Australian Government

Department of Education, Employment and Workplace Relations

ICPPR322C Produce complex gravure printed product

Revision Number: 1

ICPPR322C Produce complex gravure printed product

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to produce non-routine gravure printed product.

Application of the Unit

Application of the unit	This unit requires the individual to operate a gravure press ensuring an efficient non-routine production flow that maintains product quality standards. Any production problems are anticipated and rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maintain non-routine operation of reel transportation system	1.1. Reel stand is monitored and adjusted to ensure efficient continuous operation 1.2. Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation 1.3. ***Substrate*** is added to process according to job instructions
2. Maintain non-routine operation of reel delivery system	2.1. Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product 2.2. Substrate is removed from process according to job instructions 2.3. Sheeting section is monitored and adjusted to ensure quality and efficient product delivery 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
3. Maintain complex gravure printing process	3.1. Gravure cylinder condition is monitored and adjusted to ensure the quality of printed product meets the standard of the sample sheet 3.2. Gravure impression roller condition is monitored and maintained to ensure the quality of printed product meets the standard of sample sheet 3.3. Gravure inking system and doctor blade are monitored and adjusted to ensure quality of printed product meets the standard of sample sheet 3.4. Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
4. Maintain operation of in-line processes	4.1. ***In-line*** printing/converting/binding/finishing processes are monitored 4.2. In-line printing/converting/binding/finishing process are adjusted to ensure quality of product meets the standard of the approved proof
5. Maintain non-routine production process	5.1. Production process is operated in association with fellow workers and according to company specifications and planned daily schedule 5.2. Production is maintained within OHS requirements and company and manufacturer's specifications

ELEMENT	PERFORMANCE CRITERIA
	5.3. Manual and/or automatic control is used as per specification 5.4. Performance is monitored and verified using the process control system according to enterprise procedures 5.5. ***Ink*** performance, colour, register and position of print are monitored and adjusted throughout production run 5.6. Production difficulties are anticipated and preventive action is taken to prevent occurrence by timely intervention 5.7. Process adjustments to eliminate problems are reported according to enterprise procedures 5.8. Waste is sorted according to enterprise procedures
6. Identify and rectify faults	6.1. Problem in gravure ***machine*** is identified and reported according to enterprise procedures 6.2. Adjustments or corrections are carried out according to specified procedures and consistent with operator's skill level 6.3. Gravure machine operation is checked to ensure correct operation 6.4. Faulty performance of equipment is identified and reported according to enterprise procedures
7. Conduct shutdown of production process	7.1. Correct shutdown sequence is followed according to manufacturer's specifications and enterprise procedures 7.2. Shutdown is conducted in association with fellow workers and in compliance with OHS requirements 7.3. Unused ink is correctly labelled and stored according to manufacturer/supplier specifications and enterprise procedures 7.4. Solid and liquid waste is removed from operating area and recycled or disposed of, where required, according to regulatory requirements and enterprise procedures 7.5. All product is removed from operating area 7.6. Machine faults requiring repair are identified and reported to designated person according to enterprise procedures 7.7. Repair/adjustment is verified prior to resumption of operations
8. Clean and wash up	8.1. Cylinders, plate and roller surfaces are cleaned ready

ELEMENT	PERFORMANCE CRITERIA
printing machine at end of print run	for next run 8.2. Inking system is washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements 8.3. In-line printing/converting/binding/finishing units are cleaned ready for next run 8.4. Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run 8.5. Sheet feed, transport and delivery systems are disengaged and cleaned ready for next run 8.6. Production records or other documentation are accurately completed where required by enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- communication of ideas and information by interpreting the job brief and providing advice to clients about options and limitations
- collecting, analysing and organising information by collecting and analysing data about printing process, machine specifications and performance to calculate appropriate adjustments for the job
- planning and organising activities by providing information about time and materials requirements for production scheduling
- teamwork when maintaining the production process in association with others
- mathematical ideas and techniques by calculating substrate requirements, plate position and pressures
- problem-solving skills by recognising proofing faults and calculating adjustments necessary to meet job specifications
- use of technology by using monitoring equipment and making adjustments

Required knowledge

- 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
- what are the OHS 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
- 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 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 be the effect in the chillers if the drying temperature was too low
- what is the effect of incorrect drying temperature on the finished product
- why is it necessary to frequently examine the in-line components of the job

REQUIRED SKILLS AND KNOWLEDGE

- how is 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
- 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 press room
- what is the procedure to care for a newly delivered substrate to the press room
- why should waste be sorted
- what is the advantage of keeping reusable waste
- what industry standards can be applied to enhance effective communication with the client
- what are the necessary procedures that the client should follow to "OK" a printed product
- when would it be necessary to call service personnel to correct a machine problem
- what enterprise procedures are in place to report any machine operating problems
- what would be the result if correct shutdown procedures were not followed
- why is it necessary that correct shutdown procedures are conducted with fellow workers
- what advantages result 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
- what OHS 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

REQUIRED SKILLS AND KNOWLEDGE
• how can printing cylinders be stored so as to minimise damage • what OHS precautions should be observed when cleaning these sections of the machine • why is it necessary to maintain a clean substrate handling section of the machine • 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 • what machine manuals, safety and other documentation are relevant to this task and where are they kept and information included in these documents

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • operate a gravure press ensuring an efficient non-routine production flow that maintains product quality standards. Any production problems are rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines • 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 • 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 specifications, enterprise procedures and the Performance Criteria • evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity.
Context of and specific resources for assessment	Assessment must ensure: • assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment • gravure printing machine and in-line units.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

EVIDENCE GUIDE	
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICPPR421C Set up for complex gravure printing

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Substrate handling may include:	• wide and narrow reel handling systems.
In-line processes may include:	• minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, date coding, 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) it should be assessed as such.
Inks/coatings may include:	• range of inks commonly used in 3 or more colour printing, including standard and special colours.
Machines may include:	• range of stack, in-line and central impression printing machines with manual, semi-automated, fully automated or computerised process control.
Colour matching systems may include:	• use of viscosity controls, densitometers and spectrophotometry.
Design may include:	• 3 or more colours, complex graphics and text. Critical "tight" registration, fit and position, registration should be at least that required for four-colour process work.
Substrate types may include:	• range of substrates within the major categories of paper, pressure sensitive materials, board, plastics and related films, or metal.
Non-routine may include:	• non-routine within this context relates to the set up and production of print runs. The set up of equipment and production involves a significant amount of deviation from using standard equipment settings. It also involves significant problem solving and the development of new criteria and procedures for performing current practices. It does not refer to a job that an individual does only

RANGE STATEMENT	
	occasionally.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Printing

Co-requisite units

Co-requisite units		