National Unit Specification: general information

UNIT   Computer Graphics (Intermediate 2)

CODE   D173 11

SUMMARY

This Unit is a mandatory Unit of the Intermediate 2 Graphic Communication Course, but can also be taken as a free-standing Unit.

The focus of the Unit is practical, developing computer graphic skills associated with Computer-Aided Graphics (CAG) systems which will be beneficial for any course or vocation where a knowledge of Graphic Communication terminology and practical computer skills is required.

This Unit offers opportunities to gain knowledge and experience in the production of detailed orthographic and pictorial drawings using Computer-Aided Draughting (CAD) software. The Candidate will also gain experience in the use of illustration, presentation and Desktop Publishing (DTP) software, producing posters, leaflets, etc.

The Unit is suitable for those candidates wishing to build on previous experience of Graphic Communication or those candidates who have no previous qualifications or experience and wish to gain a qualification as part of a general education or as a first step to more specialised study.

OUTCOMES

1   Produce dimensioned orthographic drawings and pictorial drawings of everyday objects using Computer-Aided Draughting software in accordance with British Standards.
2   Produce a computer-rendered item for promotional purposes using illustration and presentation software.
3   Produce a multi-page layout using Desktop Publishing software.
4   Demonstrate knowledge associated with computer graphics.

National Unit Specification: general information (cont)

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RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following, or equivalent:

♦   Intermediate 1 Graphic Communication
♦   Standard Grade Graphic Communication at General level

CREDIT VALUE

1 credit at Intermediate 2 (6 SCQF credit points at SCQF level 5*).

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.

CORE SKILLS

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill   Information Technology at SCQF level 4
Core Skill component(s)   None

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Produce dimensioned orthographic drawings and pictorial drawings of everyday objects using Computer-Aided Draughting software in accordance with British Standards.

Performance Criteria

(a) Orthographic drawings produced include fillets, arcs and a range of line type and dimensioning conventions, and are accurate in terms of projection, scale and overall size.
(b) Pictorial drawings produced include curved edges and effectively represent the object in terms of detail and proportion.
(c) Dimensions on orthographic drawings are clear and unambiguous in terms of their positioning and statement of size; and in accordance with the relevant British Standard.

OUTCOME 2

Produce a computer-rendered item for promotional purposes using illustration and presentation software.

Performance Criteria

(a) Rendering is effective in enhancing the item using appropriate illustration and presentation techniques.
(b) Rendering and use of colour is effective in enhancing the item to show various materials.

OUTCOME 3

Produce a multi-page layout using Desktop Publishing software.

Performance Criteria

(a) The layout contains a body of text contained within columns.
(b) The layout contains edited and unedited graphic items.
(c) The layout produced is clear and effective in terms of its use of backgrounds, text style and integration of text and graphics.

National Unit Specification: statement of standards (cont)

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OUTCOME 4

Demonstrate knowledge associated with computer graphics.

Performance Criteria

(a) Common input/output and storage devices are identified correctly.
(b) The uses of common input/output and storage devices are described correctly.
(c) Software command/features are identified correctly.
(d) The uses of software command/features are described correctly.
(e) The advantages of CAD/CAG over manual methods are described correctly.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

For Outcomes 1, 2, and 3, product evidence is required in the form of a folio of work, which will contain evidence that the candidate can produce:

♦   a dimensioned orthographic CAD drawing showing related views of an everyday object which includes fillets, arcs, four different line types and three different dimensioning conventions.
♦   a line pictorial CAD drawing of an everyday object which includes curved edges.
♦   a hard copy of a realistically computer rendered item, which incorporates appropriate illustration and presentation techniques from the list in the Appendix.
♦   a multi-page DTP layout document containing a body of text within at least two columns and at least two imported graphic items, one of which should be edited. The text should be appropriate and should not be lorem ipsum or other irrelevant text.

The evidence for the folio must be produced under supervised conditions to ensure that it is the candidate's own work. Work produced by following a directed approach, such as a step by step guide, is not valid for assessment purposes.

For Outcome 4, written and/or recorded oral evidence is required. The instrument of assessment will provide opportunities for all Performance Criteria to be fulfilled, by means of sampling across the range of the content of Outcome 4 in the Appendix. If a re-assessment is required, it should contain a different sample from the range of mandatory content contained within the Appendix and achievement can be decided by the use of a cut-off score. Each sample must include the following:

♦   identify one of each of the following: input, output and storage devices taken from the mandatory content detailed in the Appendix
♦   describe the use of one of each of the following: input/output or storage devices taken from the mandatory content detailed in the Appendix
♦   identify three software commands/features taken from the mandatory content detailed in the Appendix
♦   describe the use of three software commands/features taken from the mandatory content detailed in the Appendix
♦   describe three advantages of Computer Aided Graphics over manual

National Unit Specification: statement of standards (cont)

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The assessment for Outcome 4 should be carried out under controlled, supervised, closed-book conditions and should last no more than 15 minutes.

