

Demonstrate industry knowledge for screen printing

Level 3

Credits 12

Purpose People credited with this unit standard are able to: use terms and vocabulary applicable to screen printing; demonstrate understanding of halftones; demonstrate knowledge of the principles of design and layout; demonstrate knowledge of the machinery and equipment used in screen printing; use reference material to ensure procedures are followed and required standards are met; explain ways of overcoming problems associated with static electricity and relative humidity; demonstrate knowledge of the requirements of processes related to screen printing; demonstrate knowledge of colour theory and use colour terms; demonstrate knowledge of inks or dyes, and additives; and demonstrate knowledge of ink drying systems and equipment.

Subfield Printing

Domain Printing - Screen

Status Registered

Status date 21 February 2005

Date version published 12 December 2008

Planned review date 31 December 2010

Entry information Open.

Replacement information This unit standard replaced unit standard 5127 and unit standard 5128.

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>.

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, Resource Management Act 1991, Privacy Act 1993, and their subsequent amendments.
- 2 *Workplace practices* refer to the documented procedures for the machine and/or workplace.

Elements and performance criteria

Element 1

Use terms and vocabulary applicable to screen printing.

Performance criteria

- 1.1 Terms and vocabulary applicable to screen printing are listed and defined.

Range	may include but is not limited to – blocking out, blocking, calliper, capillary film, cure, densitometer, direct emulsion, durometer, flash point, gray scale, halftone, lay marks, light fastness, mesh count, moiré pattern, off contact printing, film positive, register, relative humidity, retarder, screen angle, screen ruling, scum, spotting, static electricity, stencils, sublimation printing, transfer printing, viscosity.
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- 1.2 Terms and vocabulary applicable to the screen printing process being undertaken in the workplace are used.

Element 2

Demonstrate understanding of halftones.

Performance criteria

- 2.1 Use of halftone and line film is described in terms of reproducing an original copy.
- 2.2 Halftone screen ruling applications are described for different kinds of substrates and methods of printing.

Range	coarse screens, fine screens, moiré patterns.
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Element 3

Demonstrate knowledge of the principles of design and layout.

Range space, shape, symmetry, asymmetry, balance.

Performance criteria

- 3.1 The term 'layout' is defined and the function and purpose of layout are explained.
- 3.2 Principles of design and layout are explained in terms of job requirements.

Element 4

Demonstrate knowledge of the machinery and equipment used in screen printing.

Performance criteria

- 4.1 Machinery used in screen printing is described in terms of its functions and uses.

Range may include but is not limited to – flat hand fed, flat sheet gripper fed, clamshell, web screen, semi automatic, automatic carousel, hand and automatic for printing formed shapes, automatic multi cylinder.
- 4.2 Equipment used in screen printing is described in terms of its functions and applications.

Range may include but is not limited to – enlarger, exposure lamp, vacuum frame, light table, developers (tray and automatic); washout unit, fabric stretching unit, screen machines, densitometer, reclaiming units, frame cleaner, squeegee blade sharpener, driers, static eliminators, guillotine, computer, film processor, inkjet printer.

Element 5

Use reference material to ensure procedures are followed and required standards are met.

Range may include but is not limited to – instruction manuals, maintenance manuals, spare parts manuals, videos, product specification information.

Performance criteria

- 5.1 Reference material applicable to the process and workplace is located.
- 5.2 Reference material is used to ensure machine operation and product use meets workplace requirements.

Element 6

Explain ways of overcoming problems associated with static electricity and relative humidity.

Performance criteria

6.1 Static electricity problems are outlined and ways of overcoming these are explained.

Range substrate problems, static eliminators, temperature control.

6.2 Relative humidity problems are outlined and ways of overcoming these are explained.

Range substrate distortion, static, electronic equipment problems, ink problems, temperature control, relative humidity control units.

Element 7

Demonstrate knowledge of the requirements of processes related to screen printing.

Performance criteria

7.1 Related processes and their requirements in regard to screen printing production are outlined.

Range graphic pre-press, binding and finishing, paperboard packaging (carton), paperboard packaging (case).

7.2 Print finishes used in the workplace are described in terms of their special printing requirements.

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

7.3 Requirements for combining screen printing with other printing processes are described.

Range offset printing, letterpress printing, foil stamping, digital.

Element 8

Demonstrate knowledge of colour theory and use colour terms.

Performance criteria

8.1 Colour theory is explained in terms of additive colours (red, green and blue light).

- 8.2 Colour theory is explained in terms of subtractive colours (cyan, magenta and yellow pigments).
- 8.3 Ranges of visual colour, red, green, blue (RGB) and cyan, magenta and yellow pigments (CYMK) are explained in terms of their relationship to each other.
- 8.4 Colour terms applicable to the production processes being undertaken are used.
- Range may include but is not limited to – chromatic, achromatic, mono chromatic, poly chromatic, colour, primary colours, secondary colours, tertiary colours, analogous colours, complementary colours, additive colours, subtractive colours, light fast, temperature, perspective, hue, brightness or value purity or chroma, intensity saturation.
- 8.5 Correct viewing conditions are explained in terms of their importance to the use of colour.

Element 9

Demonstrate knowledge of inks or dyes, and additives.

Performance criteria

- 9.1 Screen printing inks or dyes applicable to the process being undertaken are identified and their characteristics described.
- Range for any one of the following processes – flat sheet, fabric (panel), formed shapes.
- 9.2 Additives used in screen printing are identified and their uses explained.
- Range for any one of the following processes – flat sheet, fabric (panel), formed shapes.

Element 10

Demonstrate knowledge of ink drying systems and equipment.

Performance criteria

- 10.1 Functions of the different ink drying systems used in screen printing are described.
- Range evaporation, oxidation, thermosetting, catalytic, radiation curing.
- 10.2 Ink drying equipment used in screen printing is recognised and its uses described.
- Range rack, wicket, jet air, drying tunnel, ultra-violet (UV), infra-red (IR).

10.3 Factors affecting the drying process are described.

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

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.

Comments on this unit standard

Please contact Competenz info@competenz.org.nz if you wish to suggest changes to the content of this unit standard.