



Australian Government

ICPKNW316 Apply knowledge and requirements of paper and printing processes

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 or deal with the paper merchants in the printing industry.

It applies to individuals who are working in or dealing with the paper merchants and who can work as part 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 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 knowledge of	3.1 Basic principles behind pre-press functions such as image

ELEMENT	PERFORMANCE CRITERIA
pre-press processes	production (typesetting, scanning, graphic arts camera), image combining (manual and electronic), image output (film, plates, direct to press) and digital workflow are used in production process where applicable 3.2 Appropriate use of different types of images (line, half-tone) are investigated 3.3 Different output settings (screen rulings, angles, shapes) and how they affect final product are understood 3.4 Different types of output required for different printing processes are applied 3.5 Different output devices (film setters, plate setters, analogue proofs, digital proofs) are determined
4. Apply knowledge of printing processes	4.1 Basic principles of printing processes (lithography, relief, flexography, gravure, pad printing, screen printing, digital and electronic printing) are used to inform production processes 4.2 Types of jobs and products for which each process is appropriate are used to inform production decisions 4.3 Capabilities and limitations of each process are used to inform production decisions
5. Apply knowledge of converting and finishing processes	5.1 Basic characteristics of converting and finishing processes (guillotining, flat-bed and rotary cutting, collating, folding, adhesive, mechanical and thermal fastening) are used to inform production processes 5.2 Types of jobs and products for which each process is appropriate are used to inform production processes
6. Apply detailed knowledge of paper and printing processes	6.1 Relationship of different paper sizes is identified and used to inform production processes 6.2 Different weights, callipers, bulk, density and opacity of paper and how they affect pre-press, printing and finishing operations and end uses are identified and used to inform production processes 6.3 Paper grain and how it affects pre-press, printing and finishing operations are determined and used to inform production processes 6.4 Moisture content, porosity and ink absorbency and how they affect pre-press, printing and finishing operations are identified and used to inform production processes 6.5 Gloss, smoothness and surface strength and how they affect pre-press, printing and finishing operations are identified and used

ELEMENT	PERFORMANCE CRITERIA
	to inform production processes 6.6 Permanence, durability, and acidity and alkalinity of paper and how they affect pre-press, printing and finishing operations and end uses are investigated and used to inform production processes 6.7 Bursting strength, folding endurance, tensile strength and tearing resistance and how they affect printing and finishing operations and end uses are investigated and used to inform production processes
7. Apply detailed knowledge of paper grades and colours	7.1 Paper types and grades and end uses for each type and grade are determined and used to inform production processes 7.2 Differences between wood pulp, rag and recycled papers and appropriate end uses are identified and used to inform production processes 7.3 Colour matching processes are identified and used to inform production processes 7.4 Effect of different paper colours on printing operations is investigated and used to inform production processes
8. Apply detailed knowledge of paper handling and storage procedures	8.1 Ideal storage conditions for different types and grades of paper are investigated and used to inform production procedures 8.2 Advantages and disadvantages of different packing and delivery systems are identified and used to inform production procedures
9. Apply basic knowledge of costs of production	9.1 Main cost elements (fixed, capital, variable) in production are identified and applied in workplace 9.2 Information required to accurately cost jobs and means of collecting it (manual and computerised) are identified and applied in workplace 9.3 Ways of minimising use of materials without affecting quality of output are investigated and applied in workplace 9.4 Ways of maximising efficiency of capital and human resources are investigated and applied in workplace

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, 2.1, 3.1-3.5, 4.1-4.3, 5.1, 5.2, 6.1-6.7, 7.1-7.4, 8.1, 8.2, 9.2-9.4	- Takes responsibility for planning and organising own workload using analytical processes to decide on a course of action - Plans, identifies and assembles resources required to complete tasks - Applies formal problem-solving processes when tackling an unfamiliar problem - Understands the purposes, specific functions and key features of common digital systems and tools and operates them effectively

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPKNW316 Apply knowledge and requirements of paper and printing processes	ICPKN316C Apply knowledge and requirements of paper and printing processes	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 ICPKNW316 Apply knowledge and requirements of paper and printing processes

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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
- keep up to date with trends in the printing industry
- apply relevant legislative and workplace requirements when completing tasks
- consider image type, output settings, output requirements and output devices for different jobs
- use the correct process and product for a printing, converting or finishing job
- conduct research to determine appropriate substrate and ink for different print jobs
- use a colour matching process in a production process
- apply a packing and delivery stems based on requirements of paper
- 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 the relationship of different paper sizes
- explain paper grain and how it affects pre-press, printing and finishing operations
- describe designs that are appropriate for different printing processes
- explain the advantages and disadvantages of different packing and delivery systems
- 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.

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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