Australian Government

Department of Education, Employment and Workplace Relations

ICPPR382C Produce and manage complex digital print

Revision Number: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICPPR382C Produce and manage complex digital print

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to produce and manage digital print for a complex print production environment.

Application of the Unit

Application of the unit	This unit requires the individual to identify the productivity of digital print systems and to communicate these effectively. The individual is required to troubleshoot and rectify production workflow problems for digital printing to maximise productivity. The individual will construct and access complex electronic data, perform digital colour management, manage digital production workflows, and maintain and adjust machine settings to ensure production speeds and print quality are achieved.
	This competency is best applied in the commercial print, pre-press, bureau, high-end digital print or a combination of any of these business environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

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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. Troubleshoot and correct production workflows for digital printing	1.1. A productivity analysis on a digital production system is undertaken to determine most productive approach according to job specifications 1.2. *Workflow* procedures for digital printing are developed according to equipment availability and production environment, for a range of job specifications 1.3. Possible causes for problems in the workflow procedures are identified and rectified and strategies to improve productivity with minimum waste in resources and according to job specifications are developed 1.4. Preventive maintenance on a digital printing system is undertaken according to *manufacturer's specifications* to ensure maximum productivity, minimum downtime and wastage
2. Liaise with clients	2.1. Print services, quality expectations and print costings for digital printing are communicate to clients according to *enterprise procedures* 2.2. Productivity advantages and disadvantages of different digital print options are communicated according to manufacturer's specifications and enterprise procedures 2.3. Turnaround time is calculated and communicated to client according to enterprise procedures
3. Confirm job specifications	3.1. Print job specifications are correctly interpreted from job documentation or production control system 3.2. Availability of all job components is checked according to enterprise procedures 3.3. Scanning, proofing and finishing requirements of job are checked and internal workflow and/or outsource arrangements are coordinated 3.4. Run time of job is determined and completion time correctly estimated
4. Access, verify and submit electronic data files to a digital printer	4.1. A *workstation computer* and *industry software* are used to locate and retrieve *electronic data files* according to job specifications 4.2. Preview or *pre-flight* check is performed on electronic data files to verify correct job set up according to job specifications

ELEMENT	PERFORMANCE CRITERIA
	4.3. Job priority is determined according to job specifications and production schedules
	4.4. Data file is submitted to print and image quality and *machine* productivity checks are performed and adjustments made to correct any problems
5. Perform complex digital colour management	5.1. Appropriate digital colour management solutions are used to minimise variation in colour selection, lighting conditions and surrounding colour, machine *calibration*, screen angle, machine resolution, conversion algorithms from RGB to CMYK, *substrate* type and condition
	5.2. Printed RGB, CMYK and PMS colour charts are used to perform *colour matching* with client proof
	5.3. Accurate recommendations on colours to use when producing electronic data files are made according to job specifications
	5.4. Colour matching of an electronic data file created using the RGB colour model is performed by using machine calibration procedures and by customising an output profile
6. Perform and/or coordinate document proofing	6.1. A digital proof run is conducted for client approval and to confirm proof meets job specifications
	6.2. Internal or external pre-press proofing systems operators are consulted to conduct the proof run and provide job specifications according to enterprise procedures
	6.3. Communication between the client and proofing provider occurs to ensure proof conforms to job specifications
7. Run digital print job and/or coordinate press print run	7.1. Production schedules, enterprise procedures and job specifications are observed and liaison with internal and/or external production operators is maintained to determine start and duration time for the print run
	7.2. A digital print run is conducted according to job specifications ensuring that machine productivity and quality are monitored and adjusted throughout the duration of the print job
8. Perform and/or coordinate document finishing and client delivery	8.1. The finishing method is determined according to job specifications
	8.2. Steps required for document finishing are identified and if necessary performed on *in-line* finishing units on a web- or a sheet-fed system according to

ELEMENT	PERFORMANCE CRITERIA
	enterprise procedures
	8.3. Packaging and presentation of finished print work is completed with co-workers and/or external source, if necessary, to ensure against damage and to conform to delivery requirements according to job specifications

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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 providing information to client on how to construct digital files to achieve accurate print results
- collecting, analysing and organising information by determining printing conditions to identify colour management requirements
- planning and organising activities by designing production workflows to ensure efficient print processes
- teamwork when maintaining production workflows in association with co-workers
- mathematical ideas and techniques by using calibration techniques to determine dot densities
- problem-solving skills by identifying workflow problems and implementing strategies to improve productivity
- use of technology by using proficiently computer hardware and software to maximise productivity

Required knowledge

- problem-solving strategies that could you use if a key piece of equipment in the production workflow was temporarily unavailable
- actions required if the substrate type you required was unavailable
- workarounds that could be used if you received a data file error when accessing a PDF file
- what to do if you had a busy production schedule with tight deadlines and a power failure occurred for an indefinite period of time
- factors that influence making a decision about using a particular printing solution (run length, substrate type, application)
- cost difference between a specified job printed on a digital system and a specified traditional system (eg digital vs lithographic)
- quality difference between a specified job printed on a digital system and a specified traditional system (eg digital vs lithographic)
- difference in turnaround time of a specified job printed on a digital system and a specified traditional system (eg digital vs lithographic)
- print method that would be the most appropriate option for the specified print job
- main differences between digital printing and traditional printing methods
- recommendations that could be made to a client who has created an electronic file in an incompatible software application
- suggestions that could be made to a client who required a high volume print run but needed a portion of the print job immediately

