or Carton are likely to pick up most of this knowledge in production units.*

**Elements and Performance Criteria**

**KN13–1 Demonstrate knowledge of printing industry terminology and vocabulary**

KN13–1.1  Printing industry terminology and vocabulary are used correctly and accurately

**KN13–2 Demonstrate knowledge of government acts and regulations**

KN13–2.1  Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&S); environmental protection; access and equity; industrial awards.

**KN13–3 Demonstrate knowledge of pre–press processes**

KN13–3.1  Describe basic principles behind the following pre–press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).

KN13–3.2  Describe different types of images (line, half–tone etc) and their use

KN13–3.3  Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final product

KN13–3.4  Identify the different types of output required for different printing processes

KN13–3.5  Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs

**KN13–4 Demonstrate knowledge of printing processes**

KN13–4.1  Describe basic principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing

KN13–4.2  Identify the types of jobs and products for which each process is appropriate

KN13–4.3  Describe the capabilities and limitations of each process

**KN13–5 Demonstrate knowledge of converting and finishing processes**

KN13–5.1  Describe basic characteristics of the following converting and finishing processes: guillotining; flat–bed and rotary cutting; collating; folding; adhesive, mechanical and thermal fastening

KN13–5.2  Identify the types of jobs and products for which each process is appropriate

**KN13–6 Demonstrate knowledge of substrates**

KN13–6.1  Describe the range of substrates used for each converting and finishing process

KN13–6.2  Describe the relationship of different paper sizes

KN13–6.3  Explain different weights and callipers of substrates and how they affect converting and finishing operations

KN13–6.4  Explain paper grain and describe how it affects pre–press, printing and finishing operations
KN13–7  Demonstrate knowledge of converting and finishing requirements for pre–press and printing processes

KN13–7.1  Describe use and positioning of trimming and folding marks and how these are affected by different substrates

KN13–7.2  Describe quality checking procedures and identify problems that should be reported to printer or pre–press and those that are the responsibility of converter or finisher

KN13–7.3  Describe use and positioning of trimming and folding marks and how these are affected by different substrates

KN13–7.4  Describe criteria for producing folding impositions

KN13–7.5  Describe procedure for determining appropriate packing techniques

KN13–8  Demonstrate basic knowledge of costs of production

KN13–8.1  Identify the main cost elements in converting and finishing production

KN13–8.2  Identify ways of minimising use of materials without affecting the quality of output

Range of Variables

Level of knowledge  Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer

Degree of autonomy  Working in consultation with others

Evidence Guide

Context

This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

Required evidence

Assessor must be satisfied that sufficient knowledge and understanding of converting and finishing (including carton) and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer

Sample questions for underpinning knowledge

Specific questions will depend on the context of the workplace and the assessment. The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.
KN14 Demonstrate knowledge and requirements of screen printing

This standard defines knowledge that is required for a person working in or dealing with the screen printing area of the printing industry. It facilitates technical communication and the ability to work as a team member. Workers with a Certificate III in Screen Printing are likely to pick up most of this knowledge in production units.

Elements and Performance Criteria

KN14–1 Demonstrate knowledge of printing industry terminology and vocabulary
   KN14–1.1 Printing industry terminology and vocabulary are used correctly and accurately

KN14–2 Demonstrate knowledge of government acts and regulations
   KN14–2.1 Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&S); environmental protection; access and equity; industrial awards.

KN14–3 Demonstrate knowledge of pre–press processes
   KN14–3.1 Describe basic principles behind the following pre–press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).
   KN14–3.2 Describe different types of images (line, half–tone etc) and their use
   KN14–3.3 Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final product
   KN14–3.4 Identify the different types of output required for different printing processes
   KN14–3.5 Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs

KN14–4 Demonstrate knowledge of printing processes
   KN14–4.1 Describe basic principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing
   KN14–4.2 Identify the types of jobs and products for which each process is appropriate
   KN14–4.3 Describe the capabilities and limitations of each process

KN14–5 Demonstrate knowledge of converting and finishing processes
   KN14–5.1 Describe basic characteristics of the following converting and finishing processes: guillotining; flat–bed and rotary cutting; collating; folding; adhesive, mechanical and thermal fastening
   KN14–5.2 Identify the types of jobs and products for which each process is appropriate

KN14–6 Demonstrate knowledge of substrates and inks
   KN14–6.1 Describe the range of substrates used for each printing process
   KN14–6.2 Describe the relationship of different paper sizes
   KN14–6.3 Explain different weights and callipers of substrates and how they affect screen printing operations
   KN14–6.4 Explain paper grain and describe how it affects pre–press, printing and finishing operations
KN14–6.5 Explain the differences in printing on different substrates eg paper, plastic, glass etc

KN14–6.6 Describe different properties of ink: drying properties; fastness; gloss etc and how they affect screen printing operations

KN14–6.7 Identify inks and coatings that are appropriate and those that are not appropriate for particular finishing processes

**KN14–7 Demonstrate knowledge of screen printing and stencil preparation techniques and requirements**

KN14–7.1 Identify designs that are appropriate for screen printing on particular substrates

KN14–7.2 Describe criteria for selecting mesh count and stencil type

KN14–7.3 Describe dot gain, trapping and minimising moire requirements for different meshes, stencils, inks and substrates

KN14–7.4 Describe use and positioning of trimming and folding marks and how these are affected by different substrates

KN14–7.5 Describe mechanisms and techniques for adjusting image registration and position

KN14–7.6 Describe procedure for determining colour sequence

KN14–7.7 Describe adjustments that can be made so that product matches approved proof

**KN14–8 Demonstrate basic knowledge of colour theory**

KN14–8.1 Explain colour theory of additive colours (light); RGB

KN14–8.2 Explain colour theory of subtractive colours (pigments); CMYK

KN14–8.3 Explain relationship between ranges of visual colour RGB and CMYK

KN14–8.4 Explain relationship between hue, greyness and substrate for tone and colour correction

KN14–8.5 Describe colour matching conditions and colour matching systems

**KN14–9 Demonstrate basic knowledge of costs of production**

KN14–9.1 Identify the main cost elements in screen printing production

KN14–9.2 Identify ways of minimising use of materials without affecting the quality of output

**Range of Variables**

**Level of knowledge**
Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer

**Degree of autonomy**
Working in consultation with others

**Evidence Guide**

**Context**
This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

**Required evidence**
Assessor must be satisfied that sufficient knowledge and understanding of screen printing and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer.
Sample questions for underpinning knowledge

Specific questions will depend on the context of the workplace and the assessment. The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.
## KN15 Demonstrate knowledge and requirements of multimedia

This standard defines knowledge that is required for a person working in or dealing with the multimedia area of the printing industry. It facilitates technical communication and the ability to work as a team member. Workers with a Certificate III in Multimedia are likely to pick up most of this knowledge in production units.

### Elements and Performance Criteria

<table>
<thead>
<tr>
<th>KN15–1</th>
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<td>KN15–1.3</td>
<td>Describe the issues involved in producing related multimedia and print products</td>
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<th>KN15–2</th>
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</thead>
<tbody>
<tr>
<td>KN15–2.1</td>
<td>Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&amp;S); environmental protection; access and equity; industrial awards.</td>
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<td>Describe basic principles behind the following pre-press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).</td>
</tr>
<tr>
<td>KN15–3.2</td>
<td>Describe different types of images (line, half-tone etc) and their use</td>
</tr>
<tr>
<td>KN15–3.3</td>
<td>Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final printed product</td>
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<td>KN15–3.4</td>
<td>Identify the different types of output required for different media and printing processes</td>
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<td>KN15–3.5</td>
<td>Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs</td>
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<td>KN15–4.8</td>
<td>Identify multimedia platforms and computer systems requirements for different multimedia products</td>
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</table>
KN15–4.9 Identify appropriate software for producing multimedia products
KN15–4.10 Describe the features of an effective navigation system

**KN15–8 Demonstrate basic knowledge of colour theory**

- KN15–8.1 Explain colour theory of additive colours (light); RGB
- KN15–8.2 Explain colour theory of subtractive colours (pigments); CMYK
- KN15–8.3 Explain relationship between ranges of visual colour RGB and CMYK
- KN15–8.4 Explain relationship between hue and greyness for tone and colour correction

**KN15–9 Demonstrate basic knowledge of costs of production**

- KN15–9.1 Identify the main cost elements in multimedia production
- KN15–9.2 Identify ways of minimising use of materials without affecting the quality of output

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**Range of Variables**

**Level of knowledge**
Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer.

**Degree of autonomy**
Working in consultation with others.

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**Evidence Guide**

**Context**
This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

**Required evidence**
Assessor must be satisfied that sufficient knowledge and understanding of multimedia and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer.

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**Sample questions for underpinning knowledge**

Specific questions will depend on the context of the workplace and the assessment.
The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.
KN16 Demonstrate knowledge and requirements of paper and printing processes

This standard defines knowledge that is required for a person working in or dealing with the paper merchanting area of the printing industry. It facilitates technical communication and the ability to work as a team member.

**Elements and Performance Criteria**

**KN16–1 Demonstrate knowledge of printing industry terminology and vocabulary**

**KN16–1.1** Printing industry terminology and vocabulary are used correctly and accurately

**KN16–2 Demonstrate knowledge of government acts and regulations**

**KN16–2.1** Describe basic principles and obligations involved in the following areas: copyright; occupational health and safety (OH&S); environmental protection; access and equity; industrial awards.

**KN16–3 Demonstrate knowledge of pre–press processes**

**KN16–3.1** Describe basic principles behind the following pre–press functions: image production (typesetting, scanning, graphic arts camera); image combining (manual and electronic); image output (film, plates, direct to press).

**KN16–3.2** Describe different types of images (line, half–tone etc) and their use

**KN16–3.3** Identify different output settings: eg screen rulings and angles, shapes etc. and describe how they affect final product

**KN16–3.4** Identify the different types of output required for different printing processes

**KN16–3.5** Describe different output devices eg film setters, plate setters, analogue proofs, digital proofs

**KN16–4 Demonstrate knowledge of printing processes**

**KN16–4.1** Describe basic principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing

**KN16–4.2** Identify the types of jobs and products for which each process is appropriate

**KN16–4.3** Describe the capabilities and limitations of each process

**KN16–5 Demonstrate knowledge of converting and finishing processes**

**KN16–5.1** Describe basic characteristics of the following converting and finishing processes: guillotining; flat–bed and rotary cutting; collating; folding; adhesive, mechanical and thermal fastening

**KN16–5.2** Identify the types of jobs and products for which each process is appropriate

**KN16–6 Demonstrate knowledge of paper and printing processes**

**KN16–6.1** Describe the relationship of different paper sizes

**KN16–6.2** Explain different weights, callipers, bulk, density and opacity of paper and how they affect pre–press, printing and finishing operations and end uses

**KN16–6.3** Explain paper grain and describe how it affects pre–press, printing and finishing operations

**KN16–6.4** Explain moisture content, porosity and ink absorbency and describe how they affect pre–press, printing and finishing operations
KN16–6.5 Explain gloss, smoothness and surface strength and describe how they affect pre-press, printing and finishing operations

KN16–6.6 Explain permanence, durability and acidity and alkalinity of paper and describe how they affect pre-press, printing and finishing operations and end uses

KN16–6.7 Explain bursting strength, folding endurance, tensile strength and tearing resistance and describe how they affect printing and finishing operations and end uses

KN16–7 Demonstrate knowledge of paper grades and colours

KN16–7.1 Identify paper types and grades correctly and describe end uses for each type and grade

KN16–7.2 Describe the differences between wood pulp, rag and recycled papers and identify appropriate end uses

KN16–7.3 Identify colour matching processes

KN16–7.4 Describe the effect of different paper colours on printing operations

KN16–8 Demonstrate knowledge of paper handling and storage procedures

KN16–8.1 Describe ideal storage conditions for different types and grades of paper

KN16–8.1 Describe the advantages and disadvantages of different packing and delivery systems

KN16–9 Demonstrate basic knowledge of costs of production

KN16–9.1 Identify the main cost elements in production

KN16–9.2 Identify ways of minimising use of materials without affecting the quality of output

Range of Variables

Level of knowledge Knowledge required to intelligently discuss job requirements and modifications with a tradesperson, production manager or customer

Degree of autonomy Working in consultation with others

Evidence Guide

Context
This competency can be assessed either on or off the job. A variety of assessment tools may be used including verbal or written questions, multiple choice questions, discussion, written projects etc.

Required evidence
Assessor must be satisfied that sufficient knowledge and understanding of paper and related production processes (as outlined in each element) has been demonstrated so that job requirements and modifications could be intelligently discussed with a tradesperson, production manager or customer

Sample questions for underpinning knowledge

Specific questions will depend on the context of the workplace and the assessment.
The candidate should demonstrate, for each element, the essential knowledge required when working in a wide range of circumstances.
National Generic Standards

National generic standards have been developed by other competency standards bodies. BSX014801–BSX014811 come from the Frontline Management Competency Standards BSX000801–BSX000803 come from the Workplace Trainer Competency Standards BSX002201–BSX002203 come from the Assessment Competency Standards

All national generic standards exist at several levels. BSX014801–BSX014811 are written at AQF levels III, IV and V which equate to levels "c", "d" and "e" BSX000801–BSX002202 can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. BSX002203 can be assessed at levels "d" or "e". Level "d" is for people developing assessment tools for competencies up to level "d"; level "e" is for people developing assessment tools for competencies at that level.

National Generic Standards
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment
BSX000801 Prepare for on-the-job training
BSX000802 Deliver on-the-job training
BSX000803 Review on-the-job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools
BSX014801 Manage personal work priorities and professional development

Frontline management is responsible for managing their own performance and taking responsibility for their professional development within the context of the organisation. This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

1.1 Manage self
   a. Personal qualities and performance serve as a role model in the workplace
   b. Personal goals and plans reflect the organisation's plans, and personal roles, responsibilities and accountabilities
   c. Action is taken to achieve and extend personal goals beyond those planned
   d. Consistent personal performance is maintained in varying work conditions and work contexts

1.2 Set and meet own work priorities
   a. Competing demands are prioritised to achieve personal, team and the organisation's goals and objectives
   b. Technology is used efficiently and effectively to manage work priorities and commitments

1.3 Develop and maintain professional competence
   a. Personal knowledge and skills is assessed against competency standards to determine development needs and priorities
   b. Feedback from clients and colleagues is used to identify and develop ways to improve competence
   c. Management development opportunities suitable to personal learning style(s) are selected and used to develop competence
   d. Participation in professional networks and associations enhances personal knowledge, skills and relationships
   e. New skills are identified and developed to achieve and maintain a competitive edge

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:
- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co–ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to
- achieve outcomes within time constraints
Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- business and performance plans
- ethical standards
- quality and continuous improvement processes and standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- action learning
- coaching
- shadowing
- exchange / rotation
- structured training programs

**Evidence Guide (ASF 3)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- uses available routine information appropriate to work responsibility
- manages work to achieve goals and results
- monitors / introduces ways to improve own performance
- assesses own performance
- seeks feedback and acts on constructive advice
- selects and uses available learning methods to maintain current competence
- uses simple information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge in depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource limits
They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- operates in diverse work environments and contexts
- acquires and uses information appropriate to work responsibility
- manages competing priorities to achieve personal and organisational goals and results
- makes decisions within responsibility and authority
- develops a clear set of work goals
- monitors / introduces practices to improve own performance
- develops competencies which enable increased participation in the planning and development of the organisation
- assesses own performance
- plans learning activities and negotiates priorities
- seeks feedback and acts on constructive advice
- selects and uses available learning methods to maintain current competence
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under broad guidance
- may supervise others
- may guide teams
- may have responsibility for planning and managing the work of others
- will be involved in self-directed application of knowledge
- have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
- operate in varied or highly specific contexts
- use competencies independently for routine and non-routine purposes
- use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

* manages effectively in diverse and complex work environments
* researches, acquires and uses information appropriate to work responsibility
* manages competing priorities to achieve personal and organisational goals and results
* makes decisions within responsibility and authority
* develops a clear set of work goals
* integrates culturally diverse viewpoints into own values system
* monitors / introduces practices to improve own performance
* develops competencies which enable increased participation in the planning and development of the organisation
* assesses own performance
* plans learning activities and negotiates priorities
* seeks feedback and acts on constructive advice
* develops constructive responses when confronted with problems
* selects and uses available learning methods to maintain current competence
* uses information management systems
* selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

* Assessor Guide
* Candidate's Guide to Assessment
BSX014802  Provide leadership in the workplace

Frontline management has an important leadership role in the development of the organisation. This will be most evident in the manner in which they conduct themselves, the initiative which they take in influencing others, and the way they manage their responsibilities.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

2.1 Model high standards of management performance
   a. Performance meets the organisation's requirements
   b. Performance serves as positive role model for others
   c. Performance plans are developed and implemented in accordance with the organisation's goals and objectives
   d. Key performance indicators are developed within the team's / organisation's business plans

2.2 Enhance the organisation's image
   a. The organisation's standards and values are used in conducting business
   b. Standards and values considered to be damaging to organisation are questioned through established communication channels
   c. Personal performance contributes to developing an organisation which has integrity and credibility

2.3 Influence individuals and teams positively
   a. Expectations, roles and responsibilities are communicated in a way which encourages individuals / teams to take responsibility for their work
   b. Individual's / team's efforts and contributions are encouraged, valued and rewarded
   c. Ideas and information receive the acceptance and support of colleagues

2.4 Make informed decisions
   a. Information relevant to the issue(s) under consideration is gathered and organised
   b. Individuals / teams participate actively in the decision making processes
   c. Options are examined and their associated risks assessed to determine preferred course(s) of action
   d. Decisions are timely and communicated clearly to individuals / teams
   e. Plans to implement decisions are prepared and agreed by relevant individuals / teams
   f. Feedback processes are used effectively to monitor the implementation and impact of decisions

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:
- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
may have team co-ordination responsibilities
apply a broad range of skills to a range of tasks / roles
operate in a variety of workplace contexts
are involved in some complexity in the choice of actions
use competencies within routines, methods and procedures
use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
goals, objectives, plans, systems and processes
business and performance plans
ethical standards
quality and continuous improvement processes and standards
defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
- mentoring
- action learning
- coaching
- shadowing
- exchange / rotation
- structured training programs

**Evidence Guide (ASF 3)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- manages work to achieve goals and results
- uses available routine information appropriate to work responsibility
- makes decisions within responsibility and authority
- explains the organisation's goals, values and objectives
- monitors / introduces ways to improve performance
- uses effective consultative processes
- communicates routine and non-routine information clearly to senior managers, peers and subordinates
- promotes available learning methods to assist colleagues
- uses simple information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
• use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation’s:
• goals, objectives, plans, systems and processes
• access and equity principles and practices
• quality and continuous improvement processes and standards
• business and performance plans
• ethical standards
• defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
• mentoring
• action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
• achieves planned results
• acquires and uses information appropriate to work responsibility
• makes decisions within responsibility and authority
• explains the organisation’s goals, values and objectives
• establishes and monitors Key Performance Indicators for individuals / teams
• manages work effectively to achieve goals and results
• monitors / introduces practices to improve performance
• operates effectively in diverse work environments and contexts
• uses modern management techniques in work performance
• uses effective consultative processes
• communicates routine and non–routine information clearly to senior managers, peers and subordinates
• promotes available learning methods to support colleagues’ competence
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under broad guidance
• may supervise others
• may guide teams
• may have responsibility for planning and managing the work of others
• will be involved in self–directed application of knowledge
• have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
• operate in varied or highly specific contexts
• use competencies independently for routine and non–routine purposes
use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- action learning
- coaching
- shadowing
- exchange / rotation
- structured training programs

### Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

- manages effectively in diverse work environments and contexts
- achieves planned results
- researches, acquires and uses information appropriate to work responsibility
- makes decisions within responsibility and authority
- explains the organisation's goals, values and objectives
- negotiates, establishes and monitors Key Performance Indicators for individuals / teams
- manages work effectively to achieve goals and results
- monitors / introduces practices to improve performance
- uses modern management techniques in work performance
- contributes to the organisation's standards and values
- uses effective consultative processes
- communicates routine and non–routine information clearly to senior managers, peers and subordinates
- promotes available learning methods to support colleagues' competence
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment
BSX014803 Establish and manage effective workplace relationships

Frontline management plays an important role in developing and maintaining positive relationships in internal and external environments so that customers, suppliers and the organisation achieve planned outputs / outcomes.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

3.1 Gather, convey and receive information and ideas
   a. Information to achieve work responsibilities is collected from appropriate sources
   b. The method(s) used to communicate ideas and information is appropriate to the audience
   c. Communication takes into account social and cultural diversity
   d. Input from internal and external sources is sought, and valued in developing and refining new ideas and approaches

3.2 Develop trust and confidence
   a. People are treated with integrity, respect and empathy
   b. The organisation’s social, ethical and business standards are used to develop and maintain positive relationships
   c. Trust and confidence of colleagues, customers and suppliers is gained and maintained through competent performance
   d. Interpersonal styles and methods are adjusted to the social and cultural environment

3.3 Build and maintain networks and relationships
   a. Networking is used to identify and build relationships
   b. Networks and other work relationships provide identifiable benefits for the team and organisation
   c. Cross-cultural cooperation results in positive outcomes for individuals, teams and the organisation
   d. Coaching and mentoring is used to assist colleagues develop effective relationships in a diverse workplace

3.4 Manage difficulties to achieve positive outcomes
   a. Problems are identified and analysed, and action is taken to rectify the situation with minimal disruption to performance
   b. Colleagues receive guidance and support to resolve their work difficulties
   c. Continued poor performance is managed within the organisation’s processes
   d. Conflict is managed constructively within the organisation’s processes
   e. Difficult situations are negotiated to achieve results acceptable to the participants, and which meet organisation and legislative requirements
Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation’s:

- goals, objectives, plans, systems and processes
- ethical standards
- access and equity principles and practices
- customer and supplier policies and practices
- quality and continuous improvement processes and standards

They use legislation, codes and national standards relevant to their workplace.

