



Australian Government

ICPKNW312 Apply knowledge of printing machining

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICP Printing and Graphic Arts Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to work in or deal with individuals in the printing sector of the printing industry.

It applies to individuals who require a detailed technical knowledge of printing activities and a working knowledge of related areas. They should have skills to facilitate technical communication and be able to work as a member of a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Holistic knowledge

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Apply knowledge of printing industry	1.1 Printing industry terminology and vocabulary are used correctly and accurately 1.2 New technology and new work processes are monitored and implemented when required 1.3 Trends within printing industry are monitored, on an ongoing basis, to inform personal work practices
2. Apply knowledge of government Acts and regulations	2.1 Basic principles and obligations involved in copyright, work health and safety (WHS), environmental protection, access and equity, and industrial awards are applied
3. Apply detailed	3.1 Principles behind pre-press functions such as image production

ELEMENT	PERFORMANCE CRITERIA
knowledge of pre-press processes	(typesetting, scanning, graphic arts camera), image combining (manual and electronic), image output (film, plates, direct to press) and digital workflow are applied where possible in workplace 3.2 Understanding of different types of images (line, half-tone, digital) is used in development of general strategies for printing 3.3 Understanding of different output settings (screen rulings, angles, shapes) and how they affect final product is used in development of general strategies for printing 3.4 Understanding of different types of output required for different printing processes is used in development of general processes for printing 3.5 Understanding of different output devices (film setters, plate setters, analogue proofs, digital proofs) is used in development of general processes for printing
4. Apply knowledge of printing processes	4.1 Principles of printing processes (lithography, relief, flexography, gravure, pad printing, screen printing, digital and electronic printing) are applied when using selected printing processes 4.2 Types of jobs and products for each process are considered to ensure appropriate choices are made to meet client needs 4.3 Capabilities and limitations of each process are considered when using selected printing processes
5. Apply knowledge of converting and finishing processes	5.1 Types of jobs and products for each process are considered to ensure appropriate choices are made to meet client needs
6. Apply knowledge of substrates and inks	6.1 Range of substrates used for each printing process are considered when making print set up decisions 6.2 Relationship of different paper sizes is considered when making print set up decisions 6.3 Effects of different weights and callipers of substrates on printing operations are considered when making print set up decisions 6.4 Effects of paper grain on pre-press, printing and finishing operations are considered when making print set up decisions 6.5 Effects of different properties of ink (drying properties, fastness, gloss) on printing and finishing operations are considered when making print set up decisions 6.6 Suitability of inks and coatings for particular finishing

ELEMENT	PERFORMANCE CRITERIA
	processes is considered when making print set up decisions
7. Apply detailed knowledge of printing requirements for pre-press and finishing processes	7.1 Selection of appropriate designs for different printing processes is considered in development of general strategies for printing 7.2 Criteria for evaluating suitability of pre-press outputs for printing processes are used in development of general strategies for printing 7.3 Mechanisms and techniques for adjusting image registration and position are used in development of general strategies for printing 7.4 Procedures for determining colour sequence are used in development of strategies for printing 7.5 Adjustments that can be made so that product matches approved proof are understood and used in development of general strategies for printing 7.6 Criteria for determining impositions and image placements for converting, binding and finishing operations are used in development of general strategies for printing
8. Apply knowledge of colour theory	8.1 Colour theory of additive colours (light), Red, Green Blue (RGB), is used to inform printing decisions 8.2 Colour theory of subtractive colours (pigments), Cyan, Magenta, Yellow, Key (black) (CMYK), is used to inform printing decisions 8.3 Relationship between ranges of visual colour RGB and CMYK is used to inform printing decisions 8.4 Relationship between hue, greyness and substrate for tone and colour correction is used to inform printing decisions 8.5 Colour matching conditions and colour matching systems are used to inform printing decisions
9. Apply basic knowledge of costs of production	9.1 Main cost elements (fixed, capital, variable) in printing production are considered in printing decisions 9.2 Information required to accurately cost jobs and means of collecting it (manual and computerised) are applied to work practices 9.3 Ways of minimising use of materials without affecting quality of output are considered and used to inform printing processes 9.4 Ways of maximising efficiency of capital and human resources are considered and used to inform printing processes

ELEMENT	PERFORMANCE CRITERIA
10. Apply basic knowledge of production management requirements and systems	10.1 Types of information that need to be exchanged between different stages of production to facilitate production efficiency are used to inform personal work practices 10.2 Systems (manual and computerised) that can be used to exchange information are used in workplace 10.3 Basic principles of efficient production management are used to inform personal work practices 10.4 Consider and implement principles of effective quality management where required during different jobs

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.3	Researches and comprehends information in a range of text types from various sources
Oral Communication	1.1	Uses appropriate vocabulary, including technical language relevant to role and context
Numeracy	9.1, 9.2	- Uses estimation and other assessment skills to check the outcomes and decide on the appropriate accuracy for the outcomes - Interprets and analyses a range of mathematical information that is used in familiar and routine tasks - Represents the mathematical information in a form that is personally useful as an aid to problem solving
Navigate the world of work	1.2, 1.3, 2.1	- Maintains knowledge of the printing industry required for current role - Complies with legislative requirements and follows organisational policies and procedures relevant to own role
Get the work done	1.2, 1.3, 3.1-3.5, 4.1-4.3, 5.2, 6.1-6.6, 7.1-7.6, 8.1-8.5, 9.2-9.4, 10.1-10.3	- Takes responsibility for planning and organising own workload using analytical processes to decide on a course of action, and assembles the resources required - Recognises the potential of new approaches to enhance work practices and outcomes, and generates new ideas while regularly reviewing priorities and performance

		during implementation • Monitors trends and identifies concepts, principles and features of approaches in use in other contexts, and redesigns these to suit own situation • Applies formal problem-solving processes when tackling an unfamiliar problem • Uses a range of digitally based technology and applications to access and filter data, and extract, organise, integrate and share relevant information in increasingly effective ways
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPKNW312 Apply knowledge of printing machining	ICPKN312C Apply knowledge of printing machining	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d>

Assessment Requirements for ICPKNW312 Apply knowledge of printing machining

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Performance Evidence

Evidence of the ability to:

- use appropriate vocabulary and terminology in written and oral communications with tradespeople, colleagues, management or clients
- apply relevant legislative and workplace requirements when completing tasks
- keep up to date with trends in the printing industry
- develop general processes and strategies for printing that consider image type and placement, colour, output devices and settings, and output requirements
- apply the correct process for a print job
- choose the correct products for a converting or finishing job
- choose appropriate substrate, colour and ink for different print jobs
- use a colour management system to determine colour requirements for a print job
- accurately plan, cost and document a print job.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe legislative and enterprise requirements that affect work practice
- describe the basic principles of the following printing processes:
 - lithography
 - relief
 - flexography
 - gravure
 - pad printing
 - screen printing
 - digital and electronic printing

- describe the range of substrates used for each printing process
- describe designs that are appropriate for different printing processes
- describe the 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)
- describe the basic characteristics of the following converting and finishing processes:
 - guillotining
 - flat-bed and rotary cutting
 - collating
 - folding
 - adhesive
 - mechanical and thermal fastening
- describe the relationship between ranges of visual colour: Red, Green, Blue (RGB) and Cyan, Magenta, Yellow, Key (black) (CMYK)
- explain the main cost elements in pre-press production
- explain the basic principles of efficient production management.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the printing industry and include access to:

- special purpose tools, equipment and materials
- industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

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