



# Higher Graphic Communication

<b>Course code:</b>	C835 76
<b>Course assessment code:</b>	X835 76
<b>SCQF:</b>	level 6 (24 SCQF credit points)
<b>Valid from:</b>	session 2018–19

This document provides detailed information about the course and course assessment to ensure consistent and transparent assessment year on year. It describes the structure of the course and the course assessment in terms of the skills, knowledge and understanding that are assessed.

This document is for teachers and lecturers and contains all the mandatory information you need to deliver the course.

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This edition: September 2018 (version 2.0)

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# Contents

<b>Course overview</b>	<b>1</b>
Course rationale	2
Purpose and aims	2
Who is this course for?	2
<b>Course content</b>	<b>3</b>
Skills, knowledge and understanding	3
Skills for learning, skills for life and skills for work	15
<b>Course assessment</b>	<b>16</b>
Course assessment structure: question paper	16
Course assessment structure: assignment	17
Grading	19
<b>Equality and inclusion</b>	<b>20</b>
<b>Further information</b>	<b>21</b>
<b>Appendix 1: course support notes</b>	<b>22</b>
Introduction	22
Approaches to learning and teaching	22
Preparing for course assessment	28
Developing skills for learning, skills for life and skills for work	29
<b>Appendix 2: standards and conventions — information and support for candidates</b>	<b>30</b>

# Course overview

The course consists of 24 SCQF credit points which includes time for preparation for course assessment. The notional length of time for candidates to complete the course is 160 hours.

The course assessment has two components.

Component	Marks	Duration
Component 1: question paper	90	2 hours and 30 minutes
Component 2: assignment	50	see 'Course assessment' section

Recommended entry	Progression
<p>Entry to this course is at the discretion of the centre.</p> <p>Candidates should have achieved the National 5 Graphic Communication course or equivalent qualifications and/or experience prior to starting this course.</p>	<ul style="list-style-type: none"><li>◆ other SQA qualifications in graphic communication or related areas</li><li>◆ further study, employment and/or training</li></ul>

## Conditions of award

The grade awarded is based on the total marks achieved across all course assessment components.

## Course rationale

National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide time for learning, focus on skills and applying learning, and provide scope for personalisation and choice.

Every course provides opportunities for candidates to develop breadth, challenge and application. The focus and balance of assessment is tailored to each subject area.

This course develops skills that are complementary to other curricular areas, including expressive arts, sciences, and mathematics. It allows candidates to engage with technologies and consider the impact that graphic communication technologies have on our environment and society.

Candidates are encouraged to exercise imagination, creativity and logical thinking. They develop an awareness of graphic communication as an international language.

## Purpose and aims

The course provides opportunities for candidates to initiate and develop their own ideas graphically. It allows them to develop skills in reading and interpreting graphics produced by others. Candidates continue to develop graphic awareness, often in complex graphic situations, expanding their visual literacy.

The course is practical, exploratory and experiential in nature. It combines elements of creativity and communicating for visual impact with elements of protocol and an appreciation of the importance of graphic communication standards.

Candidates develop:

- ◆ skills in graphic communication techniques, including the use of equipment, graphic materials and software
- ◆ creativity in the production of graphic communications to produce visual impact in meeting a specified purpose
- ◆ skills in evaluating the effectiveness of graphics in communicating and meeting their purpose
- ◆ an understanding of graphic communication standards, protocols and conventions, where these apply
- ◆ an understanding of the impact of graphic communication technologies on our environment and society

## Who is this course for?

The course is suitable for candidates with an interest in both digital and paper-based graphic communication. It is largely candidate-centred and includes practical and experiential learning opportunities, so there is broad scope for personalisation and choice.

# Course content

The course develops skills in two main areas — 2D, and 3D and pictorial graphic communication. Candidates apply these skills to produce graphics with visual impact that communicate information effectively.

## **2D graphic communication**

Candidates develop creativity and presentation skills within a 2D graphic communication context. They initiate, plan, develop and communicate ideas graphically, using 2D graphic techniques. Candidates develop skills and attributes including spatial awareness, visual literacy, and the ability to interpret given drawings, diagrams and other graphics. They evaluate the effectiveness of their own and given graphic communications to meet their purpose.