A range of learning methods may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Customers and suppliers would typically be from internal sources, although there may be some limited external contact.

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- uses routine information appropriate to work responsibility
- manages relationships to achieve goals and results
- monitors and introduces ways to improve work relationships
- performs in a way which strengthens and reinforces relationships
- communicates clearly and concisely
- uses effective consultative processes
- encourages alternative views to be submitted and discussed
- treats people openly and fairly
- develops constructive responses when confronted with problems and difficulties
- uses simple information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment
Range Indicators (ASF 4)

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business and performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Customers and suppliers may be:

- internal or external
- drawn from existing or new sources

Evidence Guide (ASF 4)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:

- uses information appropriate to work responsibility
- manages relationships effectively to achieve goals / results
- monitors and introduces ways to improve work relationships
- performs in a way which strengthens and reinforces relationships
- develops effective relationships in internal and external environments
- communicates clearly and concisely
- responds effectively to unexpected demands from a range of sources
- provides honest and constructive feedback
- uses effective consultative processes
- encourages contrary views to be submitted and discussed
- treats people openly and fairly
- develops constructive responses when confronted with problems and difficulties
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment
Range Indicators (ASF 5)

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under broad guidance
- may supervise others
- may guide teams
- may have responsibility for planning and managing the work of others
- will be involved in self-directed application of knowledge
- have substantial depth of knowledge in some areas and a range of skills for work tasks, roles and functions
- operate in varied or highly specific contexts
- use competencies independently for routine and non-routine purposes
- use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline Management at this level will normally operate in diverse and complex workplace environments in which they use the organisation’s:

- goals, objectives, plans, systems and processes
- business and performance plans
- ethical standards
- quality and continuous improvement processes and standards
- resources, which may be subject to negotiation

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- coaching
- exchange / rotation
- action learning
- shadowing
- structured training programs

Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit’s workplace outcomes within the context of ASF level 5, frontline management:

- manages relationships effectively to achieve goals / results
- researches, acquires and uses information appropriate to work responsibility
- monitors and introduces ways to improve work relationships in a diverse and complex workplace
- performs in a way which strengthens and reinforces relationships
- develops effective relationships in diverse internal and external environments
- mixes confidently in a broad range of people
- communicates clearly and concisely
- responds effectively to unexpected demands from a range of sources
- provides honest and constructive feedback
- uses effective consultative processes
- encourages contrary views to be submitted and discussed
- treats people openly and fairly
- contributes to the removal of discrimination / bias in the workplace
- develops constructive responses when confronted with problems and difficulties
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

- Assessor Guide
- Candidate’s Guide to Assessment
BSX014804  Participate in, lead and facilitate work teams

Frontline management has a key role in leading, participating in, facilitating and empowering work teams / groups within the context of the organisation. They play a prominent part in motivating, mentoring, coaching and developing team members, and in achieving team cohesion.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

4.1  Participate in team planning

a. The team establishes clearly defined purpose, roles, responsibilities and accountabilities within the organisation's goals and objectives
b. The team performance plan contributes to the organisation's business plan, policies and practices
c. The team agrees to processes to monitor and adjust its performance within the organisation's continuous improvement policies
d. The team includes in its plans ways in which it can benefit from the diversity of its membership

4.2  Develop team commitment and co-operation

a. The team uses open communication processes to obtain and share information
b. The team encourages and exploits innovation and initiative
c. Support is provided to the team to develop mutual concern and camaraderie

4.3  Manage and develop team performance

a. The team is supported in making decisions within its agreed roles and responsibilities
b. The results achieved by the team contribute positively to the organisation's business plans
c. Team and individual competencies are monitored regularly to confirm that the team is able to achieve its goals
d. Mentoring and coaching supports team members to enhance their knowledge and skills
e. Delegates' performance is monitored to confirm that they have completed their delegation / assignment

4.4  Participate in, and facilitate the work team

a. Team effectiveness is encouraged and enhanced through active participation in team activities and communication processes
b. Individuals and teams are actively encouraged to take individual and joint responsibility for their actions
c. The diversity of individual's knowledge and skills is used to enhance team performance
d. The team receives support to identify and resolve problems which impede its performance
Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:
- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- performance / business plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Teams may be one or a mixture of:
- on-going
- work-based
- project-based
- cross-functional

Teams may include:
- full time employees
- contractors
- part time employees

Frontline management roles in teams may include:
- leader
- facilitator
- participant
- coach
- mentor

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:
- manages work to achieve goals and results
- uses routine information appropriate to work responsibility
- establishes among teams a commitment to the organisation's goals, values and plans
- monitors / proposes ways to improve team performance
- makes decisions within responsibility and authority
uses effective consultative processes
- encourages team members to openly propose, discuss and resolve issues
- deals with conflict before it adversely affects team performance
- treats people openly and fairly
- supports team to share knowledge and skills
- promotes available learning methods to support team
- uses simple information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:
- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:
- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business and performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Teams may be one or a mixture of:
- on–going
- work–based
- project–based
- cross–functional

Teams may include:
- full time employees
- contractors
- part time employees

Frontline management roles in teams may include:
- leader
- facilitator
- participant
Evidence Guide (ASF 4)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:

- acquires and uses information appropriate to work responsibility
- establishes among teams a commitment to the organisation's goals, values and plans
- manages work effectively to achieve goals and results
- makes decisions within responsibility and authority
- provides clear direction in devolving responsibility and accountability
- provides constructive feedback to delegates
- monitors / proposes ways to improve team performance
- works effectively with team members who have diverse work styles, aspirations, cultures and perspectives
- uses effective consultative processes
- encourages teams to openly propose, discuss and resolve issues
- deals with conflict before it adversely affects team performance
- treats people openly and fairly
- supports team to share knowledge and skills
- promotes available learning methods to support team
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

Range Indicators (ASF 5)

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under broad guidance
- may supervise others
- may guide teams
- may have responsibility for planning and managing the work of others
- will be involved in self-directed application of knowledge
- have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
- operate in varied or highly specific contexts
- use competencies independently for routine and non-routine purposes
- use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

Teams may be one or a mixture of:
• on-going
• work–based
• project–based
• cross–functional

Teams may include:
• full time employees
• contractors
• part time employees

Frontline management roles in teams may include:
• leader
• facilitator
• participant
• coach
• mentor

Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

• manages work effectively to achieve goals and results
• researches, acquires and uses information appropriate to work responsibility
• establishes among teams a commitment to the organisation's goals, values and plans
• makes decisions within responsibility and authority in a diverse and complex workplace
• provides clear direction in devolving responsibility and accountability
• provides constructive feedback to delegates
• monitors / proposes ways to improve team performance
• works effectively with team members who have diverse work styles, aspirations, cultures and perspectives
• promotes networking between teams for mutual benefit
• uses effective consultative processes
• encourages teams to openly propose, discuss and resolve issues
• deals with conflict before it adversely affects team performance
• recognises rewards and supports team achievement
• supports team to share knowledge and skills
• promotes available learning methods to support team
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

• Assessor Guide
• Candidate's Guide to Assessment
BSX014805  Manage operations to achieve planned outcomes

Frontline management is actively engaged in planning, implementing, monitoring and recording performance to achieve the business plans of the team / organisation. This pivotal role is carried out to create safe, efficient and effective products and services to customer satisfaction within the organisation's productivity and profitability plans. This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

5.1 Plan resource use to achieve profit / productivity targets
a. Resource information for use in operational plans is collected, analysed and organised in consultation with colleagues and specialist resource managers
b. Operational plans contribute to the achievement of the organisation’s performance / business plan
c. Operational plans identify available resources, taking into account customer needs and the organisation's plans
d. Plans to maximise value gained from the diversity of the organisation's resources
e. Contingency plans are prepared in the event that initial plans need to be varied

5.2 Acquire resources to achieve operational plan
a. Employees are recruited and inducted within the organisation's human resource management policies and practices
b. Physical resources and services are acquired in accord with the organisation's practices and procedures

5.3 Monitor operational performance
a. Performance systems and processes are monitored to assess progress in achieving profit / productivity plans and targets
b. Budget and actual financial information is analysed and interpreted to monitor profit / productivity performance
c. Unsatisfactory performance is identified and prompt action is taken to rectify the situation
d. Recommendations for variation to operational plans are negotiated and approved by the designated persons / groups

5.4 Monitor resource usage
a. Systems and processes are monitored to establish whether resources are being used as planned
b. Problems with resource usage are investigated and rectified and / or reported to designated persons / groups
c. Mentoring and coaching is provided to support individuals / teams who have difficulties in using resources to the required standard
d. Systems, procedures and records associated with documenting resource acquisition and usage are managed in accordance with the organisation's requirements
Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisations:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource limits

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:

- people
- power / energy
- information
- finance
- buildings / facilities
- time
- equipment
- technology

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- manages work to achieve goals and results
- uses routine information appropriate to work responsibility
- makes decisions within responsibility and authority
- organises and uses resources to achieve business plans
- manages resources within the accountability requirements
- eliminates / minimises resource inefficiencies and waste
- ensures that legislative requirements are met in work operations
- monitors / introduces ways to improve operations
- uses effective consultative processes
- seeks feedback and acts on constructive advice
- promotes available learning methods to assist colleagues
- uses simple information management systems
selects and uses available technology appropriate to the task
records / reports information within established systems

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:

- people
- power / energy
- information
- finance
- buildings / facilities
- time
- equipment
- technology

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:

- manages work effectively to achieve goals and results
- acquires and uses information appropriate to responsibility
- makes decisions within responsibility and authority
• participates effectively in wider organisational processes which have an effect on operational performance
• organises and uses resources to achieve business plans
• provides input to the organisation's planning processes
• eliminates / minimises resource inefficiencies and waste
• creates products / services which are safe for customer use
• develops alternative approaches to improve resource use
• ensures that legislative requirements are met in work operations
• prepares and negotiates recommendations to change operations
• uses effective consultative processes
• seeks feedback and acts on constructive advice
• promotes available learning methods to assist colleagues
• uses information management systems
• selects and uses available technology appropriate to the task
• records / reports information within established systems

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment

### Range Indicators (ASF 5)

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under broad guidance
• may supervise others
• may guide teams
• may have responsibility for planning and managing the work of others
• will be involved in self-directed application of knowledge
• have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
• operate in varied or highly specific contexts
• use competencies independently for routine and non-routine purposes
• use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business and performance plans
• resources, which may be subject to negotiation
• ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
• mentoring
• action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

Resources may include:
• people
• power / energy
• information
• finance
• buildings / facilities
• time
• equipment
Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

- manages work effectively to achieve goals and results
- researches, acquires and uses information appropriate to responsibility
- participates effectively in wider organisational processes which have an effect on operational performance
- organises and uses resources to achieve business plans
- provides input to the organisation's planning processes
- eliminates / minimises resource inefficiencies and waste
- creates products / services which are safe for customer use
- develops alternative and innovative approaches to improve resource use
- ensures that legislative requirements are met in work operations
- prepares and negotiates recommendations to change operations
- uses effective consultative processes
- seeks feedback and acts on constructive advice
- promotes available learning methods to assist colleagues
- uses information management systems
- selects and uses available technology appropriate to the task
- records / reports information within established systems

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

- Assessor Guide
- Candidate's Guide to Assessment
BSX014806 Manage workplace information

Frontline management is an important creator and manager of information. Their competency in identifying, acquiring, analysing and using appropriate information plays a significant part in the efficiency and effectiveness of the individual’s / team’s / organisation’s performance. This unit is written at AQF levels III, IV and V which equate to levels “c”, “d” and “e”

Elements and Performance Criteria

6.1 Identify and source information needs
   a. The information needs of individuals / teams is determined and the sources are identified
   b. Information held by the organisation is reviewed to determine suitability and accessibility
   c. Plans are prepared to obtain information which is not available / accessible within the organisation

6.2 Collect, analyse and report information
   a. Collection of information is timely and relevant to the needs of individuals / teams
   b. Information is in a format suitable for analysis, interpretation and dissemination
   c. Information is analysed to identify and report relevant trends and developments in terms of the needs for which it was acquired

6.3 Use management information systems
   a. Management information systems are used effectively to store and retrieve data for decision making
   b. Technology available in the work area / organisation is used to manage information efficiently and effectively
   c. Recommendations for improving the information system are submitted to designated persons / groups

6.4 Prepare business plans / budgets
   a. Individuals / teams are involved in business plan / budget preparation in a way which uses their contribution effectively and gains their support for the outcomes
   b. Business plans / budgets are prepared and presented in accordance with the organisation’s guidelines and requirements
   c. Contingency plans are prepared in the event that alternative action is required

6.5 Prepare resource proposals
   a. Resource planning data is collected in consultation with colleagues, including those who have a specialist role in resource management
   b. Estimates of resource needs and utilisation reflects the organisation’s business plans, and customer and supplier requirements
   c. Proposals to secure resources are supported by clearly presented submissions describing realistic options, benefits, costs and outcomes

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:
• have some autonomy for operation
• work under limited guidance
• may have broad guidance and autonomy if working in teams
• have responsibility for others
• may have team co–ordination responsibilities
• apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business performance plans
• defined resource limits
• ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:
• manages work to achieve goals and results
• manages operations within budget constraints
• makes decisions within responsibility and authority
• uses routine information appropriate to work responsibility
• monitors / improves ways to manage routine information
• explains basic financial concepts in business plans / budgets
• prepares simple financial information within standard format
• ensures that legislative requirements are included in plans
• promotes available learning methods to assist colleagues
• uses effective consultative processes
• communicates with colleagues who have specialist resource responsibilities in resource and financial management
• uses simple information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:
• Assessor Guide
• Candidate’s Guide to Assessment

Range Indicators (ASF 4)

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under general guidance on progress and outcomes
• may supervise others
• may guide or facilitate teams
• have responsibility for, and limited organisation of work of others
• apply knowledge with depth in some areas
• apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:
• goals, objectives, plans, systems and processes
• access and equity principles and practices
• quality and continuous improvement processes and standards
• business performance plans
• ethical standards
• defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Resources may include:
• people
• power / energy
• information
• finance
• buildings / facilities
• time
• equipment
• technology

Evidence Guide (ASF 4)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
• manages work effectively to achieve goals and results
• acquires and uses information appropriate to work responsibility
• makes decisions within responsibility and authority
• monitors / improves ways to manage information
• explains basic financial concepts in business plans / budgets
• prepares basic financial information within standard format
• prepares resource proposals within budget constraints
• prepares and negotiates recommendations to improve the organisation's information systems
• ensures that legislative requirements are met in plans
• promotes available learning methods to support colleagues
• uses effective consultative processes
• communicates with colleagues who have specialist responsibilities in financial and resource management
• uses information management systems
• selects and uses available technology appropriate to the task
Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under broad guidance
- may supervise others
- may guide teams
- may have responsibility for planning and managing the work of others
- will be involved in self-directed application of knowledge
- have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
- operate in varied or highly specific contexts
- use competencies independently for routine and non-routine purposes
- use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- action learning
- coaching
- shadowing
- exchange / rotation
- structured training programs

Resources may include:

- people
- power / energy
- information
- finance
- buildings / facilities
- time
- equipment
- technology

**Evidence Guide (ASF 5)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

- manages work effectively to achieve goals and results
- researches, acquires and uses information appropriate to work responsibility
- makes decisions within responsibility and authority in a diverse and complex workplace
- monitors / improves ways to manage information
- explains basic financial concepts in business plans / budgets
- prepares financial information within standard format
• prepares resource proposals within budget constraints
• explains methods to gain efficiencies in resource management
• prepares and negotiates recommendations to improve the organisation's information systems
• ensures that legislative requirements are met in resource plans
• promotes available learning methods to support colleagues
• uses effective consultative processes
• communicates with colleagues who have specialist responsibilities in financial and resource management
• prepares and negotiates recommendations to improve information systems
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

• Assessor Guide
• Candidate's Guide to Assessment
BSX014807  Manage quality customer service

Frontline management is involved in ensuring that products and services are delivered and maintained to standards agreed by the organisation and the customer. This will be carried out in the context of the organisation’s policies and practices as well as legislation, conventions and codes of practice.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

7.1 Plan to meet internal and external customer requirements
   a. The needs of customers are researched, understood, and assessed, and included in the planning process
   b. Provision is made in plans to achieve the quality, time and cost specifications agreed with customers

7.2 Ensure delivery of quality products / services
   a. Products / services are delivered to customer specifications within the team’s / organisation’s business plan
   b. Individual / team performance consistently meets quality, safety, resource and delivery standards
   c. Coaching and mentoring assists colleagues overcome difficulty in meeting customer service standards

7.3 Monitor, adjust and report customer service
   a. The organisation’s systems and technology are used to monitor progress in achieving product / service targets and standards
   b. Customer feedback is sought and used to improve the provision of products / services
   c. Resources are used effectively and efficiently to provide quality products / services to customers
   d. Decisions to overcome problems with products / services are taken in consultation with designated individuals / groups
   e. Adjustments are made to products / services, and those who have a role in their planning and delivery are informed of changes
   f. Records, reports and recommendations are managed within the organisation’s systems and processes

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:
   ♦ have some autonomy for operation
   ♦ work under limited guidance
   ♦ may have broad guidance and autonomy if working in teams
   ♦ have responsibility for others
   ♦ may have team co–ordination responsibilities
   ♦ apply a broad range of skills to a range of tasks / roles
   ♦ operate in a variety of workplace contexts
   ♦ are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business performance plans
• defined resource limits
• ethical standards
• products / services standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Resources may include:
• people
• equipment
• buildings / facilities
• finance
• power / energy
• technology
• information
• time