The standard to be applied and the breadth of coverage are illustrated in the National Assessment Bank items available for this Unit. If a centre wishes to design its own assessments for this Unit, they should be of a comparable standard.

National Unit Specification: support notes

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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 may be taken as a free-standing Unit or as part of the Intermediate 2 Graphic Communication Course.

The Unit will deal with the use of three commercially available software types, ie Computer-Aided Draughting (CAD), illustration and presentation and Desktop Publishing (DTP) — these software types may be included within an integrated package. These could be used to solve problems and present ideas that candidates might realistically expect to find in a vocational or leisure environment.

Candidates could gain experience in producing orthographic and pictorial views using CAD software; in using illustration software to enhance presentation graphic items in terms of colour, impact and presentation; and in using DTP software to produce effective layouts involving graphics and text. Candidates could become familiar with common terms associated with computer graphics and gain knowledge of the advantages of Computer Aided Graphics (CAG) in professional, commercial and industrial settings.

Throughout this Unit, safety should be stressed, along with good computer housekeeping, shutdown procedures, safe storage of files and continual saving of work. Care and correct use of equipment should be an integral part of all activities.

The mandatory content for this Unit can be found in the Appendix.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

This Unit could be taught as a free-standing Unit or concurrently with any of the other Units that make up the Intermediate 2 Graphic Communication Course.

For candidates following the Intermediate 2 Graphic Communication Course, the work of this Unit should help to consolidate and integrate content taught in the other two Units. For example, the use of the same objects as was used in the other Units can help to show how different views are used for different purposes; colour theory, manual rendering techniques and the use of British Standard on line types, dimensioning and symbols learned in other Units, can be reinforced in Computer Graphics work.

Opportunities could be provided to relate the work to the interests of candidates through the choice of drawing examples. Suitable examples could be wooden toys, personal CD players, mp3 players, cameras, mobile phones etc.

Using the same product to demonstrate orthographic drawing (production) and computer illustration and presentation (promotional) would help candidates to understand and see the use of production and promotional graphics.

National Unit Specification: support notes (cont)

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GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Appropriate instruments of assessment that could be used to generate and gather evidence of achievement are as follows:

Outcomes 1–3: Practical exercises, to be included in a folio of work, which each candidate has compiled working independently under supervised conditions. Practical exercises, included in a folio of work, to assess the candidate's ability in orthographic and pictorial CAD drawing, DTP and illustration and presentation.

The work should be the candidate's own work. Work produced by following a directed approach, such as a step by step guide or wizard, is not valid for assessment purposes.

Outcome 4: a short closed-book restricted response test to assess the candidate's awareness of terminology and the advantages of computer graphics in industry. The test should be aimed at a sample of the range of terminology associated with computer graphics. If a re-assessment is required it should contain a different sample from the range of mandatory content contained within the Appendix.

The standard to be applied and the breadth of coverage are illustrated in the National Assessment Bank items available for this Unit. If a centre wishes to design its own assessments for this Unit, they should be of a comparable standard.

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. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (**www.sqa.org.uk**).

National Unit Specification: statement of standards (cont) — Appendix

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APPENDIX

This appendix provides a list of the mandatory content for the Unit. All of the mandatory content is subject to sampling in the Unit assessment.

OUTCOME 1

The following is the mandatory content for Outcome 1:

♦ produce orthographic and pictorial drawings of everyday objects which contain fillets and arcs
♦ use a range of line type and dimensioning conventions in the production of orthographic drawings in accordance with British Standards
♦ apply dimensions to orthographic drawings in accordance with British Standards

OUTCOME 2

The following is the mandatory content for Outcome 2:

♦ produce a computer-rendered item containing text and graphics using illustration and presentation software
♦ illustration and presentation techniques: light, shade and tonal scale; highlights, reflections and shadows; gradients

OUTCOME 3

The following is the mandatory content for Outcome 3:

♦ produce a multi-page layout document containing a body of text (contained within two or more columns) and graphic items using Desktop Publishing software
♦ the layout should contain at least two imported graphic items, text may be typed or imported
♦ appropriate meaningful text should be used and not lorem ipsum or other irrelevant text

OUTCOME 4

The following is the mandatory content for Outcome 4:

♦ demonstrate knowledge of software commands/features:
— CAD: zoom; copy; scale; rotate; mirror; move; array (polar/ ring, box/ rectangular) hatch; dimension; fillet; group; linestyles; layering; pan; chamfer; trim; extend; break
— illustration and presentation: cut; copy; paste; rotate; mirror, colour and gradients (tonal or colour)
— DTP: headers; footers; columns; gutters; margins; page orientation; text wrap; caption; importing text and importing graphics; crop
♦ demonstrate knowledge of input/output and storage devices relating to:
— input: keyboard, mouse, digital camera, scanner, graphics tablet
— output: monitor, plotter, printer (laser, inkjet)
— storage: hard drive, floppy disk, CD, DVD, solid state storage device (memory card/ USB device)
♦ advantages of using a Computer–Aided Graphics (CAG) system