

Higher National Unit Specification

General information for centres

Unit title: Multi-colour Offset Litho Printing

Unit code: F0PC 35

Unit purpose: This Unit is designed to enable the candidate to evaluate the procedures required to produce a set of 4-colour process progressive proofs from plates supplied. It is intended for candidates who have knowledge of sheet fed offset litho 2-colour presswork.

On completion of the Unit the candidate should be able to:

- 1 Implement systematic Make-ready procedures.
- 2 Measure and evaluate print quality.
- 3 Produce a set of four-colour offset litho progressive proofs.

Credit points and level: 1 HN Credit at SCQF level 8: (8 SCQF credit points at SCQF level 8 *)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. Candidates should have knowledge of offset litho presswork. This could be demonstrated by the achievement of HN Unit *Single Colour Offset Litho Printing* at SCQF level 7, an equivalent qualification or work experience.

Core Skills: There may be opportunities to gather evidence towards Core Skill Working with Others at SCQF level 6 in this Unit although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Assessment: The Unit should be assessed by means of submission of a portfolio of evidence which includes printed progressive proofs and a completed checklist pro forma that requires the candidate to measure and record print quality readings of ink density, dot gain, ink trapping, grey balance.

Higher National Unit specification: statement of standards

Unit title: Multi-colour Offset Litho Printing

Unit code: F0PC 35

The sections of the Unit stating the Outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Implement systematic Make-ready procedures

Knowledge and/or skills

- ◆ Press settings
- ◆ Ink and damp controls
- ◆ Washup procedures
- ◆ Accuracy of colour superimposition

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can implement systematic Make-ready procedures. The candidate will adjust press settings in an accurate and systematic manner. This Make-ready procedure will be recorded on an observation schedule. Each candidate will complete an open-book assessment by responding to a checklist that demonstrates the accuracy of the systematic Make-ready. Each candidate will provide a portfolio of one complete set of progressive proofs as evidence. The evidence provided should demonstrate that the candidate played an active and constructive role in preparing the press for print production.

The candidate will demonstrate Make-ready procedures following a given checklist which will include:

- ◆ Using correct press settings
- ◆ Altering ink and damp controls to produce an optimum balanced result
- ◆ Washup procedures correctly carried out for ink and damping
- ◆ Colour superimposition accurate for all four colours

Assessment guidelines

The evidence for this Outcome should relate to the candidate's completion of a tutor specified task that may take place on a 2-colour offset litho press.

The assessment for this Outcome should be a practical task which is recorded by the assessor on an Observation schedule. See assessment guidelines for Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: Multi-Colour Offset Litho Printing

Outcome 2

Measure and evaluate print quality

Knowledge and/or skills

- ◆ Methods of measuring print characteristics
- ◆ Methods of assessing accuracy
- ◆ Use of densitometer
- ◆ Use of pass sheet for quality purposes

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and skills by showing that they can measure and evaluate print quality. The candidate will provide evidence that the pass sheet has been evaluated as being of a satisfactory quality and should include judgement of instrument readings for ink density, ink trapping, dot gain and grey balance. Visual comparison should also be used.

Assessment guidelines

See assessment guidelines for Outcome 3.

Outcome 3

Produce a set of four-colour offset litho progressive proofs

Knowledge and/or skills

- ◆ Isolation of printing unit
- ◆ Book of progressives
- ◆ Measurement and evaluation of proofs

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and skills by showing that they can produce a set of four-colour offset litho progressive proofs. These proofs should have correct ink densities, dot gain, trapping and be in register and should be accompanied by an Observation schedule.

The proofs will comprise of:

- ◆ Six sheets each of Yellow, Magenta, Cyan and Black.
- ◆ One sheet of each of the printed process colours above, viz Yellow, Magenta, Cyan and Black.
- ◆ One sheet of each of the 2-colour prints, eg Yellow/Cyan, Magenta/Black.

A pro forma data checklist sheet should be attached to the progressive proofs.

Higher National Unit specification: statement of standards (cont)

Unit title: Multi-Colour Offset Litho Printing

Assessment guidelines

All three Outcomes could be holistically assessed. The candidate would be given a single task for which they would require to implement Make-ready procedures, measure and evaluate print quality and produce a set of four-colour offset litho progressive proofs to a commercial standard. Alternatively each Outcome could be assessed separately.

In practical work the contribution to the group of the individual candidate must be clearly identified

Administrative Information

Unit code: F0PC 35
Unit title: Multi-colour Offset Litho Printing
Superclass category: KH
Original date of publication: October 2006
Version: 01

History of Changes:

| Version | Description of change | Date |
|---------|-----------------------|------|
| | | |
| | | |
| | | |
| | | |
| | | |

Source: SQA

© Scottish Qualifications Authority 2006

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

Higher National Unit specification: support notes

Unit title: Multi-Colour Offset Litho Printing

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit was developed as part of the HNC/HND Printing where it is an optional Unit. It is intended for those who are taking a printing qualification at Higher National level or who have experience in this or related fields and wish to further their knowledge and experience. It also provides an opportunity to extend their core skills in working with others by working in a team on a printing press that produces a printed result.

It is equally acceptable for candidates to have produced their own colour plates or alternatively to be proofing work from plates that have been supplied by the centre. Tasks concerned with improving performance where the candidate may be required to Make-ready a job several times is appropriate. For example, different types of substrate require different press settings.

The following notes give some additional information on each Outcome.