Customers may be:
• internal or external
• drawn from existing or new sources

**Evidence Guide (ASF 3)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:
• manages work to achieve goals and results
• manages products / services within budget constraints
• makes decisions within responsibility and authority
• uses routine information appropriate to work responsibility
• monitors / introduces ways to improve products / services
• uses effective consultative processes
• ensures that legislation and standards are met
• develops and maintains effective communication with customers
• seeks customer feedback and acts on constructive advice
• treats people openly and fairly
• promotes available learning methods to assist colleagues
• uses simple information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment
Range Indicators (ASF 4)

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:

- people
- equipment
- buildings / facilities
- finance
- power / energy
- technology
- information
- time

Customers may be:

- internal or external
- drawn from existing or new sources

Evidence Guide (ASF 4)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:

- manages work effectively to achieve goals and results
- manages products / services within budget constraints
- makes decisions within responsibility and authority
- acquires and uses information appropriate to work responsibility
- monitors / introduces ways to improve products / services
- uses effective consultative processes
- ensures that legislation and standards are met
- develops and maintains effective communication with customers
• seeks customer feedback and acts on constructive advice
• treats people openly and fairly
• promotes available learning methods to enable colleagues to maintain current competence
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

• Assessor Guide
• Candidate's Guide to Assessment

Range Indicators (ASF 5)

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:

• are autonomous, working under broad guidance
• may supervise others
• may guide teams
• may have responsibility for planning and managing the work of others
• will be involved in self-directed application of knowledge
• have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
• operate in varied or highly specific contexts
• use competencies independently for routine and non-routine purposes
• use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation’s:

• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business and performance plans
• resources, which may be subject to negotiation
• ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

• mentoring
• action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

Resources may include:

• people
• power / energy
• information
• finance
• buildings / facilities
• time
• equipment
• technology

Customers may be:

• internal or external
• drawn from existing or new sources
Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

• manages work effectively to achieve goals and results
• manages products / services within budget constraints
• makes decisions within responsibility and authority in a diverse and complex workplace
• researches, acquires and uses information appropriate to work responsibility
• monitors / introduces ways to improve products / services
• uses effective consultative processes
• ensures that legislation and standards are met in providing customer service
• develops and maintains effective communication with customers
• seeks customer feedback and acts on constructive advice
• treats people openly and fairly
• promotes available learning methods to enable colleagues to maintain current competence
• prepares and negotiates recommendations to improve customer service
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

• Assessor Guide
• Candidate’s Guide to Assessment
Develop and maintain a safe workplace and environment

Frontline management has a key role in ensuring that the workplace meets safety requirements set down in legislation, standards and the organisation's policies and practices. While it is recognised that safety is everyone's responsibility, frontline management has an important leadership role in promoting and monitoring a safe workplace and environment.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

8.1 Access and share legislation, codes and standards
   a. Legislation, standards and the organisation's policies and practices relevant to the creation and maintenance of a safe workplace and environment are made available to individuals / teams
   b. Arrangements are made to provide information in a language, style and format which is understood by colleagues
   c. Individuals / teams know their legal responsibility for maintaining a safe workplace and environment
   d. The implications of an unsafe workplace and environment is clear to all within the workplace

8.2 Plan and implement safety requirements
   a. Work practices are planned with colleagues to ensure compliance with workplace and environmental legislation and standards
   b. Work practices are implemented in accordance with requirements specified in legislation and standards for safe workplaces and environments
   c. Coaching and mentoring supports colleagues in managing their rights and responsibilities

8.3 Monitor, adjust and report safety performance
   a. Actual and potential problems are identified, rectified and reported promptly and decisively to ensure workplace and environmental safety
   b. Hazards are managed so that risks are minimised
   c. Waste recycling, reduction and disposal is carried out within legislative and organisational requirements
   d. Recommendations to make improvements to comply with legislation and associated standards are submitted to designated persons / groups
   e. Individuals / teams are informed of the results of improvements in the workplace
   f. Systems, records and reporting procedures are maintained according to legislative requirements

8.4 Investigate and report non–conformance
   a. Non–conformance is investigated and dealt with according to legislative requirements
   b. Coaching and mentoring supports colleagues to acquire and apply competencies to meet legislative requirements and the associated standards
   c. Workplace practices are implemented to ensure that non–conformance is not repeated
Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business performance plans
- defined resource limits
- ethical standards

They use legislation, codes and national standards relevant to the workplace, particularly those involved with:

- workplace safety
- environmental safety

A range of learning methods may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:

- people
- equipment
- buildings / facilities
- finance
- power / energy
- technology
- information
- time

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- develops a safety conscious culture in work area
- uses routine information appropriate to work responsibility
- explains safety legislation, standards and procedures to individuals / teams
- maintains a safe workplace
- takes prompt action to rectify / report non-compliance
- monitors / introduces ways to ensure safety compliance
- promotes available learning methods to support colleagues
- uses simple information management systems
- selects and uses available technology appropriate to the task
- records / reports information within legislative requirements
Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:
- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:
- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace, particularly those involved with:
- workplace safety
- environmental safety

A range of learning opportunities may be used, for example:
- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:
- people
- equipment
- buildings / facilities
- finance
- power / energy
- technology
- information
- time

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
- develops / promotes a safety conscious culture in workplace
- provides a model to others in working safely
- acquires and uses information appropriate to work responsibility
• manages work effectively to achieve goals and results
• explains safety legislation, standards and procedures
• maintains a safe workplace
• takes prompt action to rectify / report non–compliance
• prepares and negotiates recommendations to improve safety
• monitors / introduces practices to ensure safety compliance
• promotes available learning methods to support colleagues
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:
• Assessor Guide
• Candidate’s Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under broad guidance
• may supervise others
• may guide teams
• may have responsibility for planning and managing the work of others
• will be involved in self–directed application of knowledge
• have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
• operate in varied or highly specific contexts
• use competencies independently for routine and non–routine purposes
• use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation’s:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business and performance plans
• resources, which may be subject to negotiation
• ethical standards

They use legislation, codes and national standards relevant to the workplace, particularly those involved with:
• workplace safety
• environmental safety

A range of learning opportunities may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Resources may include:
• people
• equipment
• buildings / facilities
• finance
• power / energy
• technology
• information
• time
Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

- develops / promotes a safety conscious culture in workplace
- provides a model to others in working safely
- researches, acquires and uses information appropriate to work responsibility
- manages work effectively to achieve goals and results
- explains safety legislation, standards and procedures
- maintains a safe workplace in compliance with legislation and standards
- takes prompt action to rectify / report non–compliance
- prepares and negotiates recommendations to improve safety
- monitors / introduces practices to ensure safety compliance
- uses effective waste management processes and procedures
- explains the workplace and environmental impact of non–compliance with relevant legislation
- promotes available learning methods to support colleagues
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:

- Assessor Guide
- Candidate's Guide to Assessment
BSX014809 Implement and monitor continuous improvement systems and processes

*Frontline management has an active role in managing the continuous improvement process in achieving the organisation's quality objectives. Their position, closely associated with the creation and delivery of products and services, means that they play an important part in influencing the on-going development of the organisation.*

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e".

### Elements and Performance Criteria

#### 9.1 Implement continuous improvement systems and processes

- a. Team members are actively encouraged and supported to participate in decision making processes and to assume responsibility and authority.
- b. The organisation's continuous improvement processes are communicated to individuals / teams.
- c. Mentoring and coaching support ensures that individuals / teams are able to implement the organisation's continuous improvement processes.

#### 9.2 Monitor, adjust and report performance

- a. The organisation's systems and technology are used to monitor progress and to identify ways in which planning and operations could be improved.
- b. Customer service is strengthened through the use of continuous improvement techniques and processes.
- c. Plans are adjusted and communicated to those who have a role in their development and implementation.

#### 9.3 Consolidate opportunities for further improvement

- a. Individuals / teams are informed of savings and productivity improvements in achieving the business plan.
- b. Work performance is documented and the information is used to identify opportunities for further improvement.
- c. Records, reports and recommendations for improvement are managed within the organisation's systems and processes.

### Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints.
Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource limits

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:

- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

**Evidence Guide (ASF 3)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:

- explains the organisation's continuous improvement methods
- uses routine information appropriate to work responsibility
- manages work effectively to achieve goals and results
- monitors / introduces ways to improve performance
- encourages ideas and feedback to improve processes
- uses effective consultative processes
- promotes available learning methods to assist colleagues
- uses simple information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 4)**

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:

- are autonomous, working under general guidance on progress and outcomes
- may supervise others
- may guide or facilitate teams
- have responsibility for, and limited organisation of work of others
- apply knowledge with depth in some areas
- apply a broad range of skills to a range of tasks / roles
- operate in a variety of workplace contexts
- are involved in some complexity in the choice of actions
- use competencies within routines, methods and procedures
- use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:
- people
- equipment
- buildings / facilities
- finance
- power / energy
- technology
- information
- time

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
- manages work effectively to achieve goals and results
- explains the organisation's continuous improvement methods
- acquires and uses information appropriate to work responsibility
- provides leadership to colleagues in the implementation of continuous improvement processes
- monitors / introduces ways to improve performance
- encourages ideas and feedback to improve processes
- prepares and negotiates recommendations to improve the continuous improvement processes
- gains the commitment of individuals / teams to continuous improvement principles and practices
- uses effective consultative processes
- promotes available learning methods
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:
- Assessor Guide
- Candidate’s Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
- are autonomous, working under broad guidance
- may supervise others
- may guide teams
- may have responsibility for planning and managing the work of others
- will be involved in self–directed application of knowledge
- have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
- operate in varied or highly specific contexts
- use competencies independently for routine and non–routine purposes
• use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation’s:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business and performance plans
• resources, which may be subject to negotiation
• ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
• mentoring
• action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

Resources may include:
• people
• power / energy
• information
• finance
• buildings / facilities
• time
• equipment
• technology

Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:
• manages work effectively to achieve goals and results
• develops a workplace culture which supports continuous improvement
• explains the organisation's continuous improvement methods
• researches, acquires and uses information appropriate to work responsibility
• provides leadership to colleagues in the implementation of continuous improvement processes
• monitors / introduces ways to improve performance
• encourages ideas and feedback to improve processes
• prepares and negotiates recommendations to improve the continuous improvement processes
• gains the commitment of individuals / teams to continuous improvement principles and practices
• develops ways of individuals / teams implementing continuous improvement processes
• uses effective consultative processes
• promotes available learning methods
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment
BSX014810 Facilitate and capitalise on change and innovation

Frontline management has an active role in fostering change and acting as a catalyst in the implementation of change and innovation. They have a creative role in ensuring that individuals, the team and the organisation gain from change; and that the customer benefits through improved products and services.

This unit is written at ACF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

10.1 Participate in planning the introduction of change

a. The manager contributes effectively in the organisation's planning processes to introduce change
b. Plans to introduce change are made in consultation with designated individuals / groups
c. The organisation's objectives and plans to introduce change are explained clearly to individuals / teams

10.2 Develop creative and flexible approaches and solutions

a. Alternative approaches to managing workplace issues and problems are identified and analysed
b. Risks are assessed and action is taken to achieve a recognised benefit or advantage to the organisation
c. The workplace is managed in a way which promotes the development of innovative approaches and outcomes
d. Creative and responsive approaches to resource management improves productivity and/or reduces costs in a competitive environment

10.3 Manage emerging challenges and opportunities

a. Individuals / teams respond effectively and efficiently to changes in the organisation's goals, plans and priorities
b. Coaching and mentoring assists individuals / teams develop competencies to handle change efficiently and effectively
c. The manager uses opportunities within their responsibility and authority to make adjustments to respond to the changing needs of customers and the organisation
d. Individuals / teams are kept informed of progress in the implementation of change
e. Recommendations for improving the methods / techniques to manage change are negotiated with designated persons / groups

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

- have some autonomy for operation
- work under limited guidance
- may have broad guidance and autonomy if working in teams
- have responsibility for others
- may have team co-ordination responsibilities
• apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
• goals, objectives, plans, systems and processes
• access and equity principles and practices
• quality and continuous improvement processes and standards
• business performance plans
• ethical standards
• defined resource limits

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:
• manages work to achieve goals and results
• explains the organisation's methods to introduce change
• uses routine information appropriate to work responsibility
• identifies opportunities to introduce change within responsibility and authority
• monitors / introduces practices to improve performance
• uses effective consultation processes
• seeks feedback and acts on constructive advice
• promotes available learning methods to support colleagues
• uses simple information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment

Range Indicators (ASF 4)

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under general guidance on progress and outcomes
• may supervise others
• may guide or facilitate teams
• have responsibility for, and limited organisation of work of others
• apply knowledge with depth in some areas
• apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation's:
- goals, objectives, plans, systems and processes
- access and equity principles and practices
- quality and continuous improvement processes and standards
- business performance plans
- ethical standards
- defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
- mentoring
- exchange / rotation
- shadowing
- coaching
- action learning
- structured training programs

Resources may include:
- people
- equipment
- buildings / facilities
- finance
- power / energy
- technology
- information
- time

**Evidence Guide (ASF 4)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
- manages work effectively to achieve goals and results
- explains the organisation's methods to introduce change
- acquires and uses information appropriate to work responsibility
- identifies opportunities to introduce change within responsibility and authority
- draws on the diversity of workplace to assist the organisation benefit from change
- monitors trends in the external environment to develop and maintain a competitive edge
- monitors / introduces practices to improve performance
- uses effective consultation processes
- seeks feedback and acts on constructive advice
- promotes available learning methods to support colleagues
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
- Assessor Guide
- Candidate's Guide to Assessment

**Range Indicators (ASF 5)**

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
- are autonomous, working under broad guidance
- may supervise others
• may guide teams
• may have responsibility for planning and managing the work of others
• will be involved in self-directed application of knowledge
• have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
• operate in varied or highly specific contexts
• use competencies independently for routine and non-routine purposes
• use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints

Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation’s:
• goals, objectives, plans, systems and processes
• quality and continuous improvement processes and standards
• business and performance plans
• resources, which may be subject to negotiation
• ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
• mentoring
• action learning
• coaching
• shadowing
• exchange / rotation
• structured training programs

Evidence Guide (ASF 5)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:
• promotes a learning culture in a diverse and complex workplace
• manages work effectively to achieve goals and results
• explains basic principles of adult learning
• develops links between work and learning
• uses coaching and mentoring to assist knowledge / skill formation
• monitors / introduces ways for people to develop knowledge and skills
• facilitates opportunities for learning
• encourages colleagues to share their knowledge and skills
• creates opportunities for individuals / teams to learn from workplace performance
• negotiates with training and development specialists individual / team learning needs
• provides the opportunity for off-the-job learning to be applied in workplace
• promotes available learning methods to support colleagues
• uses information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment
BSX014811 Contribute to the development of a workplace learning environment

Frontline management plays a prominent role in encouraging and supporting the development of a learning organisation. Promoting a learning environment in which work and learning are integrated is an important goal to be achieved.

This unit is written at AQF levels III, IV and V which equate to levels "c", "d" and "e"

Elements and Performance Criteria

11.1 Create learning opportunities
   a. Workplace environments which facilitate learning are developed and supported
   b. Learning plans are developed as an integral part of individual / team performance plans
   c. Learning plans reflect the diversity of needs and learning opportunities
   d. Individual / team access to, and participation in, learning opportunities is facilitated
   e. Negotiation with training and development specialists results in the planning and provision of learning which enhances individual, team, and organisational performance

11.2 Facilitate and promote learning
   a. Workplace activities are used as opportunities for learning
   b. Coaching and mentoring contributes effectively to the development of workplace knowledge, skills and attitudes
   c. The benefits of learning are shared with others in the team / organisation
   d. Workplace achievement is recognised by timely and appropriate recognition, feedback and rewards

11.3 Monitor and improve learning effectiveness
   a. Performance of individuals / teams is monitored to determine the type and extent of additional work–based support
   b. Feedback from individuals / teams is used to identify and introduce improvements in future learning arrangements
   c. Adjustments negotiated with training and development specialists results in improvements to the efficiency and effectiveness of learning
   d. Records and reports of competency are documented and maintained within the organisation’s systems and procedures

Range Indicators (ASF 3)

At ASF level 3 frontline management will normally be engaged in a workplace context in which they:

* have some autonomy for operation
* work under limited guidance
* may have broad guidance and autonomy if working in teams
* have responsibility for others
* may have team co–ordination responsibilities
* apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement in using resources, services and processes to achieve outcomes within time constraints

Frontline management will normally operate in a relatively simple workplace environment in which they use the organisation's:
• goals, objectives, plans, systems and processes
• access and equity principles and practices
• quality and continuous improvement processes and standards
• business performance plans
• ethical standards
• defined resource limits

They use legislation, codes and national standards relevant to the workplace.

A range of learning methods may be used, for example:
• mentoring
• exchange / rotation
• shadowing
• coaching
• action learning
• structured training programs

Evidence Guide (ASF 3)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 3, frontline management:
• manages work to achieve goals and results
• develops links between work and learning
• explains basic principles of adult learning
• uses routine information appropriate to work responsibility
• monitors / introduces ways for people to develop knowledge and skills
• provides coaching and mentoring support
• encourages colleagues to share their knowledge and skills
• promotes available learning methods to support colleagues
• uses simple information management systems
• selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:
• Assessor Guide
• Candidate's Guide to Assessment

Range Indicators (ASF 4)

At ASF level 4 frontline management will normally be engaged in a workplace context in which they:
• are autonomous, working under general guidance on progress and outcomes
• may supervise others
• may guide or facilitate teams
• have responsibility for, and limited organisation of work of others
• apply knowledge with depth in some areas
• apply a broad range of skills to a range of tasks / roles
• operate in a variety of workplace contexts
• are involved in some complexity in the choice of actions
• use competencies within routines, methods and procedures
• use some discretion and judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints
Frontline management at this level will normally operate in a relatively diverse workplace environment in which they use the organisation’s:
  * goals, objectives, plans, systems and processes
  * access and equity principles and practices
  * quality and continuous improvement processes and standards
  * business performance plans
  * ethical standards
  * defined resource parameters

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:
  * mentoring
  * exchange / rotation
  * shadowing
  * coaching
  * action learning
  * structured training programs

### Evidence Guide (ASF 4)

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 4, frontline management:
  * promotes a learning culture
  * manages work effectively to achieve goals and results
  * explains the basic principles of adult learning
  * develops links between work and learning
  * uses coaching and mentoring to assist knowledge / skill formation
  * monitors / introduces ways for people to develop knowledge and skills
  * facilitates opportunities for learning
  * encourages colleagues to share their knowledge and skills
  * creates opportunities for individuals / teams to learn from workplace performance
  * negotiates with training and development specialist individual / team learning needs
  * provides the opportunity for off-the-job learning to be applied in the workplace
  * promotes available learning methods to support colleagues
  * uses information management systems
  * selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative’s support resources:
  * Assessor Guide
  * Candidate’s Guide to Assessment

### Range Indicators (ASF 5)

At ASF level 5 frontline management will normally be engaged in a workplace context in which they:
  * are autonomous, working under broad guidance
  * may supervise others
  * may guide teams
  * may have responsibility for planning and managing the work of others
  * will be involved in self-directed application of knowledge
  * have substantial depth of knowledge in some area and a range of skills for work tasks, roles and functions
  * operate in varied or highly specific contexts
  * use competencies independently for routine and non-routine purposes
  * use judgement for self and others in planning and using resources, services and processes to achieve outcomes within time constraints
Frontline management at this level will normally operate in diverse and complex workplace environments in which they use the organisation's:

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

They use legislation, codes and national standards relevant to the workplace.

