



Australian Government

Department of Education, Employment and Workplace Relations

ICPPR332C Produce complex lithographic printed product

Revision Number: 1

ICPPR332C Produce complex lithographic printed product

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to produce complex lithographic printed product.
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Application of the Unit

Application of the unit	This unit requires the individual to operate a lithographic 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.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maintain non-routine operation of reel system (OR Element 2)	1.1. Reel stand and rewind sections are monitored and adjusted to maintain correct tension and to ensure no marks, blemished or damage to finished product and 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 and removed from the process according to job instructions 1.4. Sheeting section is monitored and adjusted to ensure quality and efficient product delivery 1.5. Set-off/marketing prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof
2. Maintain non-routine operation of sheet system (OR Element 1)	2.1. Feeder and delivery sections are monitored and adjusted to ensure continuous and efficient feeding to machine 2.2. Sheet pick-up and transport system is monitored and adjusted to ensure accurate and continuous sheet handling and efficient operation 2.3. Transfer systems are monitored and adjusted to ensure correct and continuous sheet handling and efficient operation 2.4. Substrate is added to and removed from the process according to job instructions 2.5. Set-off/marketing 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 lithographic printing process	3.1. Non-routine lithographic plate and plate cylinder condition are monitored and adjusted to ensure the quality of printed product meets the standard of the sample sheet 3.2. Non-routine lithographic blanket and blanket cylinder condition are monitored and adjusted to ensure the quality of printed product meets the standard of sample sheet 3.3. Non-routine lithographic impression cylinder condition is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet

ELEMENT	PERFORMANCE CRITERIA
	3.4. Non-routine lithographic inking system is checked and maintained to ensure quality of printed product meets the standard of sample sheet 3.5. Non-routine lithographic dampening system condition is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet 3.6. Set off/marking prevention and drying system is monitored and adjusted to ensure quality of printed product meets the standard of sample sheet 3.7. Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof
4. Maintain production process	4.1. Production process is operated in association with fellow workers and according to company specifications and planned daily schedule 4.2. Production is maintained within OHS requirements and company and manufacturer's specifications 4.3. Manual and/or automatic control is used as per specification 4.4. Performance is monitored and verified using the process control system according to enterprise procedures 4.5. Ink performance, colour, register and position of print are monitored and adjusted throughout production run 4.6. Production difficulties are anticipated and preventive action is taken to prevent occurrence by timely intervention 4.7. Process adjustments to eliminate problems are reported according to enterprise procedures 4.8. Faulty performance of equipment is identified and reported according to enterprise procedures 4.9. Waste is sorted according to enterprise procedures
5. Identify and investigate lithographic machine operating problem	5.1. Problem in lithographic machine operation is investigated 5.2. Problem in lithographic machine is identified and reported according to enterprise procedures
6. Rectify minor lithographic machine faults	6.1. Adjustments or corrections are carried out according to specified procedures and consistent with operator's skill level 6.2. Lithographic machine operation is checked to ensure

ELEMENT	PERFORMANCE CRITERIA
	correct operation
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 printing machine at end of print run	8.1. Cylinders, plate and roller surfaces are cleaned ready for next run 8.2. Inking system and dampening system are washed up ready for next run, and liquid waste is disposed of according to company and regulatory requirements 8.3. <i>In-line</i> 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
9. Complete records	9.1. 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 computerised production records

Required knowledge

- reel transportation and web control
- OHS concerns when operating the reel transportation system
- reel wander
- causes of web break at the unwind unit
- difference between a "flying paster" and "zero speed" type reel-stand
- print fault that would result from the reel being run out of centre
- faults in the unwind section that could cause a web break
- sheet transportation and transfer
- OHS concerns that are there when operating the sheet transportation system
- result of worn suckers at the feeder suction head
- type of two sheet detection on this machine
- movement that the sheet should have when being registered by the side lay
- causes of mis-register of the sheet at the feeder
- visible signs of the sheet being registered in the feeder
- gripper malfunction affecting sheet control and transfer
- adjustment of sheet transfer mechanisms
- causes of the feeder stack becoming uneven
- result of the feeder stack not being loaded level
- how unevenness of the feeder stack can be rectified