Outcome 1

Experience and knowledge should be gained of the following:

- ◆ How to set a feeder and sheet registration devices to suit sheet size
- ◆ How to set sheet delivery systems to suit sheet size
- ◆ Application of two plates in position on plate cylinder
- ◆ How to centre verniers, plate cylinders, front and side lays
- ◆ Calculation of required printing pressure
- ◆ How to zonally set ink ducts
- ◆ How to obtain ink/water balance
- ◆ How to obtain accurate fit between first 2-colours
- ◆ Ink and damping roller washup procedures
- ◆ Obtain accurate fit between second pair of 2-colours
- ◆ How to 'marry' all 4-colours

Outcome 2

Experience and knowledge should be gained of the following:

- ◆ Use of a reflection densitometer
- ◆ Measurement of solid ink density, dot gain, ink trapping and grey balance
- ◆ Importance of colour sequence
- ◆ Control of register between colours
- ◆ Maintenance of density accuracy across the sheet
- ◆ Maintenance of the tone values of printed halftone dots
- ◆ Improvement of trapping of one colour to another

Higher National Unit specification: support notes (cont)

Unit title: Multi-Colour Offset Litho Printing

- ◆ Interpretation of colour bars
- ◆ Optimisation of internal fit between colours
- ◆ Comparison of press proof to exemplar

Outcome 3

In the course of production, progressive proofs should be taken, viz a Yellow print, Magenta print, Cyan print and Black print. Two-colour wet-on-wet proofs should also be retained, viz Yellow/Cyan and Magenta/Black or variations of. Six copies of the finished job with one copy of each progressive sheet should be submitted for assessment. The pro forma data checklist sheet should be attached to the progressive proofs.

Guidance on the delivery and assessment of this Unit

The candidate should be provided with a series of demonstrations or presentations before they undertake the Make-ready procedures.

The evaluation of print quality should take place under industry standard illumination. Visual comparison of the press proof to the supplied exemplar and the use of a reflection densitometer to match given quality printability readings are acceptable. In the absence of a supplied exemplar, a pass sheet that has been approved by the class lecturer is also acceptable.

A two-colour offset litho sheet fed press may be used to produce the single, two-colour and four-colour progressive proofs. It is recommended that tutors should discuss with candidates the quality of their prints and demonstrate and recommend techniques to obtain optimum print quality.

Outcome 1

Candidates should be given several opportunities to practice Make-ready procedures on the 2-colour sheet fed offset litho press. This will entail feeder, delivery and registration adjustments for different substrates. The alteration of blanket to impression cylinder pressure in order to observe discernable differences to print quality will be required.

Candidates will be given instruction in the accurate location of printing plates to permit minimum plate adjustment when fitting colours.

Candidates will be given instruction in the adjustment of ink duct settings to suit zonal ink requirements.

A supplied checklist of procedures should be completed by the candidate during production.

Outcome 2

The candidate will receive instructions on the operation and use of a reflection densitometer. They will be given an opportunity to practise taking instrument readings for ink density, ink trapping, dot gain and grey balance. The use of a colour viewing booth with industry standard illumination is necessary when visual comparison to the exemplar takes place. The exemplar may take the form of a previously printed sheet, analogue or digital pre-press proof, or a 'pass sheet' determined by the tutor.

Higher National Unit specification: support notes (cont)

Unit title: Multi-Colour Offset Litho Printing

Instruction on the components of a colour bar and their functions should be given.

Agreement of satisfactory print quality evaluation between tutor and candidates should take place and be confirmed by a signed and dated 'pass sheet'.

All densitometer readings should be recorded on the supplied checklist used for Outcome 2.

Outcome 3

At least 100 copies of 4-colour process colour prints should be produced. This will entail two passes through a 2-colour press. Colour sequence is at the discretion of the candidates in consultation with the tutor.

Corrective action to maintain print quality should take place by the candidates when deemed necessary.

If candidates are working in co-operation with others, each candidate must submit a set of progressives and a data/checklist for assessment.

Opportunities for developing Core Skills

As the Core Skill 'Working with Others' at SCQF Level 6 is signposted in this Unit, tutors should utilise the opportunities indicated to reinforce the importance to team working within the industry setting. Formative work on team building and group dynamics should, where practical, be undertaken alongside instruction on the basics of self-appraisal and group negotiation. It is critical that the delivery and assessment process identifies the transferable nature of this skill to other vocational contexts.

Open learning

This Unit could be delivered by distance learning providing that the candidate has access to a 2-colour sheet fed offset litho press and a reflection densitometer. It would be important to confirm beforehand with the candidate that they have chosen a suitable set of plates for the Unit.

If this Unit is delivered by open learning, arrangements will need to be made for assessments to be carried out and observed by a qualified assessor as this Unit is performance based.

For further information and advice, please see the SQA guide, *Assessment and Quality Assurance of Open and Distance Learning* (www.sqa.org.uk).

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on SQA's website: www.sqa.org.uk.

General information for candidates

Unit title: Multi-colour Offset Litho Printing

This Unit is designed to enable you to operate a 2-colour sheet fed offset litho press at a level sufficient to permit you to produce a set of 4-colour prints.

You will be required to produce progressive proofs at each printing stage. Experience will be gained by using the press to undertake a variety of Make-ready procedures.

The evaluation of print quality will include visual comparison of print to proof or agreed exemplar.

The use of a reflection densitometer will permit the prints to be measured and should be within predetermined parameters.