A range of learning opportunities may be used, for example:

- mentoring
- action learning
- coaching
- shadowing
- exchange / rotation
- structured training programs

**Evidence Guide (ASF 5)**

This guideline is to assist the development of assessment instruments / tools to assess the competence of frontline management. Typically, in providing evidence of consistent achievement of this Unit's workplace outcomes within the context of ASF level 5, frontline management:

- promotes a learning culture in a diverse and complex workplace
- manages work effectively to achieve goals and results
- explains the basic principles of adult learning
- develops links between work and learning
- uses coaching and mentoring to assist knowledge / skill formation
- monitors / introduces ways for people to develop knowledge and skills
- facilitates opportunities for learning
- encourages colleagues to share their knowledge and skills
- creates opportunities for individuals / teams to learn from workplace performance
- negotiates with training and development specialist individual / team learning needs
- provides the opportunity for off–the–job learning to be applied in the workplace
- promotes available learning methods to support colleagues
- uses information management systems
- selects and uses available technology appropriate to the task

Guidance in the development of assessment strategies, instruments / tools, is included in the Frontline Management Initiative's support resources:

- Assessor Guide
- Candidate's Guide to Assessment
BSX000801 Prepare for on-the-job training

This competency applies to category 1 trainers for whom training is not a major part of their job. Other national training competency standards are available for category 2 specialist trainers. This unit can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and Performance Criteria

<table>
<thead>
<tr>
<th>BSX000801–1 Confirm the need for training</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSX000801–1.1 The specific training need is identified or advised by appropriate personnel</td>
</tr>
<tr>
<td>BSX000801–1.2 The specific training need is confirmed with appropriate personnel</td>
</tr>
<tr>
<td>BSX000801–1.3 The training objectives reflect the specific training need</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BSX000801–2 Plan and document training session</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSX000801–2.1 Training outcomes are clearly stated</td>
</tr>
<tr>
<td>BSX000801–2.2 Steps in the training session follow a logical sequence</td>
</tr>
<tr>
<td>BSX000801–2.3 The training method(s) selected are appropriate for the training outcomes, trainee characteristics and availability of equipment and resources</td>
</tr>
<tr>
<td>BSX000801–2.4 Plans for practice by trainees are made</td>
</tr>
<tr>
<td>BSX000801–2.5 Provision for monitoring trainees progress is made</td>
</tr>
<tr>
<td>BSX000801–2.6 Evidence required for assessment and how it will be collected is stated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BSX000801–3 Arrange location and resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSX000801–3.1 Resources required for training are identified and approved by appropriate personnel</td>
</tr>
<tr>
<td>BSX000801–3.2 Suitable locations for the training are arranged</td>
</tr>
<tr>
<td>BSX000801–3.3 The equipment, tools and other resources required are organised to be available when needed</td>
</tr>
<tr>
<td>BSX000801–3.4 Arrangements are made with those people required to help in the training session or in the follow-up session</td>
</tr>
<tr>
<td>BSX000801–3.5 The training environment arranged is safe and accessible</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BSX000801–4 Notify trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSX000801–4.1 Trainees are notified of the time and place of the training session</td>
</tr>
<tr>
<td>BSX000801–4.2 Trainees' supervisor(s) are notified of the time and place of the training and of any other requirements for the training session</td>
</tr>
<tr>
<td>BSX000801–4.3 The purpose of the training is notified to all involved</td>
</tr>
</tbody>
</table>

Range of Variables

Target group
Category 1 applies to those people who provide training in the workplace but for whom the training function is not a major part of their job. They may provide training infrequently or even regularly within a structured training context.
Scope of training

Training is provided on a one-to-one basis or to small groups of trainees

Evidence Guide

Evidence of satisfactory performance in this Unit is best obtained by observation of the preparation, combined with discussion with the trainer about what has been done.

Furthermore, in Element BSX000801–1, look for explanation of the specific training need and how it was determined, and the trainer's view of "appropriate personnel".

In Element BSX000801–2, look for an outline of the training session, preferably in writing, explanation of the training method(s) selected, and recognition of trainee characteristics (eg language and literacy / numeracy skills, cultural background, previous experience).

In Element BSX000801–3, look for knowledge of possible training locations within the workplace, and knowledge of relevant safety and health standards to be observed.

In Element BSX000801–4, look for evidence that trainees and their supervisor know about training arrangements made.

Competence is demonstrated in safe work practices in using machines or equipment.

A course with a registered provider will need to be completed.
BSX000802  Deliver on-the-job training

This competency applies to category 1 trainers for whom training is not a major part of their job. Other national training competency standards are available for category 2 specialist trainers. This unit can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and Performance Criteria

BSX000802–1  Prepare trainees

BSX000802–1.1 The objectives of the training session are explained to and discussed with the trainees

BSX000802–1.2 The sequence of activities to be followed in the training session is explained to trainees

BSX000802–1.3 Trainees are made aware of the place of the work application of the skill or job being taught

BSX000802–1.4 Any barriers to the performance of the job being taught are identified and discussed with trainees

BSX000802–1.5 The assessment process is explained to trainees

BSX000802–2  Instruct trainees

BSX000802–2.1 A systematic approach is taken to instruction, taking into account explanation, demonstration, review, trainee explanation, trainee demonstration, and feedback

BSX000802–2.2 Instruction process is revised and modified as necessary to meet the trainees' learning needs

BSX000802–2.3 Trainees are encouraged by positive comments from the trainer

BSX000802–2.4 Feedback during instruction is designed to help trainees learn from their mistakes

BSX000802–2.5 Trainees are encouraged and guided to evaluate their own performance and diagnose it for improvement

BSX000802–3  Provide opportunities for practice

BSX000802–3.1 Practice opportunities are provided according to the specific learning situation and the training objectives

BSX000802–3.2 Constructive feedback and reinforcement are provided during practice

BSX000802–3.3 Trainees' readiness for assessment is monitored

BSX000802–4  Confirm trainee has reached required standard of performance

BSX000802–4.1 Evidence of satisfactory performance by the trainee is collected in accordance with the training session plan

BSX000802–4.2 The trainee is advised that he/she has reached the required standard of performance

BSX000802–4.3 Other appropriate personnel are advised that the trainee has reached the required standard of performance
Range of Variables

Target group  Category 1 applies to those people who provide training in the workplace but for whom the training function is not a major part of their job. They may provide training infrequently or even regularly within a structured training context.

Scope of training  Training is provided on a one-to-one basis or to small groups of trainees.

Evidence Guide

Evidence of satisfactory performance is best obtained by observation of training delivery on a number of occasions. All elements and performance criteria must be met. If this is not possible, then at least one direct observation should be supported by supplementary evidence, such as confirmation by a supervisor or discussions with trainees.

Competence is demonstrated in safe work practices in handling of machines or equipment.

A course with a registered provider will need to be completed.
BSX000803  Review on–the–job training

This competency applies to category 1 trainers for whom training is not a major part of their job. Other national training competency standards are available for category 2 specialist trainers. This unit can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and Performance Criteria

BSX000803–1  Evaluate training session

BSX000803–1.1 Trainees are encouraged to raise problems or difficulties with any aspect of the training session
BSX000803–1.2 Trainees are asked to discuss their ability to apply the learning outcomes
BSX000803–1.3 Trainees' reaction to the training session is sought
BSX000803–1.4 Own performance is reviewed against session objectives and in response to trainees' comments
BSX000803–1.5 Review comments are summarised
BSX000803–1.6 The results of the evaluation are used to guide further training

BSX000803–2  Record training

BSX000803–2.1 The details of the trainees who have completed the training are accurately recorded according to the organisation's requirements
BSX000803–2.2 Other records as required by legislation or agreement are kept
BSX000803–2.3 Records are released to authorised personnel only
BSX000803–2.4 Records are securely stored

BSX000803–3  Provide information on training

BSX000803–3.1 Information on training proposed, in hand or completed is provided to management as required
BSX000803–3.2 Information on proposed training is provided to prospective trainees on request
BSX000803–3.3 Information on appropriate, available training is provided to employees on request

Range of Variables

Target group

Category 1 applies to those people who provide training in the workplace but for whom the training function is not a major part of their job. They may provide training infrequently or even regularly within a structured training context

Scope of training

Training is provided on a one–to–one basis or to small groups of trainees
Evidence Guide

Evidence of satisfactory performance in this Unit should best be a combination of observation of the trainer’s review with the trainees, an inspection of records and discussion with the trainer about his or her appreciation of the session. Where direct observation is not possible, discussion with trainees might be a substitute.

Furthermore, in Element BSX000803–2, look for knowledge of the organisation’s record keeping arrangement and security and access procedures.

Competence is demonstrated in safe work practices in handling of machines or equipment.

A course with a registered provider will need to be completed.
BSX002201 Conduct assessment in accordance with established assessment procedure

This unit can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and Performance Criteria

BSX002201–1 Identify and explain the context of assessment

BSX002201–1.1 Discuss the context and purpose of assessment with the person(s) being assessed and confirm that it is understood

BSX002201–1.2 Obtain and explain to the persons being assessed the relevant performance measures applying to the assessment. Instructions are verified by the person(s) being assessed

BSX002201–1.3 Explain and obtain agreement for the assessment procedure

BSX002201–1.4 Identify and explain any legal and ethical responsibilities associated with the assessment to the person(s) being assessed

BSX002201–1.5 Check whether the person(s) being assessed requires the allowable adjustments in the assessment procedure applying to those with special needs

BSX002201–2 Plan evidence gathering opportunities

BSX002201–2.1 Identify opportunities to gather evidence of competency which occur as part of workplace or training activities

BSX002201–2.2 Identify the need to gather additional evidence which may not occur as part of workplace or training activities

BSX002201–2.3 Plan and schedule all evidence gathering activities in accordance with the assessment procedure

BSX002201–2.4 Ensure that the planned approach to gathering evidence will provide sufficient, reliable, valid and fair evidence of competency

BSX002201–2.5 Ensure that the planned approach to gathering evidence will cover the four key dimensions of competence: task skills; task management skills; contingency management skills; job / role management skills

BSX002201–3 Organise assessment

BSX002201–3.1 Obtain and arrange the resources specified in the assessment procedure

BSX002201–3.2 Inform the relevant people of assessment plans

BSX002201–3.3 Check that the assessment environment permits fair, valid and reliable assessment

BSX002201–3.4 Check that the assessment environment is safe and accessible

BSX002201–3.5 Explain the assessment arrangements and requirements simply and clearly to the person(s) being assessed

BSX002201–3.6 Obtain agreement regarding assessment arrangements with the person(s) being assessed

BSX002201–4 Gather evidence

BSX002201–4.1 Put the person(s) being assessed at ease
BSX002201–4.2 Gather all the evidence specified in the assessment procedure, using assessment methods and tools specified

BSX002201–4.3 Gather evidence for those with special needs, in accordance with specified allowable adjustments to the assessment method(s)

BSX002201–4.4 Document the evidence gathered in accordance with the assessment procedure

BSX002201–5 Make the assessment decision

BSX002201–5.1 Evaluate the evidence gathered in terms of: validity, authenticity, sufficiency, currency, consistent achievement of the specified standard

BSX002201–5.2 Make the assessment decision in accordance with the criteria specified in the assessment procedure

BSX002201–5.3 Seek guidance, if in doubt, from a more experienced assessor(s) nominated in the assessment procedure

BSX002201–6 Record the assessment results

BSX002201–6.1 Record assessment results promptly and in accordance with the specified assessment procedure

BSX002201–6.2 Record assessment results accurately in accordance with specified record keeping requirements

BSX002201–6.3 Provide access to the assessment results only to authorised personnel

BSX002201–6.4 Maintain confidentiality of assessment outcome

BSX002201–7 Provide feedback to the person(s) being assessed

BSX002201–7.1 Discuss and confirm performance with the person(s) being assessed

BSX002201–7.2 Give clear and constructive feedback to the person(s) being assessed

BSX002201–7.3 Explore with the persons being assessed ways of overcoming any gaps in their competency revealed by assessment

BSX002201–7.4 Give guidance on further goals / training opportunities, if appropriate

BSX002201–7.5 Advise and confirm with person(s) being assessed reassessment opportunities and/or review appeal mechanisms available where the assessment decision is challenged

BSX002201–8 Report on the conduct of the assessment

BSX002201–8.1 Report on the positive and negative features experienced in conducting assessment to those responsible for the assessment procedure

BSX002201–8.2 Record and promptly report any assessment decision disputed by the person(s) being assessed to those nominated in the assessment procedure

BSX002201–8.3 Make suggestions for improving any aspect of the assessment procedure to those responsible for the assessment procedure

Range of Variables

Assessment methods: a range of methods including observation, questioning, portfolios of authenticated work, third party reports, practical tasks etc

Evidence gathering tools: may include log books, sets of questions, checklists etc

Special needs: Reasonable adjustment may be made to assessment for people with special needs
Evidence Guide

Prepare and carry out and record at least TWO assessments using established procedure and materials in accordance with performance criteria.

Demonstrate knowledge of:

- any technology being used and relevant quality concepts
- different assessment purposes and contexts
- validity, authenticity, sufficiency, currency, consistency
- all aspects of assessment procedure
- legal and ethical responsibilities
- OH&S relevant to the assessment procedure
- modifications to assessment for people with special needs

A course with a registered provider will need to be completed
BSX002202  Plan and review assessment

This unit can be assessed at levels "c", "d" and "e". Level "c" is for people training or assessing competencies at up to level "c"; levels "d" and "e" are for people assessing competencies at those levels. This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and performance criteria

BSX002202–1  Establish evidence required

BSX002202–1.1 Establish the evidence required to infer competency from the endorsed competency standards, learning outcomes of the training program or other performance measures used

BSX002202–1.2 Specify evidence requirements to assure valid inferences of competency

BSX002202–1.3 Specify evidence requirements for the assessor to authenticate the performance / product of the person(s) being assessed

BSX002202–1.4 Specify sufficient evidence on which to base valid inferences

BSX002202–1.5 Specify evidence requirements which will confirm that competency is current

BSX002202–1.6 Specify sufficient evidence to show consistent achievement of the specified standards

BSX002202–1.7 Identify opportunities to consolidate evidence gathering activity

BSX002202–1.8 Establish the cost of gathering the required evidence

BSX002202–2  Establish suitable assessment method(s)

BSX002202–2.1 Select assessment methods which are appropriate for gathering the type and amount of evidence required

BSX002202–2.2 Propose suitable adjustments in the assessment method to cater for those person(s) being assessed who have special needs

BSX002202–3  Develop simple assessment tools

BSX002202–3.1 Design an assessment tool(s) which gathers:
  – valid evidence
  – reliable evidence
  – sufficient evidence or complements the use of other assessment tools in gathering sufficient evidence

BSX002202–3.2 Design an assessment tool which is clear and comprehensible both to those conducting the assessment and to those being assessed

BSX002202–3.3 Verify that the assessment tool permits flexible, fair and safe assessment to occur

BSX002202–3.4 Verify that the assessment tool is cost-effective in gathering required evidence

BSX002202–3.5 Prepare accompanying instructions for use specifying any adjustments which can be made to address the requirements of people being assessed who have special needs

BSX002202–4  Review evidence requirements, assessment methods and assessment tools

BSX002202–4.1 Trial assessment methods and assessment tools with people similar to those who will ultimately be assessed

BSX002202–4.2 Evaluate the assessment methods and tools for
  – clarity
BSX002202–4.3 Make improvements and changes to the assessment method and assessment tools in the light of the evaluation of the pilot exercise

BSX002202–4.4 Ratify procedures with relevant people in the industry / enterprise or training establishment of the evidence requirements, assessment methods and assessment tools and the process used in developing them

BSX002202–5 Periodically review the assessment procedures

BSX002202–5.1 Comply with the review process established by the enterprise, industry or training authority

BSX002202–5.2 Review the operations of the assessment procedure at a specified site in cooperation with person(s) being assessed, and any relevant parties in industry / the enterprise / the training establishment and/or any agency identified under legislation

BSX002202–5.3 Document and evaluate review activities and substantiate review findings

BSX002202–5.4 Make recommendations for changes to the assessment procedure in the light of the review outcomes to the appropriate person(s)

BSX002202–5.5 Make effective contributions to system–wide reviews of the assessment process

Range of Variables

Assessment methods
A range of methods including observation, questioning, portfolios of authenticated work, third party reports, practical tasks etc

Evidence gathering tools
May include log books, sets of questions, checklists etc

Special needs:
Reasonable adjustment may be made to assessment for people with special needs

Review procedures
Range of periodic monitoring and formal reviews

Evidence Guide

Produce a portfolio containing plans, schedules, assessment tools and other documents that show that the performance criteria of each element have been met.

Demonstrate detailed knowledge of:

- any technology being used and relevant quality concepts
- different assessment purposes and contexts
- advantages and disadvantages of different assessment methods
- validity, authenticity, sufficiency, currency, consistency
- all aspects of assessment procedure
- legal and ethical responsibilities
- OH&S relevant to the assessment procedure
- modifications to assessment for people with special needs
- review processes and procedures
- evaluation methodologies

A course with a registered provider will need to be completed
BSX002203  Develop assessment tools

This unit can be assessed at levels "d" or "e". Level "d" is for people developing assessment tools for competencies up to level "d"; level "e" is for people developing assessment tools for competencies at that level.

This unit can only be counted once, at the highest level achieved, for certification purposes.

Elements and Performance Criteria

BSX002203–1  Identify appropriate assessment tools

BSX002203–1.1 Determine the range of available assessment tools appropriate to assessment contexts and characteristics of person(s) being assessed

BSX002203–1.2 Identify any shortfall or inadequacies of person(s) being assessed

BSX002203–1.3 Identify and select assessment tools consistent with assessment purposes and procedures

BSX002203–1.4 Determine the nature and range of reasonable adjustment allowed for each assessment tool

BSX002203–2  Assemble assessment tools

BSX002203–2.1 Design or modify existing assessment tools so that their format, language, literacy and numeracy requirements are appropriate to the characteristics of the assessors, person being assessed and the assessment context

BSX002203–2.2 Verify that the assessment tools maintain validity but are easy to administer and allow sufficient flexibility to meet the range of possible assessment contexts

BSX002203–2.3 Verify that the assessment tools designed and/or selected are valid and maximise reliability, flexibility and fairness

BSX002203–2.4 Modify existing assessment tools when required to meet the particular assessment needs of assessors, person(s) being assessed and the particular contexts in which assessment is to be conducted

BSX002203–3  Trial and review assessment tools

BSX002203–3.1 Identify the criteria by which the outcomes of trials will be evaluated

BSX002203–3.2 Determine representative groups for trial assessment events

BSX002203–3.3 Conduct trials and seek responses from all involved parties

BSX002203–3.4 Compile and analyse responses from trials

BSX002203–3.5 Modify assessment tool(s) based on the responses to the trials

Range of Variables

People being assessed    range of workers found in industry
Assessment methods       a range of methods including observation, questioning, portfolios of authenticated work, third party reports, practical tasks etc
Evidence gathering tools may include log books, sets of questions, checklists, simulations, etc

Evidence Guide

Produce a portfolio of assessment tools and evidence of trialing.
Demonstrate detailed knowledge of:

- relationship of tools to competency standards
- effectiveness, validity, reliability
- appropriateness of tools with regard to language, literacy, numeracy
- adjustments for people with special needs
- evaluation criteria
- modification of tools
Training Pathways in the Printing and Graphic Arts Industry

Training Pathways:
Graphics sector
Printing and finishing sector
Screen printing sector
Carton sector
Corrugating – solid fibreboard sector
Services/merchants sector
Other sectors
General pathways
Examples of the packaging of units
Apprenticeships and Traineeships
Qualifications under the AQF are achieved according to the following guidelines:

AQF I
All 3 "a" level standards and 4 standards at "b" or above.

AQF II
All 3 "a" level standards and 9 standards at "b" or above. OR
All 3 "a" level standards and 5 "b" standards and 2 "c" standards from the production competencies (PP, MM, SP, PR, CF, IM)

AQF III
18 competency standards including at least 5 at "c" level or above. OR
16 competency standards including at least 1 at "c" and 2 at "d" level.
PLUS ONE appropriate holistic knowledge component

AQF IV
Requirement for AQF III plus 6 standards at "d" or "e" level OR
Requirement for AQF III plus 4 at "c" level and 4 at "d" or "e" level

AQF V
Requirement for AQF IV plus 6 standards at "d" or "e" level.

AQF VI
Requirement for AQF V plus 6 standards at "d" or "e" level.