REQUIRED SKILLS AND KNOWLEDGE

- reel delivery for rewinding and sheeting
- OHS risks associated with rewinding and sheeting
- what safety feature is in the delivery system if the web jams up
- why the sheet cut-off would wander
- effect of poorly adjusted nip rollers when rewinding and sheeting
- further operations that are required for printed reels upon removal from the printing machine
- how the printed job should be stored after removal from the printing machine
- why it is necessary to label each printed reel
- sheet delivery
- effect machine speed will have on sheet delivery
- advantage of spraying moving sheets with anti set off powder in the delivery
- items in the delivery that could cause marking of the printed image
- remedial steps that may be necessary to eliminate marking of the printed image
- function of a sheet decurler fitted to the delivery of some machines
- faults that could result from incorrectly set grippers in the transfer section of a machine
- how the printed job should be stored after removal from the printing machine
- printing unit
- result if the plate develops a crack at the grip edge during a print run
- effect of a sticky blanket surface
- print faults that would result from the blanket not being tensioned correctly
- causes of blanket packing creep during printing
- how a build-up of ink on the impression cylinder could affect the printed product
- cause of the ink to lying back in the duct
- causes of ink stripping on the inking rollers
- print faults that would result from excessive use of fountain solution on the plate
- recommended pH range for fountain solutions
- causes of the conductivity of the fountain solution to change over an eight-hour shift
- problems that can be caused by excessive conductivity of the fountain solutions
- drying unit
- link between driers and set off and marking
- what causes UV ink to dry
- what could cause the substrate to blister
- effect in the chillers if the drying temperature was too low
- effect of incorrect drying temperature on the finished product
- in-line processes
- consistency of the punching unit
- result of excessive pressure on the slitters
- result of a dirty former

REQUIRED SKILLS AND KNOWLEDGE

- result of defective pins in the folder
- result of adjusting the rollers at the base of the former
- causes of the web jamming up in the folder
- maintaining production process
- effect of inadequate communication within the work team on a lithographic printing machine
- safety features within the organisation aid in maintaining effective production
- 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
- disadvantages of using a closed looped system for automatic control of the printed product
- other measurements besides optimum solid ink density can be measured to assess print quality
- most accurate method of checking register during a production run
- action when production problems are anticipated
- action to eliminate further processing of unacceptable printed product
- effect of relative humidity if increased in the press room
- procedure to care for a newly delivered skid of paper to the press room
- why waste should be sorted
- advantage of keeping reusable waste
- industry standards that can be applied to enhance effective communication with the client
- necessary procedures that the client should follow to "OK" a printed product
- lithographic machine operating problems
- when it is necessary to call service personnel to correct a machine problem
- enterprise procedures that are in place to report any machine operating problems
- correct shutdown procedures
- advantages that result from proper labelling and storage of excess inks and materials
- why the printed product be clearly labelled prior to removal from the press room
- cleaning and washing up the printing unit
- OHS concerns that should be observed when handling ink
- safety precautions that should be observed when cleaning the printing cylinders
- washing procedure for offset rubber blanket
- how plates can be stored so as to minimise damage
- cleaning feed, transportation, delivery and in-line sections
- OHS precautions to be observed when cleaning these sections of the machine
- completing production records
- completed records are used in the final analysis of the job

REQUIRED SKILLS AND KNOWLEDGE

- benefits of comprehensive records when considering the production of future jobs
- machine manuals, safety and other documentation that are relevant to this task, where kept and information that is 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 following is essential:

- Operate a lithographic 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
- 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 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 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
- lithographic printing machine

Method of assessment

The following assessment method is 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:

- ICPPR431C Set up for complex lithographic 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.

<i>Substrate handling</i> may include:	• wide and narrow reel, and large and small sheet handling systems.
<i>Machines</i> may include:	• 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.
<i>Non-routine</i> 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 occasionally.
<i>Inks/coatings</i> may include:	• wide range of inks commonly used in printing.
<i>In-line processes</i> 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.
<i>Colour matching systems</i> may include:	• use of densitometers and spectrophotometry.
<i>Design</i> may include:	• complex graphics and text. Critical "tight" registration, fit and position, registration should be at least that required for four-colour process work.
<i>Substrate types</i> may include:	• range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal.

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Printing
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Co-requisite units

Co-requisite units		