REQUIRED SKILLS AND KNOWLEDGE

- steps that need to be followed for a client approval of a proof
- actions required if vital information was missing form the job ticket (manual or electronic)
- checks needing to be undertaken prior to set up (availability of material, maintenance)
- file does not transfer correctly what action should be taken to correct the problem
- main points to be checked before submitting file to print
- checks are made to ensure the data is in a format that can be used in digital print
- suggestions that could be made to a client who has an incompatible version of software
- ways to submit a PDF file to the digital printer
- OCR scanning
- scan resolution affecting document size and quality
- action required if a scanned image was too dark
- sort of scanner hardware and software configuration that could be used to digitally scan a hard copy multi-page document with text and images
- difference between colours displayed on a computer monitor and printed colour
- machine calibration affecting colour consistency
- using printed colour charts to perform colour matching to a proof
- what the acronym ICC stands for and what is the significance
- how a simulation profile affects colour output
- circumstances in which a job be modified before printing
- why margins should be changed when the job reaches the printer
- steps that need to be followed for client approval of the print
- what the proof is checked against
- type of proofing system that is available in the traditional pre-press
- recommendations that you could make regarding an appropriate proofing system for a specified print job
- document finishing and client delivery
- various types of binding
- procedures to be followed if the binding method required by the client was not available at your site
- why packaging finished print work is important

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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:
	
	 • organisation skills to coordinate pre-press, print run, finishing and delivery production workflows
	 • produce and access complex electronic data
	 • conduct a digital proof run
	 • perform digital colour management
	 • adjust settings and ensure productivity
	 • perform preventive maintenance on digital printer
	 • demonstrate use of computerised control and monitoring systems if available and appropriate
	 • perform preventive maintenance tasks on a digital printer according to manufacturer's specifications
	 • prepare a written document that outlines production workflow and give reasons for production methods selected for a print job using the following job specifications within a specified production environment for:
	    • 4-colour advertising brochure
	    • quantity: 2000
	    • substrate: 120gsm coated
	    • text: supplied electronically
	    • images: continuous tone photographs supplied
	    • logos and line art: supplied electronically
	    • layout: hand drawn thumbnails supplied
	    • finished size: A3 bleed
	    • finishing: guillotined, folded and saddle
	    • packaging: boxed
	 • turnaround time: 100 in 48 hours and remainder in 14 days
	 • produce a digital colour proof of a supplied electronic file
	 • use a digital colour management system to perform colour matching to a supplied proof
	 • for valid and reliable assessment of this unit,

EVIDENCE GUIDE

	evidence should be gathered over a period of time through a range of methods for assessment to indicate consistent performance • 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 • a digital printing machine and a digital front end.
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: • ICPPR281C Set up and produce basic digital print • ICPPR282C Produce and manage basic digital print • ICPPR481C Set up and produce complex digital print.

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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.	
Workflow may include:	• task breakdown of the print production cycle for a range of electronic data files, computer systems, digital front ends, industry software, workplace regulations and printing machines.
Manufacturer's specifications may include:	• technical, administrator and user specifications documented by a manufacturer for a range of printing machines.
Enterprise procedures may include:	• may include rules, standards, OHS guidelines, communication protocols and behaviour codes of a range of workplace environments.
Workstation computer may include:	• personal computer with either proprietary or non-proprietary operating systems used to create, access and edit electronic data files from a range of manufacturers eg Apple, IBM, UNIX.
Industry software may include:	• range of software to design, create, access, edit and print electronic data files from a range of manufacturers eg Adobe, Quark Inc., Macromedia, Microsoft.
Electronic data files may include:	• range of proprietary or non-proprietary data file formats compatible with a range of workstation computers and industry software.
Pre-flight may include:	• user software designed to check, preview and edit to ensure data file integrity for a range of operating systems and printing machines.
Machines may include:	• range of non-impact printing machines including inkjet and laser with or without colour manipulation capability, and including machines with computerised monitoring and/or control.
Calibration may include:	• mechanical and/or electronic and/or visual controls used to identify and correct ink coverage and density inconsistencies in a range of printing equipment.

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RANGE STATEMENT	
Substrates may include:	• range of print media and paper
Colour matching systems may include:	• use of visual colour assessment and matching under controlled lighting conditions.
In-line processes may include:	• minor in-line processes such as perforating, numbering, date coding, imposition, that do not constitute another defined unit of competency. Major in-line process is defined as a separate competency eg flat-bed cutting, folding.
Inking systems may include:	• range of inks, dyes, toners commonly used in 2-colour printing, including special colours.
Design may include:	• 1-2 colour, simple graphics and text. Minor variation in registration position.
User replaceable consumables may include:	• consumables required to be changed by an individual if damaged or reached expiry. Used by a range of printing machines for correct functioning such as ink, toner, developer, waste toner, cleaning web, fuser, substrates.
User control interface may include:	• computerised monitoring and data entry device used to enter machine default settings, job specification settings, monitor machine status and perform machine productivity enhancements.
Performance expectations may include:	• manufacturer's documented statement of print machine productivity and quality capabilities and limitations eg substrate feed and speeds, substrate recommendations, substrate weight and size capabilities, productivity and performance issues associated with a variety of print jobs.
Registration mechanisms may include:	• mechanical and/or electronic controls used to adjust substrate position throughout substrate feeding and transport units of a range of printing machines.
Digital front-end may include:	• proprietary computer processor hardware and software required to interpret electronic data files and convert to print-ready data.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Printing

Co-requisite units

Co-requisite units		