

## Demonstrate industry knowledge for reel-fed printing

**Level** 3

**Credits** 15

**Purpose** People credited with this unit standard are able to, for reel-fed printing, demonstrate knowledge of: halftones; image carriers; reel-fed press design and production processes; overcoming problems associated with static electricity and relative humidity; product bar code printing; requirements of processes related to reel-fed printing; factors affecting printing standards; inks and ink additives; ink drying systems and ink drying equipment; environmental issues relevant to the print industry; and colour theory.

**Subfield** Printing

**Domain** Printing - Reel-Fed

**Status** Registered

**Status date** 18 June 2010

**Date version published** 18 June 2010

**Planned review date** 31 December 2015

**Entry information** Open.

**Replacement information** This unit standard replaced unit standard 20667.

**Accreditation** Evaluation of documentation and visit by NZQA and industry.

**Standard setting body (SSB)** Competenz

**Accreditation and Moderation Action Plan (AMAP) reference** 0005

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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### Special notes

- 1 All workplace practices must meet any applicable and recognised codes of practice, and documented workplace health, safety, and environmental procedures for personal, product, workplace health, safety, and environmental matters, and the obligations required under current law including the Health and Safety in Employment Act 1992, Hazardous Substances and New Organisms Act 1996, Privacy Act 1993, Copyright Act 1994, and their subsequent amendments.

- 2 Industry terms and vocabulary applicable to reel-fed production processes must be used during assessment against this unit standard.
- 3 **Definitions**  
*print industry* includes all sectors involved in print and packaging industries including pre-production, production, and post-production activities, suppliers and distributors. The sectors include graphic pre-press, digital output sheet-fed, reel-fed, screen, binding and finishing, fibreboard packaging;  
*production processes* refer to offset, letterpress, flexographic and gravure;  
*workplace practices* refer to the documented procedures for the machine and/or workplace.

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## Elements and performance criteria

### Element 1

Demonstrate knowledge of halftones for reel-fed printing.

#### Performance criteria

- 1.1 Use of halftones is described in terms of reproducing an original copy.
- 1.2 Halftone screen rulings and angles are described for the different kinds of substrates and the reel-fed production process/es being undertaken in the workplace.

Range processes (any of) – offset, letterpress, flexo, gravure.

### Element 2

Demonstrate knowledge of image carriers used for reel-fed printing.

Range image carriers – plates or cylinders;  
processes (any of) – offset, letterpress, flexographic, gravure.

#### Performance criteria

- 2.1 Procedures for making image carriers are explained in terms of the reel-fed production process/es used in the workplace.
- 2.2 Materials used to make image carriers are described in terms of the reel-fed production process/es used in the workplace.

### Element 3

Demonstrate knowledge of reel-fed press design and production processes.

#### Performance criteria

- 3.1 Reel-fed presses are described in terms of their different design features.
- Range in-line, stack/blanket to blanket, common (central) impression cylinder.
- 3.2 Main production processes for reel-fed printing are described in terms of their operation and function.
- Range offset, letterpress, flexographic, gravure.

### Element 4

Demonstrate knowledge of ways of overcoming problems associated with static electricity and relative humidity in regard to reel-fed printing.

#### Performance criteria

- 4.1 Static electricity problems are outlined and ways of overcoming these are explained.
- Range substrate problems, static eliminators, temperature control.
- 4.2 Relative humidity problems are outlined and ways of overcoming these are explained.
- Range paper distortion, adhesive tape problems, electronic equipment problems, temperature control, relative humidity control units, ink problems.

### Element 5

Demonstrate knowledge of product bar code printing.

#### Performance criteria

- 5.1 Product bar coding is described in terms of format and functions.
- Range format – country of origin, manufacturer, product, check number; functions – storing information and identifying individual products, pricing, recording stock.
- 5.2 Processes for checking product bar code tolerances are described.
- Range may include but is not limited to – grey gauges, scanners, verifiers.

5.3 Processes for reporting product bar coding faults are described in accordance with workplace practices.

Range faults include – positioning, readability, colour combinations, contrasts, printing tolerances, size.

### **Element 6**

Demonstrate knowledge of the requirements of processes related to reel-fed printing.

#### **Performance criteria**

6.1 The requirements for related processes in regard to reel-fed printing are described in accordance with workplace practices.

Range pre-press, binding and finishing, fibreboard packaging.

6.2 Print finishes are described in terms of their special printing requirements.

Range may include but is not limited to – aqueous coating, hot foil stamping, lamination, overglossing, ultraviolet (UV) coating, waxing.

### **Element 7**

Demonstrate knowledge of factors affecting printing standards.

#### **Performance criteria**

7.1 Characteristics of an acceptable print are described.

Range colour consistency and registration maintained, correct position, correct substrate, standard maintained to approved sample.

7.2 Factors which affect print quality are described.

Range customer's requirements, speed of the press, width or thickness of the substrate, general condition of the press.

7.3 Factors which affect the printing speed for the job are described.

Range quality requirements, ink being used, substrate being used, register requirements, press condition.

## Element 8

Demonstrate knowledge of inks and ink additives.

### Performance criteria

8.1 Different types of printing inks are described in terms of their characteristics.

Range may include – solvent evaporating, oxidation curing, reactive (ie catalyst curing, two component), baking, UV curable, sublimation, thermoplastic (ceramic, glass).

8.2 Ink additives are described in terms of their uses.

Range may include – adhesion modifiers, antistatic agents, catalysts (hardeners), flow agents, matt and gloss agents, retarders, thinners.

## Element 9

Demonstrate knowledge of ink drying systems and ink drying equipment.

### Performance criteria

9.1 Ink drying systems are described in terms of methods.

Range may include – evaporation, oxidation, thermosetting, catalytic, radiation curing.

9.2 Ink drying equipment is identified and its uses are described.

Range rack, wicket, jet air, drying tunnel, ultraviolet (UV), infrared (IR).

9.3 Factors affecting the ink drying process are described.

Range ink, substrate, speed of printing, air temperature, humidity, light, radiation intensity.

## Element 10

Demonstrate knowledge of environmental issues relevant to the print industry.

### Performance criteria

10.1 Terms relating to environmental issues are briefly explained.

Range may include but is not limited to – biodiversity, discharge, ecosystem, emit, emission, land degradation, odour, fossil fuels, greenhouse gases, climate change, global warming, carbon footprint, sustainability.

- 10.2 Environmental issues relevant to the print industry are outlined in terms of their impact on the workplace.
- Range may include – pollutants and effects, energy reduction, waste management, sustainable and environmentally friendly products.
- 10.3 A print industry company policy statement is described in terms of its environmental practices.

## Element 11

Demonstrate knowledge of colour theory and use colour terms.

### Performance criteria

- 11.1 Colour theory is explained in terms of additive colours (red, green and blue light).
- 11.2 Colour theory is explained in terms of subtractive colours (cyan, magenta and yellow pigments).
- 11.3 Ranges of visual colour, red, green, blue (RGB) and cyan, magenta, yellow, black (CMYK) are explained in terms of their relationships to each other.
- 11.4 Correct viewing conditions are explained in terms of their importance to colour matching.

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### Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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### Comments on this unit standard

Please contact [Competenz info@competenz.org.nz](mailto:Competenz info@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.