Note: if standards are taken from the support units, equivalent standards in the Frontline Management units cannot also be counted. At AQF II the alternative formula including "c" units only applies to production units: "c" level support units and national generic units may only substitute for "b" units. Holistic knowledge components are not counted in the above formula.

Competency units can be taken from any of the groupings, or from units of other standards bodies, however the industry recommends that certain units be included for qualifications in specific areas.

The industry has identified the following training pathways. It recommends that people receiving the identified AQF qualifications must include those competency units identified as core. This information is also relevant to developers and deliverers of training programs who must address these standards. For the purpose of assessment it is possible that some core competency standards may not be available in a given workplace. In these circumstances up to TWO units ("b" level or above) may be dropped from the core. This does not affect the formula for achieving qualifications. Also note that in some pathways, in order to qualify for certification, it will in practice be necessary to exceed the minimum number of "b" competencies specified in the formula.

Up to TWO standards from outside the defined pathway can be included at each level of certification.

While a requirement for the Advanced Diploma (AQF VI) has been defined, it is not considered likely that the industry will make much use of this qualification.

Note that the three "a" level competencies are obligatory for all qualifications.

ICPUSU16aA Inspect quality against required standards
ICPUSU61aA Follow OH&S practices and identify environmental hazards
ICPUSU62aA Communicate in the workplace
Graphics sector

Desktop Publishing

ICP20199 Certificate II in Printing and Graphic Arts (Desktop Publishing)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU03bA Prepare and maintain the work area
ICPSU05bA Store and retrieve images manually
ICPSU16aA Inspect quality against required standards
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU63bA Perform basic industry calculations
ICPSU81bA Use computer systems

ICPPP11bA Develop a basic design concept
ICPPP21bA Select and apply type
ICPPP22bA Scan a line image
ICPPP32cA Electronically combine and assemble data
ICPPP52bA Output images to film and paper

Electives
ICPPP21cA Produce a typographic image
ICPPP22cA Scan images for reproduction
ICPPP33cA Prepare a (layout) format for printing processes
ICPPP52cA Output complex images to film
ICPPP60bA Chemically proof images
ICPPP60cA Undertake special colour and digital proofing

Print Design

ICP20299 Certificate II in Printing and Graphic Arts (Print Design)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU03bA Prepare and maintain the work area
ICPSU05bA Store and retrieve images manually
ICPSU16aA Inspect quality against required standards
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU63bA Perform basic industry calculations
ICPSU81bA Use computer systems
ICPPP11b A Develop a basic design concept
ICPPP21b A Select and apply type
ICPPP22b A Scan a line image
ICPPP52b A Output images to film and paper
ICPPP53b A Output images to electronic media

Electives
ICPPP11c A Develop a detailed design concept
ICPPP22c A Scan images for reproduction
ICPPP32c A Electronically combine and assemble data

Graphic Pre-press

ICP30399 Certificate III in Printing and Graphic Arts (Graphic Pre-press)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core competencies
Support Units
ICPSSU03b A Prepare and maintain the work area
ICPSSU05b A Store and retrieve images manually
ICPSSU16a A Inspect quality against required standards
ICPSSU23b A Treat and dispose of liquid waste
ICPSSU61a A Follow OH&S practices and identify environmental hazards
ICPSSU62a A Communicate in the workplace
ICPSSU63a A Perform basic industry calculations
ICPSSU81b A Use computer systems

Pre-press Units
ICPPP21b A Select and apply type
ICPPP22b A Scan a line image
ICPPP22c A Scan images for reproduction
ICPPP32c A Electronically combine and assemble data
ICPPP33c A Prepare a (layout) format for printing processes
ICPPP52b A Output images to film and paper
ICPPP52c A Output complex images to film

ICPPP60b A Chemically proof images
OR
ICPPP60c A Undertake special colour and digital proofing

Holistic knowledge component (not counted in formula for certification)
ICPKN11 A Demonstrate knowledge and requirements of graphic pre-press

Electives
Support Units
ICPSSU21b A Pack and dispatch product
ICPSSU51c A Undertake basic production scheduling
ICPSSU62c A Workteam communication
ICPSSU64d A Customer service / customer education
ICP SU71b A Provide basic instruction for a task
ICP SU81c A Operate and Maintain Computer Resources
ICP SU81d A Manage systems

Pre—press Units
ICP PP11b A Develop a basic design concept
ICP PP11c A Develop a detailed design concept
ICP PP11d A Undertake a complex design brief
ICP PP21c A Produce a typographic image
ICP PP21d A Compose and evaluate typography
ICP PP22d A Scan complex images for reproduction
ICP PP23b A Photograph a line image
ICP PP23c A Photograph and produce halftone images
ICP PP31b A Manually combine spot colour and basic four colour images
ICP PP31c A Manually combine complex four colour images
ICP PP32d A Electronically combine complex images
ICP PP33d A Generate complex imposition
ICP PP52d A Output complex images direct to plate or press
ICP PP53b A Output Images to electronic media
ICP PP66b A Make and proof relief plates
ICP PP67b A Make offset lithographic plates
ICP PP68b A Make photopolymer plates (flexographic)
ICP PP69b A Make photopolymer plates (pad printing)
ICP PP70c A Make multiple image plates
ICP PP72b A Make gravure cylinders manually
ICP PP72c A Make gravure cylinders electronically

Multimedia Units
ICP MM11b A Identify components of multimedia
ICP MM13c A Author a multimedia sequence
ICP MM15d A Develop a multimedia script
ICP MM21c A Capture a digital image
ICP MM41c A Incorporate text into multimedia presentations
ICP MM42c A Incorporate 2D graphics into multimedia presentations
ICP MM43c A Incorporate digital photography into multimedia presentations
ICP MM44c A Incorporate audio into multimedia presentations
ICP MM45c A Incorporate animation into multimedia presentations
ICP MM46c A Incorporate video into multimedia presentations
ICP MM47d A Incorporate 3D modeling into multimedia presentations
ICP MM61d A Prepare multimedia for different platforms
ICP MM63b A Access the Internet
ICP MM65d A Create web pages with multimedia
ICP MM67d A Plan interface design

Printing Units
ICP PR81b A Set up for electronic / digital printing (basic)
ICP PR81c A Set up for electronic / digital printing (complex)
ICP PR82b A Produce electronic / digital printed product (basic)
ICP PR82c A Produce electronic / digital printed product (complex)

ICP40399 Certificate IV in Printing and Graphic Arts (Graphic Pre—press)
Select additional units from standards at "c" level and over from the above list or from:
ICP SU16e A Set and apply quality standards
ICP SU45c A Purchase materials and schedule deliveries
ICP50399 Diploma of Printing and Graphic Arts (Graphic Pre-press) / ICP60399 Advanced Diploma of Printing and Graphic Arts (Graphic Pre-press)

Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")

Multimedia

ICP30499 Certificate III in Printing and Graphic Arts (Multimedia)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core
ICPSU03b.A Prepare and maintain the work area
ICPSU16a.A Inspect quality against required standards
ICPSU61a.A Follow OH&S practices and identify environmental hazards
ICPSU62a.A Communicate in the workplace
ICPSU63b.A Perform basic industry calculations
ICPSU81b.A Use computer systems
ICPAPP53b.A Output images to electronic media
ICPMM11b.A Identify components of multimedia
ICPMM63bA Access the Internet

Holistic knowledge component (not counted in formula for certification)
ICPKN15A Demonstrate knowledge and requirements of multimedia

Electives
ICPSU45cA Purchase materials and schedule deliveries
ICPSU54cA Coordinate work of others
ICPSU62cA Workteam communication
ICPSU71bA Provide basic instruction for a task
ICPSU81cA Operate and maintain computer resources
ICPSU81dA Manage systems

ICPM13cA Author a multimedia sequence
ICPM15dA Develop a multimedia script
ICPM21cA Capture a digital image
ICPM41cA Incorporate text into multimedia presentations
ICPM42cA Incorporate 2D graphics into multimedia presentations
ICPM43cA Incorporate digital photography into multimedia presentations
ICPM44cA Incorporate audio into multimedia presentations
ICPM45cA Incorporate animation into multimedia presentations
ICPM46cA Incorporate video into multimedia presentations
ICPM47dA Incorporate 3D modeling into multimedia presentations
ICPM61dA Prepare multimedia for different platforms
ICPM65dA Create web pages with multimedia
ICPM67dA Plan interface design

ICP40499 Certificate IV in Printing and Graphic Arts (Multimedia)

Select additional units from above list or from:

ICPSU53eA Prepare production costing estimates
ICPSU55eA Supervise and schedule work of others
ICPSU56eA Control production
ICPSU61eA Implement and monitor OH&S (OHS2)
ICPSU64dA Customer service / customer education
ICPSU81eA System research development and diagnosis

ICPM81eA Manage multimedia production
ICPM82eA Manage multimedia projects

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on-the-job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

**ICP50499  Diploma of Printing and Graphic Arts (Multimedia) / ICP60499  Advanced Diploma of Printing and Graphic Arts (Multimedia)**

Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")
Printing and finishing sector

Small Offset

ICP21199 Certificate II in Printing and Graphic Arts (Small Offset)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare ink and additives
ICPSU16aA Inspect quality against required standards
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU81bA Use computer systems

ICPPP67bA Make offset lithographic plates

ICPPR31bA Set up for basic lithographic printing
ICPPR32cA Produce basic lithographic printed product

Electives
ICPSU05bA Store and retrieve images manually
ICPSU21bA Pack and dispatch product
ICPPP21bA Select and apply type
ICPPP22bA Scan a line image
ICPPP23bA Photograph a line image
ICPPP52bA Output images to film and paper

ICPPR81bA Set up for electronic / digital printing (basic)
ICPPR82bA Produce electronic / digital printed product (basic)

ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF45bA Set up and produce hand collated product
ICPCF61bA Set up machine for basic fastening (adhesive / mechanical / thermal)
ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product
ICPCF63bA Set up and produce hand fastened product
Print Production Support

ICP21299 Certificate II in Printing and Graphic Arts (Print Production Support)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine
OR
ICPSU02bA Prepare, load and unload sheets / sections on and off machine

ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU16aA Inspect quality against required standards
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU81bA Use computer systems

Electives
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU42cA Undertake inventory procedures
ICPPR71bA Set up for coating (basic)
ICPPR72bA Produce coated product (basic)

ICPCF42bA Produce basic folded (single / continuous) product
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product
ICPCF63bA Set up and produce hand fastened product
ICPCF81bA Set up machine for basic laminating
ICPCF82bA Produce basic laminated product

Printing

ICP31399 Certificate III in Printing and Graphic Arts (Printing)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine
OR
ICPSU02bA Prepare, load and unload sheets / sections on and off machine

ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare ink and additives
ICPSU16aA Inspect quality against required standards
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU63bA Perform basic industry calculations
ICPSU81bA Use computer systems

ONE OF THE FOLLOWING PRINTING STREAMS
ICPPR13bA Set up for basic flexographic printing
ICPPR13dA Set up for complex flexographic printing
ICPPR14cA Produce basic flexographic printed product
ICPPR14dA Produce complex flexographic printed product
OR
ICPPR21bA Set up for basic gravure printing
ICPPR21dA Set up for complex gravure printing
ICPPR22cA Produce basic gravure printed product
ICPPR22dA Produce complex gravure printed product
OR
ICPPIP67bA Make offset lithographic plates
ICPPR31bA Set up for basic lithographic printing
ICPPR31dA Set up for complex lithographic printing
ICPPR32cA Produce basic lithographic printed product
ICPPR32dA Produce complex lithographic printed product
OR
ICPPR41bA Set up for basic pad printing
ICPPR41cA Set up for complex pad printing
ICPPR42bA Produce basic pad printed product
ICPPR42cA Produce complex pad printed product
OR
ICPPR51bA Set up for basic relief printing
ICPPR51dA Set up for complex relief printing
ICPPR52cA Produce basic relief printed product
ICPPR52dA Produce complex relief printed product
OR
ICPPR81bA Set up for electronic / digital printing (basic)
ICPPR81cA Set up for electronic / digital printing (complex)
ICPPR82bA Produce electronic / digital printed product (basic)
ICPPR82cA Produce electronic / digital printed product (complex)

Holistic knowledge component (not counted in formula for certification)
ICPKN12A Demonstrate knowledge and requirements of printing machining

Electives
Units from alternative streams above or:
Support Units
ICPSU05bA Store and retrieve images manually
ICPSU10bA Cut and finish offset blanket
ICPSU11cA Prepare ink & additives (advanced)
ICPSU12bA Prepare coatings, adhesives
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU42cA Undertake inventory procedures
ICPSU51cA Undertake basic production scheduling
ICPSU62cA Workteam communication
ICPSU64dA Customer service / customer education
ICPSU71bA Provide basic instruction for a task
ICPSU81cA Operate and maintain computer resources

Pre–press Units
ICPPP52bA Output images to film and paper
ICPPP52cA Output complex images to film
ICPPP52dA Output complex images direct to plate or press
ICPPP53bA Output images to electronic media
ICPPP66bA Make and proof relief plates
ICPPP68bA Make photopolymer plates (flexographic)
ICPPP69bA Make photopolymer plates (pad printing)
ICPPP70cA Make multiple image plates
ICPPP72bA Make gravure cylinders manually
ICPPP72cA Make gravure cylinders electronically

Printing Units
ICPPR11bA Mount and proof flexographic plates for basic printing
ICPPR11dA Mount and proof flexographic plates for complex printing
ICPPR61bA Set up for foil stamping
ICPPR62bA Produce foil stamped product
ICPPR71bA Set up for coating (basic)
ICPPR71dA Set up for coating (complex)
ICPPR72bA Produce coated product (basic)
ICPPR72dA Produce coated product (complex)

Screen Printing Units
ICPSP11bA Reclaim screen (basic)
ICPSP15bA Prepare screen
ICPSP51cA Prepare machine and drying / curing unit
ICPSP73bA Produce print using semi–automatic machines (basic)
ICPSP75bA Produce print using automatic machines

Converting Binding and Finishing Units
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF26bA Produce basic flat bed die cut or embossed product
ICPCF31bA Set up machine for basic cutting (flat bed)
ICPCF32bA Produce basic cut (flat bed) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF81bA Set up machine for basic laminating
ICPCF81cA Set up machine for complex laminating
ICPCF82bA Produce basic laminated product
ICPCF82cA Produce complex laminated product

National Generic Standards
BSX000801 Prepare for on-the-job training
BSX000802 Deliver on-the-job training

ICP41399 Certificate IV in Printing and Graphic Arts (Printing)
Select additional units from standards at "c" level and over from the above list or from:

ICPSU16eA Set and apply quality standards
ICPSU45cA Purchase materials and schedule deliveries
ICPSU52eA Plan operational processes
ICPSU53eA Prepare production costing estimates
ICPSU54cA Coordinate work of others
ICPSU55eA Supervise and schedule work of others
ICPSU56eA Control production
ICPSU61eA Implement and monitor OH&S (OHS2)

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000803 Review on-the-job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICP51399 Diploma of Printing and Graphic Arts (Printing) / ICP61399 Advanced Diploma of Printing and Graphic Arts (Printing)
Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")

Print Finishing

ICP31499 Certificate III in Printing and Graphic Arts (Print Finishing)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
Support Units
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU16aA Inspect quality against required standards
ICPSU21bA Pack and dispatch product
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU63bA Perform basic industry calculations
ICPSU81bA Use computer systems

Converting, Binding and Finishing Units
AT LEAST SIX OF:
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF45bA Set up and produce hand collated product
ICPCF61bA Set up machine for basic fastening (adhesive / mechanical / thermal)
ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product

AT LEAST THREE OF:
ICPCF21cA Set up and produce complex cut (guillotined) product
ICPCF41dA Set up machine for complex folding (sequenced / multiple)
ICPCF42cA Produce complex folded (sequenced / multiple) product
ICPCF43cA Set up machine for complex collating (sheet / section / reel)
ICPCF44cA Produce complex collated (sheet / section / reel) product
ICPCF61cA Set up machine for complex fastening (adhesive / mechanical / sewing)
ICPCF62cA Produce complex fastened (adhesive / mechanical / sewing) product

Holistic knowledge component (not counted in formula for certification)
ICPKN13A Demonstrate knowledge and requirements of converting and finishing

Electives
Units from alternatives above or:

Support Units
ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine
ICPSU12bA Prepare coatings, adhesives
ICPSU21cA Pack and dispatch (advanced)
ICPSU22bA Pack and dispatch solid waste
ICPSU23bA Treat and dispose of liquid waste
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU42cA Undertake inventory procedures
ICPSU45cA Purchase materials and schedule deliveries
ICPSU51cA Undertake basic production scheduling
ICPSU54cA Coordinate work of others
ICPSU62cA Workteam communication
ICPSU63bA Perform basic industry calculations
ICPSU64dA Customer service / customer education
ICPSU71bA Provide basic instruction for a task

Converting, Binding and Finishing Units
ICPCF23bA Set up machine for cutting (trimming)
ICPCF24bA Produce cut (trimmed) product
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF25cA Set up machine for complex flat bed die cutting or embossing
ICPCF26bA Produce basic flat bed die cut or embossed product
ICP\CF26c\A Produce complex flat bed die cut or embossed product
ICP\CF27b\A Set up machine for basic rotary die cutting or embossing
ICP\CF27c\A Set up machine for complex rotary die cutting or embossing
ICP\CF28b\A Produce basic rotary die cut or embossed product
ICP\CF28c\A Produce complex rotary die cut or embossed product
ICP\CF31b\A Set up machine for basic cutting (flat bed)
ICP\CF32b\A Produce basic cut (flat bed) product
ICP\CF35b\A Set up machine for basic cutting (rotary)
ICP\CF36b\A Produce basic cut (rotary) product
ICP\CF62c\A Produce complex fastened (adhesive / mechanical / sewing) product
ICP\CF63b\A Set up and produce hand fastened product
ICP\CF65d\A Set up and produce hand bound book
ICP\CF67d\A Restore books
ICP\CF69c\A Set up for and produce hand made box
ICP\CF71c\A Decorate paper
ICP\CF81b\A Set up machine for basic laminating
ICP\CF82b\A Produce basic laminated product

Printing Units
ICP\PR61b\A Set up for foil stamping
ICP\PR62b\A Produce foil stamped product
ICP\PR81b\A Set up for electronic / digital printing (basic)
ICP\PR82b\A Produce electronic / digital printed product (basic)

ICP41499 Certificate IV in Printing and Graphic Arts (Print Finishing)
Select additional units from standards at "c" level and over from the above list or from:

ICP\SU16e\A Set and apply quality standards
ICP\SU17e\A Perform laboratory quality tests of materials & finished product
ICP\SU52e\A Plan operational processes
ICP\SU53e\A Prepare production costing estimates
ICP\SU55e\A Supervise and schedule work of others
ICP\SU56e\A Control production
ICP\SU61e\A Implement and monitor OH&S (OHS2)
ICP\SU81c\A Operate and maintain computer resources
ICP\CF81c\A Set up machine for complex laminating
ICP\CF82c\A Produce complex laminated product

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICP51499 Diploma of Printing and Graphic Arts (Print Finishing) / ICP61499 Advanced Diploma of Printing and Graphic Arts (Print Finishing)
Select additional units at levels "d" or "e" from the above lists or from other competency standards. (Note that National Generic units can exist at levels "c", "d" and "e")
Screen printing sector

Screen Printing

ICP22199 Certificate II in Printing and Graphic Arts (Screen printing)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare ink and additives
ICPSU16aA Inspect quality against required standards
ICPSU23bA Treat and dispose of liquid waste
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace

AT LEAST ONE OF
ICPSP11bA Reclaim screen (basic)
ICPSP15bA Prepare screen
OR
ICPSP71bA Produce print – manual (basic)
OR
ICPSP73bA Produce print using semi-automatic machines (basic)
OR
ICPSP75bA Produce print using automatic machines

Electives
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU24bA Perform basic machine maintenance
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU81bA Use computer systems

