Australian Government

Department of Education, Employment and Workplace Relations

ICPKN312C Apply knowledge of printing machining

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to work in or deal with the printing sector of the printing industry; that is, a working knowledge of related areas and a detailed knowledge of specific printing areas. It facilitates technical communication and the ability to work as a team member.

Application of the Unit

Application of the unit	This unit describes the skills and knowledge required by a person working in or dealing with the printing sector of the printing industry. Workers with the ICP30505 Certificate III in Printing and Graphic Arts (Printing) are likely to acquire most of this knowledge in production units.

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. 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 the 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, OHS, environmental protection, access and equity and industrial awards are understood in relation to the workplace 2.2. The basic principles and obligations involved in copyright, OHS, environmental protection, access and equity and industrial awards are followed in personal work practices
3. Apply detailed knowledge of pre-press processes	3.1. The 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) and digital workflow are understood and applied where possible in the workplace 3.2. Different types of images (line, half-tone), digital and their use are understood and general strategies developed for printing 3.3. Different output settings eg screen rulings and angles, shapes, and how they affect final product are understood and general strategies developed for printing 3.4. The different types of output required for different printing processes are understood and general processes developed for printing 3.5. Different output devices eg film setters, plate setters, analogue proofs, digital proofs, are understood and general processes developed for printing
4. Apply knowledge of printing processes	4.1. Principles of the following printing processes: lithography, relief, flexography, gravure, pad printing, screen printing, digital/electronic printing are applied when using a selected printing process 4.2. The types of jobs and products for each process are considered to ensure appropriate choices are made to meet client needs 4.3. The capabilities and limitations of each process are

ELEMENT	PERFORMANCE CRITERIA
	considered when using a selected printing process
5. Apply knowledge of converting and finishing processes	5.1. Basic characteristics of the following converting and finishing processes: guillotining, flat-bed and rotary cutting, collating, folding, adhesive, mechanical and thermal fastening are taken into consideration when making print process decisions 5.2. The 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. The range of substrates used for each printing process are taken into consideration when making print set up decisions 6.2. The relationship of different paper sizes is taken into consideration when making print set up decisions 6.3. Different weights and callipers of substrates and how they affect printing operations are taken into consideration when making print set up decisions 6.4. Paper grain and how it affects pre-press, printing and finishing operations are taken into consideration when making print set up decisions 6.5. Different properties of ink such as drying properties, fastness, gloss, and how they affect printing and finishing operations are taken into consideration when making print set up decisions 6.6. Inks and coatings that are appropriate and those that are not appropriate for particular finishing processes are taken into consideration when making print set up decisions
7. Apply detailed knowledge of printing requirements for pre-press and finishing processes	7.1. Designs that are appropriate for different printing processes are understood and general strategies developed for printing 7.2. Criteria for evaluating suitability of pre-press outputs for printing processes are understood and general strategies developed for printing 7.3. Mechanisms and techniques for adjusting image registration and position are understood and general strategies developed for printing 7.4. Procedures for determining colour sequence are understood and general strategies developed for printing 7.5. Adjustments that can be made so that product matches approved proof are understood and general

ELEMENT	PERFORMANCE CRITERIA
	strategies developed for printing 7.6. Criteria for determining impositions and image placements for converting, binding and finishing operations are understood and general strategies developed for printing
8. Apply knowledge of colour theory	8.1. Colour theory of additive colours (light), RGB, is understood and used to inform printing decisions 8.2. Colour theory of subtractive colours (pigments), CMYK, is understood and used to inform printing decisions 8.3. Relationship between ranges of visual colour RGB and CMYK is understood and used to inform printing decisions 8.4. Relationship between hue, greyness and substrate for tone and colour correction is understood and used to inform printing decisions 8.5. Colour matching conditions and colour matching systems are understood and used to inform printing decisions
9. Apply basic knowledge of costs of production	9.1. The main cost elements (fixed, capital and variable) in printing production are understood and used to inform printing decisions 9.2. The information required to accurately cost jobs and the means of collecting it (manual and computerised) are applied to work practices 9.3. Ways of minimising use of materials without affecting the quality of output is understood and used to inform printing processes 9.4. Ways of maximising efficiency of capital and human resources are understood and used to inform printing processes
10. Apply basic knowledge of production management requirements and systems	10.1. The types of information that need to be exchanged between different stages of production to facilitate production efficiency are understood and used to inform personal work practices 10.2. Systems (manual and computerised) that can be used to exchange information are understood and used in the workplace 10.3. The basic principles of efficient production management are understood and used to inform personal work practices

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 accurately using correct printing industry terminology and vocabulary
- collecting, analysing and organising information by using colour theory of subtractive colours to inform pre-press and/or design decisions
- planning and organising activities by considering and implementing, where required, basic principles of efficient production management
- teamwork when implementing procedures that ensure effective colour management
- mathematical ideas and techniques by considering the information required to accurately cost jobs
- problem-solving skills by considering and implementing, where required, ways of maximising efficiency of capital and human resources during different jobs
- use of technology by researching and evaluating different output devices eg film setters, plate setters, analogue proofs and digital proofs, for different jobs

Required knowledge

- unit underpins all of the Certificate III level and higher printing units of competency.

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: • assessor must be satisfied that sufficient knowledge and understanding of printing and related production processes (as outlined in each Element) have been demonstrated so that job requirements and modifications can be intelligently discussed in some detail with a tradesperson, production manager or client • successful assessment of any of the Certificate III level printing units of competency • 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.
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.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example units packaged in a Certificate III or higher qualification.

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.	
Level of knowledge may include:	• knowledge required to intelligently discuss job procedures, requirements and modifications with a tradesperson, production manager or client.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Holistic Knowledge

Co-requisite units

Co-requisite units		