ICPSP21bA Prepare substrate
ICPSP81bA Finish screen print products

ICP32199 Certificate III in Printing and Graphic Arts (Screen printing)

Core Competencies
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare ink and additives
ICP\textsuperscript{SU}16a A Inspect quality against required standards
ICP\textsuperscript{SU}23b A Treat and dispose of liquid waste
ICP\textsuperscript{SU}61a A Follow OH\&S practices and identify environmental hazards
ICP\textsuperscript{SU}62a A Communicate in the workplace
ICP\textsuperscript{SU}63b A Perform basic industry calculations
ICP\textsuperscript{SU}81b A Use computer systems

ICP\textsuperscript{SP}11b A Reclaim screen (basic)
ICP\textsuperscript{SP}15b A Prepare screen
ICP\textsuperscript{SP}21b A Prepare substrate
ICP\textsuperscript{SP}31b A Prepare stencil using computer or hand cut method
ICP\textsuperscript{SP}33b A Prepare stencil using photographic direct emulsion method (basic)
ICP\textsuperscript{SP}51c A Prepare machine and drying / curing unit

AT LEAST ONE OF THE FOLLOWING STREAMS
ICP\textsuperscript{SP}71b A Produce print – manual (basic)
ICP\textsuperscript{SP}71c A Produce print – manual (advanced)
OR
ICP\textsuperscript{SP}73b A Produce print using semi–automatic machines (basic)
ICP\textsuperscript{SP}73c A Produce print using semi–automatic machines (advanced)
OR
ICP\textsuperscript{SP}75b A Produce print using automatic machines
ICP\textsuperscript{SP}75c A Produce print using automatic machines (advanced)

Holistic knowledge component (not counted in formula for certification)
ICP\textsuperscript{KN}14 A Demonstrate knowledge and requirements for screen printing

\textit{Electives}

Units from alternative streams listed above or:
Support Units
ICP\textsuperscript{SU}05b A Store and retrieve images manually
ICP\textsuperscript{SU}11c A Prepare ink & additives (advanced)
ICP\textsuperscript{SU}12b A Prepare coatings, adhesives
ICP\textsuperscript{SU}21b A Pack and dispatch product
ICP\textsuperscript{SU}21c A Pack and dispatch (advanced)
ICP\textsuperscript{SU}22b A Pack and dispatch solid waste
ICP\textsuperscript{SU}24b A Perform basic machine maintenance
ICP\textsuperscript{SU}35b A Lift loads mechanically
ICP\textsuperscript{SU}36b A Shift loads mechanically
ICP\textsuperscript{SU}41b A Undertake warehouse / stores materials processing
ICP\textsuperscript{SU}51c A Undertake basic production scheduling
ICP\textsuperscript{SU}62c A Workteam communication
ICP\textsuperscript{SU}63b A Perform basic industry calculations
ICP\textsuperscript{SU}64d A Customer service / customer education
ICP\textsuperscript{SU}71b A Provide basic instruction for a task
ICP\textsuperscript{SU}81c A Operate and maintain computer resources

Pre–press Units
ICP\textsuperscript{PP}11b A Develop a basic design concept
ICP\textsuperscript{PP}11c A Develop a detailed design concept
ICP\textsuperscript{PP}21b A Select and apply type
ICP\textsuperscript{PP}21c A Produce a typographic image
ICP\textsuperscript{PP}22b A Scan a line image
ICP\textsuperscript{PP}22c A Scan images for reproduction
ICPP22dA Scan complex images for reproduction
ICPP23bA Photograph a line image
ICPP23cA Photograph and produce halftone images
ICPP31bA Manually combine spot colour and basic four colour images
ICPP32cA Electronically combine and assemble data
ICPP33cA Prepare a (layout) format for printing processes
ICPP52bA Output images to film and paper
ICPP52cA Output complex images to film

Screen Printing Units
ICSP11cA Reclaim screen (advanced)
ICSP33cA Prepare stencil using photographic direct emulsion method (advanced)
ICSP35bA Prepare stencil using photographic indirect method
ICSP37cA Prepare stencil using photographic capillary method
ICSP39cA Prepare stencil using direct projection method
ICSP41cA Prepare stencil using direct electronic imaging method
ICSP81bA Finish screen print products

Printing Units
ICPR41bA Set up for basic pad printing
ICPR42bA Produce basic pad printed product
ICPR81bA Set up for electronic / digital printing (basic)
ICPR82bA Produce electronic / digital printed product (basic)

Converting Binding and Finishing Units
ICCF21bA Set up and produce basic cut (guillotined) product
ICCF25bA Set up machine for basic flat bed die cutting or embossing
ICCF26bA Produce basic flat bed die cut or embossed product
ICCF31bA Set up machine for basic cutting (flat bed)
ICCF32bA Produce basic cut (flat bed) product

ICP42199  Certificate IV in Printing and Graphic Arts (Screen printing)
Select additional units from standards at "c" level and over from the above list or from:

Support Units
ICPSU17eA Perform laboratory quality tests of materials & finished product
ICPSU42cA Undertake inventory procedures
ICPSU45cA Purchase materials and schedule deliveries
ICPSU52eA Plan operational processes
ICPSU53eA Prepare production costing estimates
ICPSU54cA Coordinate work of others
ICPSU55eA Supervise and schedule work of others
ICPSU56eA Control production
ICPSU61eA Implement and monitor OH&S (OHS2)
ICPSU81dA Manage systems
ICPSU81eA System research development and diagnosis

Pre–press Units
ICPPP11dA Undertake a complex design brief
ICPPP21dA Compose and evaluate typography
ICPPP31cA Manually combine complex four colour images
ICPPP33dA Generate complex imposition
ICPPP53bA Output images to electronic media
ICPPP60bA Chemically proof images
ICPPP60cA Undertake special colour and digital proofing
ICPPP69bA Make photopolymer plates (pad printing)

Printing Units
ICPPR41cA Set up for complex pad printing
ICPPR42cA Produce complex pad printed product
ICPPR81cA Set up for electronic / digital printing (complex)
ICPPR82cA Produce electronic / digital printed product (complex)

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment
BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICP52199 Diploma of Printing and Graphic Arts (Screen printing) / ICP62199 Advanced Diploma of Printing and Graphic Arts (Screen Printing)

Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")
Carton sector

Cardboard Box, Container and Carton

ICP23199 Certificate II in Printing and Graphic Arts (Cardboard Box Container and Carton)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine
OR
ICPSU02bA Prepare, load and unload sheets / sections on and off machine

ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU16aA Inspect quality against required standards
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU81bA Use computer systems

Electives
ICPSU05bA Store and retrieve images manually
ICPSU12bA Prepare coatings, adhesives
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU23bA Treat and dispose of liquid waste
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU63bA Perform basic industry calculations

ICPPP81bA Design Carton (basic)
ICPCF11cA Prepare for cutting forme and stripper making
ICPCF12cA Set cutting forme and strippers
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF26bA Produce basic flat bed die cut or embossed product
ICPCF27bA Set up machine for basic rotary die cutting or embossing
ICPCF28bA Produce basic rotary die cut or embossed product
ICPCF31bA Set up machine for basic cutting (flat bed)
ICPCF32bA Produce basic cut (flat bed) product
ICPCF35bA Set up machine for basic cutting (rotary)
ICPCF36bA Produce basic cut (rotary) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF61bA Set up machine for basic fastening (adhesive / mechanical / thermal)
ICP33199 Certificate III in Printing and Graphic Arts (Cardboard Box Container and Carton)

Core
as for Certificate II PLUS:
Holistic knowledge component (not counted in formula for certification)
ICPKN13A Demonstrate knowledge and requirements of converting and finishing

Select additional units from above list or from:
ICPSU11bA Prepare ink and additives
ICPSU42cA Undertake inventory procedures
ICPSU45cA Purchase materials and schedule deliveries
ICPSU51cA Undertake basic production scheduling
ICPSU62cA Workteam communication
ICPSU63bA Perform basic industry calculations
ICPSU71bA Provide basic instruction for a task
ICPSU81cA Operate and maintain computer resources
ICPPP11bA Develop a basic design concept
ICPPP11cA Develop a detailed design concept
ICPPP22bA Scan a line image
ICPPP22cA Scan images for reproduction
ICPPP32cA Electronically combine and assemble data
ICPPP68bA Make photopolymer plates (flexographic)
ICPPP81dA Design carton (complex)
ICPPR11bA Mount and proof flexographic plates for basic printing
ICPPR13bA Set up for basic flexographic printing
ICPPR14cA Produce basic flexographic printed product
ICPPR71bA Set up for coating (basic)
ICPPR72bA Produce coated product (basic)
ICPCF21cA Set up and produce complex cut (guillotined) product
ICPCF25cA Set up machine for complex flat bed die cutting or embossing
ICPCF26cA Produce complex flat bed die cut or embossed product
ICPCF27cA Set up machine for complex rotary die cutting or embossing
ICPCF28cA Produce complex rotary die cut or embossed product
ICPCF41dA Set up machine for complex folding (sequenced / multiple)
ICPCF42cA Produce complex folded (sequenced / multiple) product
ICPCF61cA Set up machine for complex fastening (adhesive / mechanical / sewing)
ICPCF62cA Produce complex fastened (adhesive / mechanical / sewing) product
ICPCF81cA Set up machine for complex laminating
ICPCF82cA Produce complex laminated product

ICP43199 Certificate IV in Printing and Graphic Arts (Cardboard Box Container and Carton)
Select units from above lists or from:
ICPSU16eA Set and apply quality standards
ICPSU17eA Perform laboratory quality tests of materials & finished product
ICPSU52eA Plan operational processes
ICPSU53eA Prepare production costing estimates
ICPSU55eA Supervise and schedule work of others
ICPSU56eA Control production
ICPSU54cA Coordinate work of others
ICPSU64dA Customer service / customer education
ICPSU61eA Implement and monitor OH&S (OHS2)

ICPPR71dA Set up for coating (complex)
ICPPR72dA Produce coated product (complex)

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICP53199 Diploma of Printing and Graphic Arts (Cardboard Box Container and Carton) / ICP63199 Advanced Diploma of Printing and Graphic Arts (Cardboard Box Container and Carton)

Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")
Corrugating – solid fibreboard sector
A pathway is under consideration for:

Certificate II [ICP23599]

Certificate III [ICP33599]

Certificate IV [ICP43599]

Diploma [ICP53599]

Advanced Diploma [ICP63599]
Services/merchants sector

Graphic Arts Services

ICP24199 Certificate II in Printing and Graphic Arts (Graphic Arts Services)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICP SU03b A Prepare and maintain the work area
ICP SU16a A Inspect quality against required standards
ICP SU61a A Follow OH&S practices and identify environmental hazards
ICP SU62a A Communicate in the workplace
ICP SU81b A Use computer systems

Electives
(Electives must be taken from at least two streams)
Mechanical stream
ICP SU11b A Prepare ink and additives
ICP SU24b A Perform basic machine maintenance
ICP PR31b A Set up for basic lithographic printing
ICP PR81b A Set up for electronic / digital printing (basic)
ICP CF41b A Set up machine for basic folding (single/continuous)
ICP CF43b A Set up machine for basic collating (sheet / section)
ICP CF61b A Set up machine for basic fastening (adhesive / mechanical / thermal)
Metal and Engineering standards
MEM 9.1A Draw and interpret sketch
MEM 9.2A Interpret technical drawing
MEM 12.2A Basic electric/electronic measurement
MEM 18.1A Use hand tools
MEM 18.2A Use power tools/hand held operation

Sales/Finance stream
National Clerical–Administrative Competency Standards (Private Sector)
BSA FIN101 Record and prepare financial documentation for cash flow and accounting records
BSA FIN201 Prepare and process financial documentation for cash flow and accounting records
BSA FIN301 Maintain daily financial records for accounting purposes
National Retail Standards
WRR CS.2 Apply Point of Sale Handling Procedures
WRR CS.3 Interact with Customers
WRR S.1 Sell Products and Services
WRR S.2 Advise on Products and Services

Clerical stream
ICPSU81c A Operate and maintain computer resources
National Clerical–Administrative Competency Standards (Private Sector)
BSA INF201 Handle mail to facilitate the information flow of the organisation
BSA INF202 Process and analyse information to provide access to and security of records
BSA ENT201 Apply knowledge of the enterprise to promote the products and services of the organisation
BSA TEC201 Select, operate and maintain a range of office equipment to complete a range of tasks
**Paper Merchants stream**
ICP SU02bA Prepare, load and unload sheets / sections on and off machine
ICP SU07bA Prepare machine for operation (basic)
ICP SU08bA Operate and monitor machines (basic)
ICP SU21bA Pack and dispatch product
ICP SU24bA Perform basic machine maintenance
ICP SU35bA Lift loads mechanically
ICP SU36bA Shift loads mechanically
ICP SU41bA Undertake warehouse / stores materials processing
ICP SU63bA Perform basic industry calculations
ICP CF21bA Set up and produce basic cut (guillotined) product

**Graphic Arts Service Technician**

**MEM30298 Certificate III in Engineering – Mechanical (Graphic Arts Service Technician) [MEM 302 98]**

This qualification meets the requirements for MEM 302 98 Certificate III in Engineering (Mechanical) as set out in the Metals and Engineering Training Package. The customisation for the printing industry satisfies the customisation rules set out in that package.

The minimum requirement for qualification is at least 84 points worth of Metals and Engineering Units and at least ONE Holistic Knowledge Component and TWO Basic Set-ups from the Printing and Graphic Arts Competencies.

All metals and engineering units have the prefix MEM and the suffix A.
All printing units have the prefix ICP and suffix A.

**Foundation Competencies**
MEM1.1F Undertake interactive workplace communication
MEM1.2F Apply principles of OH&S in work environment
MEM1.3F Apply quality procedures
MEM1.4F plan to undertake a routine task

**Core Band 1**
MEM2.1C12 Apply quality systems (2)
MEM2.2C11 Organise and analyse information (2)
MEM2.3C11 Operate in a workbased team environment (2)
MEM2.4C11 Assist in the provision of on–the–job learning (2)
MEM2.5C11 Measure with graduated devices (2)
MEM2.6C10 Plan a complete activity (4)
MEM2.7C10 Perform computations – basic (2)
MEM2.8C10 Perform computations (2)
MEM2.9C10 Perform computer operations (2)

**Core Units**
MEM5.7A Manual heating, thermal cutting and gouging (2)
MEM5.12A Perform routine manual arc welding (4)
MEM7.5A Perform general machining (8)
MEM9.1A Draw and interpret sketch (2)
MEM9.2A Interpret technical drawing (4)
MEM10.2A Terminate and connect electrical wiring (3)
MEM11.10A Operate mobile load shifting equipment (4)
MEM11.22A Operate fixed/moveable load shifting equipment (4)
MEM12.1A Use pre–set comparison measuring device (1)
MEM12.2A Basic electric/electronic measurement (2)
MEM12.3A Precision mechanical measurement (2)
MEM18.1A Use hand tools (2)
MEM18.2A Use power tools/hand held operation (2)
MEM18.11A Isolate/shutdown machines/equipment (2)
MEM18.49A Connect/disconnect fixed wired equipment (up to 650V) (3)

Electives
MEM5.4A Perform routine oxy–acetylene welding (fuel gas welding) (2)
MEM7.6A Perform lathe operations (4)
MEM18.3A Use tools for precision work (4)
MEM18.4A Maintain and overhaul mechanical equipment (4)
MEM18.5A Bearings – fault diagnosis installation and removal (4)
MEM18.6A Dismantle/repair/replace/assemble and fit engineering components (6)
MEM18.7A Maintain and repair mechanical drives and mechanical transmission assemblies (4)
MEM18.8A Balance equipment (2)
MEM18.9A Levelling and alignment of machines and engineering components (4)
MEM18.18A Maintain pneumatic system components (4)
MEM18.20A Maintain hydraulic system components (4)
MEM18.55A Dismantle, replace and assemble engineering components (3)

Printing and Graphic Arts Units

AT LEAST ONE OF:

Holistic Knowledge Components
ICPKN11A Demonstrate knowledge and requirements of graphic pre–press
ICPKN12A Demonstrate knowledge and requirements of printing machining
ICPKN13A Demonstrate knowledge and requirements of converting and finishing
ICPKN14A Demonstrate knowledge and requirements of screen printing
ICPKN15A Demonstrate knowledge and requirements of multimedia
ICPKN16A Demonstrate knowledge and requirements of paper and printing processes

AT LEAST TWO OF:

Printing Units
ICPPR13bA Set up for basic flexographic printing
ICPPR21bA Set up for basic gravure printing
ICPPR31bA Set up for basic lithographic printing
ICPPR41bA Set up for basic pad printing
ICPPR51bA Set up for basic relief printing
ICPPR61bA Set up for foil stamping
ICPPR71bA Set up for coating (basic)
ICPPR81bA Set up for electronic / digital printing (basic)

Screen Printing Units
ICPSP51cA Prepare machine and drying / curing unit

Converting, Binding and Finishing Units
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF23bA Set up machine for cutting (trimming)
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF27bA Set up machine for basic rotary die cutting or embossing
ICPCF31bA Set up machine for basic cutting (flat bed)
ICPCF35bA Set up machine for basic cutting (rotary)
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF61bA Set up machine for basic fastening (adhesive/mechanical/thermal)
ICPCF81bA Set up machine for basic laminating
ICP44299 Certificate IV in Printing and Graphic Arts (Graphic Arts Service Technician)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Entry requirement is Certificate III as above (when available) OR Certificate III in Fitting or Electrical Trades. Take additional units from:

ICP
SU16eA Set and apply quality standards
ICP
SU17eA Perform laboratory quality tests of materials & finished product
ICP
SU52eA Plan operational processes
ICP
SU53eA Prepare production costing estimates
ICP
SU55eA Supervise and schedule work of others
ICP
SU56eA Control production
ICP
SU54cA Coordinate work of others
ICP
SU64dA Customer service / customer education
ICP
SU61eA Implement and monitor OH&S (OHS2)

ICPPE11dA Install new small basic machine
ICPPE12dA Install new small complex machine
ICPPE13dA Install new large basic machine (mechanical)
ICPPE14dA Install new large basic machine (electronics)
ICPPE15dA Install new large complex machine (mechanical)
ICPPE16dA Install new large complex machine (electronics)
ICPPE21dA Service small basic machine
ICPPE22dA Service small complex machine
ICPPE23dA Service large basic machine (mechanical)
ICPPE24dA Service large basic machine (electronics)
ICPPE25dA Service large complex machine (mechanical)
ICPPE26dA Service large complex machine (electronics)
ICPPE31dA Remove and relocate small basic machine
ICPPE32dA Remove and relocate small complex machine
ICPPE33dA Remove and relocate large basic machine (mechanical)
ICPPE34dA Remove and relocate large basic machine (electronics)
ICPPE35dA Remove and relocate large complex machine (mechanical)
ICPPE36dA Remove and relocate large complex machine (electronics)
ICPPE41dA Decommission and detail small basic machine
ICPPE42dA Decommission and detail small complex machine
ICPPE43dA Decommission and detail large basic machine (mechanical)
ICPPE44dA Decommission and detail large basic machine (electronics)
ICPPE45dA Decommission and detail large complex machine (mechanical)
ICPPE46dA Decommission and detail large complex machine (electronics)

National generic standards
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment
BSX000801 Prepare for on-the-job training
BSX000802 Deliver on-the-job training
BSX000803 Review on-the-job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICP54299 Diploma of Printing and Graphic Arts (Graphic Arts Service Technician) / ICP64299 Advanced Diploma of Printing and Graphic Arts (Graphic Arts Service Technician)

Select additional units at levels "d" or "e" from the above lists or from other competency standards. (Note that National Generic units can exist at levels "c", "d" and "e")
Other sectors

Ink Manufacture

ICP25199 Certificate II in Printing and Graphic Arts (Ink Manufacture)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU03bA Prepare and maintain the work area
ICPSU16aA Inspect quality against required standards
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace

Electives
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU10bA Cut and finish offset blanket
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPSU63bA Perform basic industry calculations
ICPSU81bA Use computer systems
ICPIM11bA Select and prepare materials for production
ICPIM21bA Blend chemicals
ICPIM51bA Filter / pack product

National Process Manufacturing Standard
PMX HAND4 Store bulk materials

National Clerical–Administrative Competency Standards (Private Sector)
BSA FIN101 Record and prepare financial documentation for cash flow and accounting records
BSA FIN201 Process financial documentation for cash flow and accounting records
BSA INF101 Handle mail to facilitate information flow of the organisation
BSA INF201 Process and analyse information to provide access to and security of records
BSA ENT201 Apply knowledge of the enterprise to promote the products and services
BSA TEC201 Select, operate and maintain a range of office equipment to complete a range of tasks

ICP35199 Certificate III in Printing and Graphic Arts (Ink Manufacture)

Core as for Certificate II. Select additional units form above list or from:
ICPSU21cA Pack and dispatch (advanced)
ICPSU42cA Undertake inventory procedures
ICPSU45cA Purchase materials and schedule deliveries
ICPSU51cA Undertake basic production scheduling
ICPSU54cA Coordinate work of others
ICPSU62cA Workteam communication
ICPSU71bA Provide basic instruction for a task
ICPSU81cA Operate and maintain computer resources

ICPIM31cA Manufacture inks / coatings
ICPIM35dA Manufacture varnish / resin

Guideline Competency Standards for Laboratory Assistants (National Process Manufacturing)
PMX 159/02 Assist with maintenance of laboratory facilities, equipment and materials
PMX 159/03 Prepare solutions, stains and media for general use in the laboratory
PMX 159/04 Operate laboratory equipment and instruments
PMX 159/05 Collect and prepare standard samples
PMX 159/06 Perform qualitative and quantitative tests
PMX 159/07 Process data and keep accurate records

ICP45199 Certificate IV in Printing and Graphic Arts (Ink Manufacture)
Select units from above lists or from:

ICPSU16eA Set and apply quality standards
ICPSU17eA Perform laboratory quality tests of materials & finished product
ICPSU52eA Plan operational processes
ICPSU35eA Prepare production costing estimates
ICPSU61eA Implement and monitor OH&S (OHS2)
ICPSU64dA Customer service / customer education
ICPSU81dA Manage systems
ICPSU81eA System research development and diagnosis

National generic standards
(Not that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment
BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

ICPIM71dA Develop and apply industry and enterprise knowledge (technical / laboratory operations)

ICP55199 Diploma of Printing and Graphic Arts (Ink Manufacture) / ICP65199 Advanced Diploma of Printing and Graphic Arts (Ink Manufacture)
Select additional units at levels "d" or "e" from the above lists or from other competency standards.
ICPSU55eA Supervise and schedule work of others
ICP SU56eA Control production
(Note that National Generic units can exist at levels "c", "d" and "e")

Mail houses

ICP25299 Certificate II in Printing and Graphic Arts (Mail Houses)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU16aA Inspect quality against required standards
ICPSU21bA Pack and dispatch product
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace
ICPSU81bA Use computer systems

Electives
ICPSU22bA Pack and dispatch solid waste
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU35bA Lift loads mechanically
ICPSU36bA Shift loads mechanically
ICPSU41bA Undertake warehouse / stores materials processing
ICPPR81bA Set up for electronic / digital printing (basic)
ICPPR82bA Produce electronic / digital printed product (basic)
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF23bA Set up machine for cutting (trimming)
ICPCF24bA Produce cut (trimmed) product
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF26bA Produce basic flat bed die cut or embossed product
ICPCF27bA Set up machine for basic rotary die cutting or embossing
ICPCF28bA Produce basic rotary die cut or embossed product
ICPCF31bA Set up machine for basic cutting (flat bed)
ICPCF32bA Produce basic cut (flat bed) product
ICPCF35bA Set up machine for basic cutting (rotary)
ICPCF36bA Produce basic cut (rotary) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF45bA Set up and produce hand collated product
ICPCF61bA Set up machine for basic fastening (adhesive / mechanical / thermal)
ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product
ICP35299 Certificate III in Printing and Graphic Arts (Mail Houses)
Core as for Certificate II. Select additional units from above list or from:

ICPSU11bA Prepare ink and additives
ICPSU12bA Prepare coatings, adhesives
ICPSU21cA Pack and dispatch (advanced)
ICPSU42cA Undertake inventory procedures
ICPSU45cA Purchase materials and schedule deliveries
ICPSU51cA Undertake basic production scheduling
ICPSU54cA Coordinate work of others
ICPSU62cA Workteam communication
ICPSU71bA Provide basic instruction for a task
ICPSU81cA Operate and maintain computer resources

ICPPR51bA Set up for basic relief printing
ICPPR52cA Produce basic relief printed product

ICPCF25cA Set up machine for complex flat bed die cutting or embossing
ICPCF26cA Produce complex flat bed die cut or embossed product
ICPCF27cA Set up machine for complex rotary die cutting or embossing
ICPCF28cA Produce complex rotary die cut or embossed product
ICPCF41dA Set up machine for complex folding (sequenced / multiple)
ICPCF42cA Produce complex folded (sequenced / multiple) product

ICP45299 Certificate IV in Printing and Graphic Arts (Mail Houses)
Select units from the above list or from:

ICPSU16eA Set and apply quality standards
ICPSU52eA Plan operational processes
ICPSU53eA Prepare production costing estimates
ICPSU55eA Supervise and schedule work of others
ICPSU56eA Control production
ICPSU61eA Implement and monitor OH&S (OHS2)
ICPSU64dA Customer service / customer education
ICPSU81dA Manage systems
ICPSU81eA System research development and diagnosis

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000801 Prepare for on-the-job training
BSX000802 Deliver on-the-job training
BSX000803 Review on-the-job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools
ICP55299  Diploma of Printing and Graphic Arts (Mail Houses) / ICP65299  Advanced Diploma of Printing and Graphic Arts (Mail Houses)

Select additional units at levels "d" or "e" from the above lists or from other competency standards. (Note that National Generic units can exist at levels "c", "d" and "e")
General pathways

**Pre-vocational Pathway**

This pathway does not have an AQF qualification as an end point. It articulates into Certificate III in Graphic Pre-press, Printing or Print Finishing. A statement of attainment may be issued. Off-the-job training will be offered leading towards the following competency standards:

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

**Core Competencies**

ICP SU03b A Prepare and maintain the work area
ICP SU16a A Inspect quality against required standards
ICP SU23b A Treat and dispose of liquid waste
ICP SU61a A Follow OH&S practices and identify environmental hazards
ICP SU62a A Communicate in the workplace
ICP SU81b A Use computer systems

**Electives**

ICP SU01b A Prepare, load and unload reel(s) and cores on and off machine
ICP SU02b A Prepare, load and unload sheets / sections on and off machine
ICP SU07b A Prepare machine for operation (basic)
ICP SU08b A Operate and monitor machines (basic)
ICP SU05b A Store and retrieve images manually
ICP SU11b A Prepare ink and additives
ICP SU24b A Perform basic machine maintenance
ICP SU63b A Perform basic industry calculations

ICPP PP21b A Select and apply type
ICPP PP22b A Scan a line image
ICPP PP22c A Scan images for reproduction
ICPP PP32c A Electronically combine and assemble data
ICPP PP33c A Prepare a (layout) format for printing processes
ICPP PP52b A Output images to film and paper
ICPP PP60b A Chemically proof images

ICPP PR31b A Set up for basic lithographic printing
ICPP PR32c A Produce basic lithographic printed product
ICPP PR81b A Set up for electronic / digital printing (basic)
ICPP PR82b A Produce electronic / digital printed product (basic)

ICP CF21b A Set up and produce basic cut (guillotined) product
ICP CF41b A Set up machine for basic folding (single/continuous)
ICP CF42b A Produce basic folded (single / continuous) product
ICP CF43b A Set up machine for basic collating (sheet / section)
ICP CF44b A Produce basic collated (sheet / section) product
ICP CF61b A Set up machine for basic fastening (adhesive / mechanical / thermal)
ICP CF62b A Produce basic fastened (adhesive / mechanical / thermal) product
ICP CF63b A Set up and produce hand fastened product
Management/Sales

ICP46299 Certificate IV in Printing and Graphic Arts (Management/Sales)

Prerequisite for entry into this pathway is Certificate III or equivalent or higher qualification in ANY discipline.

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core (assumed knowledge)
ICPSU16a.A Inspect quality against required standards
ICPSU61a.A Follow OH&S practices and identify environmental hazards
ICPSU62a.A Communicate in the workplace
ICPSU81b.A Use computer systems

Holistic knowledge components (not counted in formula for certification)
AT LEAST THREE OF:
ICPKN11.A Demonstrate knowledge and requirements of graphic pre–press
ICPKN12.A Demonstrate knowledge and requirements of printing machining
ICPKN13.A Demonstrate knowledge and requirements of converting and finishing
ICPKN14.A Demonstrate knowledge and requirements of screen printing
ICPKN15.A Demonstrate knowledge and requirements of multimedia
ICPKN16.A Demonstrate knowledge and requirements of paper and printing processes
(Note that there is considerable overlap between some of these components)

Electives
ICPSU16e.A Set and apply quality standards
ICPSU17e.A Perform laboratory quality tests of materials & finished product
ICPSU42c.A Undertake inventory procedures
ICPSU45c.A Purchase materials and schedule deliveries
ICPSU51c.A Undertake basic production scheduling
ICPSU52e.A Plan operational processes
ICPSU53e.A Prepare production costing estimates
ICPSU54c.A Coordinate work of others
ICPSU55e.A Supervise and schedule work of others
ICPSU56e.A Control production
ICPSU61e.A Implement and monitor OH&S (OHS2)
ICPSU62c.A Workteam communication
ICPSU64d.A Customer service / customer education
ICPSU81c.A Operate and maintain computer resources
ICPSU81d.A Manage systems
ICPSU81e.A System research development and diagnosis

National Generic Units
(Note that National Generic units can exist at levels "c", "d" and "e")
BSX014801 Manage personal work priorities and professional development
BSX014802 Provide leadership in the workplace
BSX014803 Establish and manage effective workplace relationships
BSX014804 Participate in, lead and facilitate work teams
BSX014805 Manage operations to achieve planned outcomes
BSX014806 Manage workplace information
BSX014807 Manage quality customer service
BSX014808 Develop and maintain a safe workplace and environment
BSX014809 Implement and monitor continuous improvement systems and processes
BSX014810 Facilitate and capitalise on change and innovation
BSX014811 Contribute to the development of a workplace learning environment

BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established assessment procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools

National Retail Standards
WRR CS.4 Co–ordinate Interaction with Customers
WRR S.2 Advise on Products and Services
WRR S.3 Co–ordinate Sales Performance

ICP56299 Diploma of Printing and Graphic Arts (Management/Sales) / ICP66299 Advanced Diploma of Printing and Graphic Arts (Management/Sales)
Select additional units at levels "d" or "e" from the above lists or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")

Printing and Graphic Arts (General)

ICP26199 Certificate II in Printing and Graphic Arts (General) / ICP36199 Certificate III in Printing and Graphic Arts (General) / ICP46199 Certificate IV in Printing and Graphic Arts (General)

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

Core Competencies
ICPSU16aA Inspect quality against required standards
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in the workplace

Electives
Electives in these qualifications can come from any of the whole list of printing and graphic arts industry competency units. These qualifications are intended for any package of units that do not satisfy one of the other defined pathways. It is likely that the main use will be from pad printers and digital printers wanting a Certificate II qualification.

At Certificate III and above an appropriate Holistic Knowledge Component should be included.

ICP56199 Diploma of Printing and Graphic Arts (General) / ICP66199 Advanced Diploma of Printing and Graphic Arts (General)
Select additional units at levels "d" or "e" from the printing and graphic arts competency standards or from other competency standards.
(Note that National Generic units can exist at levels "c", "d" and "e")
Examples of the packaging of units

The following examples show how different pathways might package the competency standards at a Certificate III level. These packages satisfy minimum requirements and are possibilities only; other packages are likely to suit different enterprises.

NOTE: For the purpose of maintaining national requirements for consistency on the National Training Information System (NTIS) all printing industry standards have the standard identifier prefix ICP and version identifier suffix A.

**Lithographic printer**

ICPKN12A Demonstrate knowledge and requirements of printing machining  
ICPSU02bA Prepare, load and unload sheets / sections on and off machine  
ICPSU03bA Prepare and maintain the work area  
ICPSU07bA Prepare machine for operation (basic)  
ICPSU08bA Operate and monitor machines (basic)  
ICPSU11bA Prepare inks and additives  
ICPSU16aA Inspect quality against required standards  
ICPSU23bA Treat and dispose of liquid waste  
ICPSU24bA Perform basic machine maintenance  
ICPSU61aA Follow OH&S practices and identify environmental hazards  
ICPSU62aA Communicate in workplace  
ICPSU63bA Perform basic industry calculations  
ICPPP67bA Make offset lithographic plates  
ICPPR31bA Set up for basic lithographic printing  
ICPPR31dA Set up for complex lithographic printing  
ICPPR32cA Produce basic lithographic printed product  
ICPPR32dA Produce complex lithographic printed product  
ICPCF21bA Set up and produce basic cut (guillotined) product

**Graphic Pre–press (scanner)**

ICPKN11A Demonstrate knowledge and requirements of graphic pre–press  
ICPSU03bA Prepare and maintain the work area  
ICPSU05bA Store and retrieve images manually  
ICPSU16aA Inspect quality against required standards  
ICPSU61aA Follow OH&S practices and identify environmental hazards  
ICPSU62aA Communicate in workplace  
ICPSU63bA Perform basic industry calculations  
ICPSU81bA Use computer systems  
ICPSU81cA Operate and maintain computer resources  
ICPPP22bA Scan a line image  
ICPPP22cA Scan images for reproduction  
ICPPP22dA Scan complex images for reproduction  
ICPPP32cA Electronically combine and assemble data  
ICPPP32dA Electronically combine complex images  
ICPPP52bA Output images to film and paper  
ICPPP52cA Output complex images to film  
ICPPP60bA Chemically proof images  
ICPPP60cA Undertake special colour and digital proofing
Screen Printer

ICPKN14A Demonstrate knowledge and requirements of screen printing
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU11bA Prepare inks and additives
ICPSU16aA Inspect quality against required standards
ICPSU21bA Pack and dispatch product
ICPSU23bA Treat and dispose of liquid waste
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in workplace
ICPSP11bA Reclaim screen (basic)
ICPSP21bA Prepare substrate
ICPSP15bA Prepare screen
ICPSP37cA Prepare stencil using photographic capillary method
ICPSP39cA Prepare stencil using direct projection method
ICPSP51cA Prepare machine and drying / curing unit
ICPSP71bA Produce print – manual (basic)
ICPSP71cA Produce print – manual (advanced)
ICPSP73bA Produce print using semi automatic machine (basic)
ICPSP73cA Produce print using semi automatic machine (advanced)
ICPCF21bA Set up and produce basic cut (guillotined) product

Binder and Finisher

ICPKN13A Demonstrate knowledge and requirements of converting and finishing
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICPSU03bA Prepare and maintain the work area
ICPSU07bA Prepare machine for operation (basic)
ICPSU08bA Operate and monitor machines (basic)
ICPSU16aA Inspect quality against required standards
ICPSU21bA Pack and dispatch product
ICPSU22bA Pack and dispatch solid waste
ICPSU24bA Perform basic machine maintenance
ICPSU61aA Follow OH&S practices and identify environmental hazards
ICPSU62aA Communicate in workplace
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF21cA Set up and produce complex cut (guillotined) product
ICPCF41bA Set up machine for basic folding
ICPCF41dA Set up machine for complex folding
ICPCF42bA Produce basic folded product
ICPCF42cA Produce complex folded product
ICPCF61bA Set up machine for basic fastening
ICPCF61cA Set up machine for complex fastening
ICPCF62bA Produce basic fastened product
ICPCF62cA Produce complex fastened product

Carton worker

ICPKN13A Demonstrate knowledge and requirements of converting and finishing
ICPSU02bA Prepare, load and unload sheets / sections on and off machine
ICP SU03b A Prepare and maintain the work area
ICP SU07b A Prepare machine for operation (basic)
ICP SU08b A Operate and monitor machines (basic)
ICP SU16a A Inspect quality against required standards
ICP SU22b A Pack and dispatch solid waste
ICP SU24b A Perform basic machine maintenance
ICP SU61a A Follow OH&S practices and identify environmental hazards
ICP SU62a A Communicate in workplace
ICP CF25b A Set up machine for basic flat bed die cutting or embossing
ICP CF25c A Set up machine for complex flat bed die cutting or embossing
ICP CF26b A Produce basic flat bed die cut or embossed product
ICP CF26c A Produce complex flat bed die cut or embossed product
ICP CF41b A Set up machine for basic folding
ICP CF41d A Set up machine for complex folding
ICP CF42b A Produce basic folded product
ICP CF42c A Produce complex folded product
ICP CF61b A Set up machine for basic fastening
ICP CF62b A Produce basic fastened product

Ink Maker
ICP SU03b A Prepare and maintain the work area
ICP SU07b A Prepare machine for operation (basic)
ICP SU08b A Operate and monitor machines (basic)
ICP SU16a A Inspect quality against required standards
ICP SU23b A Treat and dispose of liquid waste
ICP SU24b A Perform basic machine maintenance
ICP SU35b A Lift loads mechanically
ICP SU42c A Undertake inventory procedures
ICP SU54c A Coordinate work of others
ICP SU61a A Follow OH&S practices and identify environmental hazards
ICP SU62a A Communicate in the workplace
ICP SU62c A Workteam communication
ICP SU63b A Perform basic industry calculations
ICP SU81b A Use computer systems

ICP IM11b A Select and prepare materials for production
ICP IM21b A Blend chemicals
ICP IM51b A Filter / pack product
ICP IM31c A Manufacture inks / coatings

BSX000801 Prepare for on–the–job training (at "c" level)
BSX000802 Deliver on–the–job training (at "c" level)

Production Manager (AQF IV/V)
Entry assumes completion of Certificate III or equivalent and:
ICP KN11 A Demonstrate knowledge and requirements of graphic pre–press
ICP KN12 A Demonstrate knowledge and requirements of printing machining
ICP KN13 A Demonstrate knowledge and requirements of converting and finishing
AQF IV
ICP SU45c A Purchase materials and schedule deliveries
ICP SU51c A Undertake basic production scheduling
ICP SU64d A Customer service / customer education
ICPSU71bA Provide basic instruction for a task  
BSX014802 Provide leadership in the workplace (AQF III level "c")  
BSX014803 Establish and manage effective workplace relationships (AQF IV level "d")  
BSX014804 Participate in, lead and facilitate work teams (AQF IV level "d")  
BSX002201 Conduct assessment in accordance with established assessment procedure

AQF V

Above units and:
ICPSU53eA Prepare production costing estimates  
BSX014804 Participate in, lead and facilitate work teams (AQF V level "e")  
BSX014807 Manage quality customer service (AQF IV level "d")  
BSX014808 Develop and maintain a safe workplace and environment (AQF IV level "d")  
BSX000801 Prepare for on-the-job training  
BSX000802 Deliver on-the-job training
Apprenticeships and Traineeships

The current apprenticeships and traineeships will continue to be available and several new traineeships will also be available. There are apprenticeships (AQFIII) in:

- Graphic Pre-press
- Printing Machining
- Print Finishing
- Screen Printing

and traineeships (AQFII) in:

- Small Offset
- Print Production Support (suitable for printing offsiders, binding assistants and general hands)
- Print Design (suitable for trainee designers)
- Graphic Arts Services (includes streams for trainee engineers, clerical, sales/finance, and paper merchants)
- Screen Printing (suitable for production workers not involved in stencil preparation)
- Cardboard Box, Container and Carton (suitable for production workers)
- Mail house (suitable for any workers in this sector)
TRAINING RESOURCES SECTION
Key Competencies

Relationship between Printing Industry Competency Standards and Key Competencies

While most key competencies would apply to most of the printing industry standards the main ones that are rated as very important in each standard are listed below. As a general principal "b" standards would require the key competencies at level 1; "c" standards at level 2 and "d/e" standards at level 3.

Key Competencies
1. Collecting, analysing and organising information
2. Communicating ideas and information
3. Planning and organising activities
4. Working with others and in teams
5. Using mathematical ideas and techniques
6. Solving problems
7. Using technology
8. Cultural understanding

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Support Units
ICPSU01bA Prepare, load and unload reel(s) and cores on and off machine 45
ICPSU02bA Prepare, load and unload sheets / sections on and off machine 45
ICPSU03bA Prepare and maintain the work area 14
ICPSU05bA Store and retrieve images manually 125
ICPSU07bA Prepare machine for operation (basic) 124
ICPSU08bA Operate and monitor machines (basic) 124
ICPSU10bA Cut and finish offset blanket 123567
ICPSU11bA Prepare ink and additives 156
ICPSU11cA Prepare ink & additives (Advanced) 1234567
ICPSU12bA Prepare coatings, adhesives 156
ICPSU16aA Inspect quality against required standards 124
ICPSU16eA Set and apply quality standards 12345678
ICPSU17eA Perform laboratory quality tests of materials & finished product 1234567
ICPSU21bA Pack and dispatch product 146
ICPSU21cA Pack and dispatch (Advanced) 123456
ICPSU22bA Pack and dispatch solid waste 136
ICPSU23bA Treat and dispose of liquid waste 136
ICPSU24bA Perform basic machine maintenance 16
ICPSU35bA Lift loads mechanically 456
ICPSU36bA Shift loads mechanically 456
ICPSU41bA Undertake warehouse / stores materials processing 123567
ICPSU42cA Undertake inventory procedures 12357
ICPSU45cA Purchase materials and schedule deliveries 1234567
ICPSU51cA Undertake basic production scheduling 1234567
ICPSU52eA Plan operational processes 1234567
ICPSU53eA Prepare production costing estimates 1234567
ICPSU54cA Coordinate work of others 12346
ICPSU55eA Supervise and schedule work of others 1234–6
ICPSU56eA Control production 1234567–
ICPSU61aA Follow OH&S practices and identify environmental hazards 1
ICPSU61eA Implement and monitor OH&S (OHS2) 1234–6
ICPSU62aA Communicate in the workplace 12
ICPSU62cA Workteam communication 12
ICPSU63bA Perform basic industry calculations –-5
ICPSU64dA Customer service / customer education 12–4–6–7
ICPSU71bA Provide basic instruction for a task 1234–6
ICPSU81bA Use computer systems –2–5–7
ICPSU81cA Operate and Maintain Computer Resources 12–4567–
ICPSU81dA Manage systems 1234567–
ICPSU81eA System research development and diagnosis 1234567–

Pre–press Units

ICPPP11bA Develop a basic design concept 12345678
ICPPP11cA Develop a detailed design concept 12345678
ICPPP11dA Undertake a complex design brief 12345678
ICPPP21BA Select and apply type 12–5–78
ICPPP21cA Produce a typographic image 12–5678
ICPPP21dA Compose and evaluate typography 12–5678
ICPPP22bA Scan a line image 12–5–7–
ICPPP22cA Scan images for reproduction 123–567–
ICPPP22dA Scan complex images for reproduction 123–567–
ICPPP23bA Photograph a line image 12–5–7–
ICPPP23cA Photograph and produce halftone images 123–567–
ICPPP31bA Manually combine spot colour and basic four colour images 12–567–
ICPPP31cA Manually combine complex four colour images 123–5678
ICPPP32cA Electronically combine and assemble data 123–567–
ICPPP32dA Electronically combine complex images 12–5678
ICPPP33cA Prepare a (layout) format for printing processes 123–5678
ICPPP33dA Generate complex imposition 123–5678
ICPPP52bA Output images to film and paper 12–6–7–
ICPPP52cA Output complex images to film 123–567–
ICPPP52dA Output complex images direct to plate or press 123–567–
ICPPP53bA Output images to electronic media 123–567–
ICPPP60bA Chemically proof images 123–567–
ICPPP60cA Undertake special colour and digital proofing 123–567–
ICPPP66bA Make and proof relief plates 12–567–
ICPPP67bA Make offset lithographic plates 12–567–
ICPPP68bA Make photopolymer plates (flexographic) 12–567–
ICPPP69bA Make photopolymer plates (pad printing) 12–567–
ICPPP70cA Make multiple image plates 123–567–
ICPPP72bA Make gravure cylinders manually 12–567–
ICPPP72cA Make gravure cylinders electronically 123–567–
ICPPP81bA Design carton (basic) 123–567–
ICPPP81dA Design carton (complex) 12345678

Multimedia Units

ICPMM11bA Identify components of multimedia 1–7–
ICPMM13cA Author a multimedia sequence 12–5678
ICPMM15dA Develop a multimedia script 12345678
ICPMM21cA Capture a digital image –2–567–
ICPMM41cA  Incorporate text into multimedia presentations  12—5678
ICPMM42cA  Incorporate 2D graphics into multimedia presentations  12—5678
ICPMM43cA  Incorporate digital photography into multimedia presentations  12—5678
ICPMM44cA  Incorporate audio into multimedia presentations  12—5678
ICPMM45cA  Incorporate animation into multimedia presentations  12—5678
ICPMM46cA  Incorporate video into multimedia presentations  12—5678
ICPMM47dA  Incorporate 3D modeling into multimedia presentations  12—5678
ICPMM61dA  Prepare multimedia for different platforms  123—5678
ICPMM63bA  Access the Internet  1—7
ICPMM65dA  Create web pages with multimedia  12—5678
ICPMM67dA  Plan interface design  12345678
ICPMM81eA  Manage multimedia production  12345678
ICPMM82eA  Manage multimedia projects  12345678

**Printing Units**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICPPR11bA</td>
<td>Mount and proof flexographic plates for basic printing</td>
<td>ICPPR41bA</td>
</tr>
<tr>
<td>ICPPR11dA</td>
<td>Mount and proof flexographic plates for complex printing</td>
<td>ICPPR41cA</td>
</tr>
<tr>
<td>ICPPR13bA</td>
<td>Set up for basic flexographic printing</td>
<td>ICPPR42bA</td>
</tr>
<tr>
<td>ICPPR13dA</td>
<td>Set up for complex flexographic printing</td>
<td>ICPPR42cA</td>
</tr>
<tr>
<td>ICPPR14cA</td>
<td>Produce basic flexographic printed product</td>
<td>ICPPR51bA</td>
</tr>
<tr>
<td>ICPPR14dA</td>
<td>Produce complex flexographic printed product</td>
<td>ICPPR51dA</td>
</tr>
<tr>
<td>ICPPR21bA</td>
<td>Set up for basic gravure printing</td>
<td>ICPPR52cA</td>
</tr>
<tr>
<td>ICPPR21dA</td>
<td>Set up for complex gravure printing</td>
<td>ICPPR52dA</td>
</tr>
<tr>
<td>ICPPR22cA</td>
<td>Produce basic gravure printed product</td>
<td>ICPPR61bA</td>
</tr>
<tr>
<td>ICPPR22dA</td>
<td>Produce complex gravure printed product</td>
<td>ICPPR62bA</td>
</tr>
<tr>
<td>ICPPR23bA</td>
<td>Set up for basic lithographic printing</td>
<td>ICPPR71bA</td>
</tr>
<tr>
<td>ICPPR23dA</td>
<td>Set up for complex lithographic printing</td>
<td>ICPPR71dA</td>
</tr>
<tr>
<td>ICPPR22cA</td>
<td>Produce basic lithographic printed product</td>
<td>ICPPR72bA</td>
</tr>
<tr>
<td>ICPPR23cA</td>
<td>Produce complex lithographic printed product</td>
<td>ICPPR72dA</td>
</tr>
<tr>
<td>ICPPR31bA</td>
<td>Set up for basic lithographic printing</td>
<td>ICPPR81bA</td>
</tr>
<tr>
<td>ICPPR31dA</td>
<td>Set up for complex lithographic printing</td>
<td>ICPPR81cA</td>
</tr>
<tr>
<td>ICPPR32cA</td>
<td>Produce basic lithographic printed product</td>
<td>ICPPR82bA</td>
</tr>
<tr>
<td>ICPPR32dA</td>
<td>Produce complex lithographic printed product</td>
<td>ICPPR82cA</td>
</tr>
</tbody>
</table>

**Screen Printing Units**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICPSP11bA</td>
<td>Reclaim screen (basic)</td>
</tr>
<tr>
<td>ICPSP11cA</td>
<td>Reclaim screen (advanced)</td>
</tr>
<tr>
<td>ICPSP15bA</td>
<td>Prepare screen</td>
</tr>
</tbody>
</table>
ICPSP21bA Prepare substrate
ICPSP31bA Prepare Stencil Using Computer or Hand Cut Method
ICPSP33bA Prepare stencil using photographic direct emulsion method (basic)
ICPSP33cA Prepare stencil using photographic direct emulsion method (adv)
ICPSP35bA Prepare stencil using photographic indirect method
ICPSP37cA Prepare stencil using photographic capillary method
ICPSP39cA Prepare stencil using direct projection method
ICPSP41cA Prepare stencil using direct electronic imaging method
ICPSP51cA Prepare machine and drying / curing unit
ICPSP71bA Produce print – manual (basic)
ICPSP71cA Produce print – manual (advanced)
ICPSP73bA Produce print using semi–automatic machines (basic)
ICPSP73cA Produce print using semi–automatic machines (advanced)
ICPSP75bA Produce print using automatic machines
ICPSP75cA Produce print using automatic machines (advanced)
ICPSP81bA Finish screen print products

Converting, Binding and Finishing Units

ICPCF11cA Prepare for cutting forme and stripper making
ICPCF12cA Set cutting forme and strippers
ICPCF21bA Set up and produce basic cut (guillotined) product
ICPCF21cA Set up and produce complex cut (guillotined) product
ICPCF23bA Set up machine for cutting (trimming)
ICPCF24bA Produce cut (trimmed) product
ICPCF25bA Set up machine for basic flat bed die cutting or embossing
ICPCF25cA Set up machine for complex flat bed die cutting or embossing
ICPCF26bA Produce basic flat bed die cut or embossed product
ICPCF26cA Produce complex flat bed die cut or embossed product
ICPCF27bA Set up machine for basic rotary die cutting or embossing
ICPCF27cA Set up machine for complex rotary die cutting or embossing
ICPCF28bA Produce basic rotary die cut or embossed product
ICPCF28cA Produce complex rotary die cut or embossed product
ICPCF31bA Set up machine for basic cutting (flat bed)
ICPCF32bA Produce basic cut (flat bed) product
ICPCF35bA Set up machine for basic cutting (rotary)
ICPCF36bA Produce basic cut (rotary) product
ICPCF41bA Set up machine for basic folding (single/continuous)
ICPCF41cA Set up machine for complex folding (sequenced / multiple)
ICPCF42bA Produce basic folded (single / continuous) product
ICPCF42cA Produce complex folded (sequenced / multiple) product
ICPCF43bA Set up machine for basic collating (sheet / section)
ICPCF43cA Set up machine for complex collating (sheet / section / reel)
ICPCF44bA Produce basic collated (sheet / section) product
ICPCF44cA Produce complex collated (sheet / section / reel) product
ICPCF45bA Set up and produce hand collated product
ICPCF61bA Set up machine for basic fastening (adhesive/mechanical/thermal)
ICPCF61cA Set up machine for complex fastening (adhesive/mechanical/sewing)
ICPCF62bA Produce basic fastened (adhesive / mechanical / thermal) product
ICPCF62cA Produce complex fastened (adhesive / mechanical / sewing) product
ICPCF63bA Set up and produce hand fastened product
ICPCF65bA Set up and produce hand bound book
ICPCF67bA Restore books
ICPCF69cA Set up for and produce hand made box
ICPCF71cA Decorate paper
ICPCF81bA Set up machine for basic laminating
ICPCF81cA Set up machine for complex laminating
ICPCF82bA Produce basic laminated product
ICPCF82cA Produce complex laminated product

Printing Engineering
ICPPE11dA Install new small basic machine
ICPPE12dA Install new small complex machine
ICPPE13dA Install new large basic machine (mechanical)
ICPPE14dA Install new large basic machine (electronics)
ICPPE15dA Install new large complex machine (mechanical)
ICPPE16dA Install new large complex machine (electronics)
ICPPE21dA Service small basic machine
ICPPE22dA Service small complex machine
ICPPE23dA Service large basic machine (mechanical)
ICPPE24dA Service large basic machine (electronics)
ICPPE25dA Service large complex machine (mechanical)
ICPPE26dA Service large complex machine (electronics)
ICPPE31dA Remove and relocate small basic machine
ICPPE32dA Remove and relocate small complex machine
ICPPE33dA Remove and relocate large basic machine (mechanical)
ICPPE34dA Remove and relocate large basic machine (electronics)
ICPPE35dA Remove and relocate large complex machine (mechanical)
ICPPE36dA Remove and relocate large complex machine (electronics)
ICPPE41dA Decommission and detail small basic machine
ICPPE42dA Decommission and detail small complex machine
ICPPE43dA Decommission and detail large basic machine (mechanical)
ICPPE44dA Decommission and detail large basic machine (electronics)
ICPPE45dA Decommission and detail large complex machine (mechanical)
ICPPE46dA Decommission and detail large complex machine (electronics)

Ink Manufacture
ICPIPIM11bA Select and prepare materials for production
ICPIPIM21bA Blend chemicals
ICPIPIM31cA Manufacture inks / coatings
ICPIPIM35dA Manufacture varnish / resin
ICPIPIM51bA Filter / pack product
ICPIPIM71dA Develop & apply industry & enterprise knowledge (technical/lab operations)

Holistic knowledge components
ICPKN11A Demonstrate knowledge and requirements of graphic pre–press
ICPKN12A Demonstrate knowledge and requirements of printing machining
ICPKN13A Demonstrate knowledge and requirements of converting and finishing
ICPKN14A Demonstrate knowledge and requirements of screen printing
ICPKN15A Demonstrate knowledge and requirements of multimedia
ICPKN16A Demonstrate knowledge and requirements of paper and printing processes

National Generic Standards
BSX014801: Manage personal work priorities and professional development
BSX014802: Provide leadership in the workplace
BSX014803: Establish and manage effective workplace relationships
BSX014804: Participate in, lead and facilitate work teams
BSX014805: Manage operations to achieve planned outcomes
BSX014806: Manage workplace information
BSX014807: Manage quality customer service
BSX014808: Develop and maintain a safe workplace and environment
BSX014809: Implement & monitor continuous improvement systems & processes
BSX014810: Facilitate and capitalise on change and innovation
BSX014811: Contribute to the development of a workplace learning environment
BSX000801 Prepare for on–the–job training
BSX000802 Deliver on–the–job training
BSX000803 Review on–the–job training
BSX002201 Conduct assessment in accordance with established procedure
BSX002202 Plan and review assessment
BSX002203 Develop assessment tools
QUALIFICATIONS

**Graphics sector**
ICP20199 Certificate II in Printing and Graphic Arts (Desktop Publishing)
ICP20299 Certificate II in Printing and Graphic Arts (Print Design)*
ICP30399 Certificate III in Printing and Graphic Arts (Graphic Pre-press)
ICP40399 Certificate IV in Printing and Graphic Arts (Graphic Pre-press)
ICP50399 Diploma of Printing and Graphic Arts (Graphic Pre-press)
ICP60399 Advanced Diploma of Printing and Graphic Arts (Graphic Pre-press)
ICP30499 Certificate III in Printing and Graphic Arts (Multimedia)
ICP40499 Certificate IV in Printing and Graphic Arts (Multimedia)
ICP50499 Diploma of Printing and Graphic Arts (Multimedia)
ICP60499 Advanced Diploma of Printing and Graphic Arts (Multimedia)

**Printing and finishing sector**
ICP21199 Certificate II in Printing and Graphic Arts (Small Offset)*
ICP21299 Certificate II in Printing and Graphic Arts (Print Production Support)*
ICP31399 Certificate III in Printing and Graphic Arts (Printing)
ICP41399 Certificate IV in Printing and Graphic Arts (Printing)
ICP51399 Diploma of Printing and Graphic Arts (Printing)
ICP61399 Advanced Diploma of Printing and Graphic Arts (Printing)
ICP31499 Certificate III in Printing and Graphic Arts (Print Finishing)
ICP41499 Certificate IV in Printing and Graphic Arts (Print Finishing)
ICP51499 Diploma of Printing and Graphic Arts (Print Finishing)
ICP61499 Advanced Diploma of Printing and Graphic Arts (Print Finishing)

**Screen Printing sector**
ICP22199 Certificate II in Printing and Graphic Arts (Screen Printing)*
ICP32199 Certificate III in Printing and Graphic Arts (Screen Printing)
ICP42199 Certificate IV in Printing and Graphic Arts (Screen Printing)
ICP52199 Diploma of Printing and Graphic Arts (Screen Printing)
ICP62199 Advanced Diploma of Printing and Graphic Arts (Screen Printing)

**Carton sector**
ICP23199 Certificate II in Printing and Graphic Arts (Cardboard Box Container and Carton)*
ICP33199 Certificate III in Printing and Graphic Arts (Cardboard Box Container and Carton)
ICP43199 Certificate IV in Printing and Graphic Arts (Cardboard Box Container and Carton)
ICP53199 Diploma of Printing and Graphic Arts (Cardboard Box Container and Carton)
ICP63199 Advanced Diploma of Printing and Graphic Arts (Cardboard Box Container and Carton)
**Corrugating and solid fibreboard sector**
A pathway is under consideration for Certificate II/III/IV, Diploma, Advanced Diploma [35]

**Services/merchants sector**
ICP24199  Certificate II in Printing and Graphic Arts (Graphic Arts Services)*
MEM30298  Certificate III in Engineering - Mechanical (Graphic Arts Service Technician)**
ICP44299  Certificate IV in Printing and Graphic Arts (Graphic Arts Service Technician)
ICP54299  Diploma of Printing and Graphic Arts (Graphic Arts Service Technician)
ICP64299  Advanced Diploma of Printing and Graphic Arts (Graphic Arts Service Technician)

**Other sectors**
ICP25199  Certificate II in Printing and Graphic Arts (Ink Manufacture)
ICP35199  Certificate III in Printing and Graphic Arts (Ink Manufacture)
ICP45199  Certificate IV in Printing and Graphic Arts (Ink Manufacture)
ICP55199  Diploma of Printing and Graphic Arts (Ink Manufacture)
ICP65199  Advanced Diploma of Printing and Graphic Arts (Ink Manufacture)
ICP25299  Certificate II in Printing and Graphic Arts (Mail Houses)
ICP35299  Certificate III in Printing and Graphic Arts (Mail Houses)
ICP45299  Certificate IV in Printing and Graphic Arts (Mail Houses)
ICP55299  Diploma of Printing and Graphic Arts (Mail Houses)
ICP65299  Advanced Diploma of Printing and Graphic Arts (Mail Houses)

**General Pathways**
ICP26199  Certificate II in Printing and Graphic Arts (General)
ICP36199  Certificate III in Printing and Graphic Arts (General)
ICP46199  Certificate IV in Printing and Graphic Arts (General)
ICP56199  Diploma of Printing and Graphic Arts (General)
ICP66199  Advanced Diploma of Printing and Graphic Arts (General)
ICP46299  Certificate IV in Printing and Graphic Arts (Management/Sales)
ICP56299  Diploma of Printing and Graphic Arts (Management/Sales)
ICP66299  Advanced Diploma of Printing and Graphic Arts (Management/Sales)