## **3D and pictorial graphic communication**

Candidates develop creativity and presentation skills within a 3D and pictorial graphic communication context. They initiate, plan, develop and communicate ideas graphically, using 3D and pictorial graphic techniques. Candidates develop a number of skills and attributes including spatial awareness, visual literacy, and the ability to interpret given drawings, diagrams and other graphics. They evaluate the effectiveness of their own and given graphic communications to meet their purpose.

# Skills, knowledge and understanding

## **Skills, knowledge and understanding for the course**

The following provides a broad overview of the subject skills, knowledge and understanding developed in the course:

- ◆ replicating familiar and some new graphic forms with some complex features in 2D, 3D and pictorial views
- ◆ applying recognised graphic communication standards, protocols and conventions in straightforward but unfamiliar contexts
- ◆ initiating, planning and producing preliminary, production, promotional, and informational graphics in both familiar and new contexts, with some complex features
- ◆ applying graphic design skills, including creativity, when developing solutions to graphic tasks with some complex features
- ◆ understanding the application of colour, illustration and presentation techniques in a broad range of graphic contexts
- ◆ critically reviewing graphics work as it progresses, and evaluating completed tasks suggesting strategies for improvement
- ◆ extending visual literacy by interpreting unfamiliar graphic communications — some with complex features or combinations of views
- ◆ extending graphic spatial awareness in unfamiliar 2D, 3D and pictorial graphic situations including those with complex features

- ◆ selecting, managing and using graphic communication equipment, software and materials effectively across tasks
- ◆ understanding a broad range of computer-aided graphic techniques including commercial/industrial practice
- ◆ an informed understanding of the impact of graphic communication technologies on the environment and society

## Skills, knowledge and understanding for the course assessment

The following provides details of skills, knowledge and understanding sampled in the course assessment:

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Graphic types</b>	The role of preliminary, production and promotional graphics in the design, manufacturing and marketing of a product or publication.	<b>Graphic types</b>	Producing effective preliminary, production and promotional graphics.
<b>Manual techniques</b>	Manual graphic communication techniques and processes, and their relative merits compared to electronic methods.  A range of common manual graphics media.	<b>Manual techniques and/or computer-aided techniques</b>	Selecting and applying manual and/or computer-aided and desktop-publishing (DTP) graphic techniques and processes.  Using graphic communication applications and a range of common graphic media, equipment and/or devices to produce effective and informative graphic communications.
<b>Computer-aided techniques</b>	Computer-aided techniques, computer-aided design (CAD), desktop publishing (DTP), digital capture/input and output techniques and devices.		

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Drawing standards, protocols and conventions</b>	<p>Recognised drawing standards, protocols and conventions, demonstrated through application, identification and recognition in given contexts, views and items.</p> <ul style="list-style-type: none"> <li>◆ line types: <ul style="list-style-type: none"> <li>— dimension lines, centre line, hidden detail, cutting planes, fold lines</li> </ul> </li> <li>◆ dimensioning: <ul style="list-style-type: none"> <li>— linear, radial, angular, diameter, tolerance</li> </ul> </li> <li>◆ symbols for sections</li> <li>◆ hatching</li> <li>◆ building construction</li> <li>◆ third-angle projection system</li> </ul>	<b>Drawing standards, protocols and conventions</b>	<p>Applying recognised drawing standards, protocols and conventions in engineering and construction, including symbols and standards.</p> <ul style="list-style-type: none"> <li>◆ line types: <ul style="list-style-type: none"> <li>— dimension lines, centre line, hidden detail, cutting planes, fold lines</li> </ul> </li> <li>◆ dimensioning: <ul style="list-style-type: none"> <li>— linear, radial, angular, diameter, tolerance</li> </ul> </li> <li>◆ symbols for sections</li> <li>◆ hatching</li> <li>◆ building construction</li> <li>◆ third-angle projection system</li> </ul>



Question paper (knowledge and understanding)		Assignment (skills)	
<b>Geometric shapes and forms</b>	<p>Spatial awareness when interpreting geometric shapes and forms, and/or those used in the communication of products, components, assemblies and other items.</p> <ul style="list-style-type: none"> <li>◆ interpenetration</li> <li>◆ intersections of right prisms and cylinders</li> <li>◆ true shapes</li> <li>◆ ellipses</li> <li>◆ common geometric forms and partial cuts of those forms</li> <li>◆ components built from various simple combinations of forms</li> </ul>	<b>Geometric shapes and forms</b>	<p>Producing graphics representing products, components, assembly and other items.</p> <ul style="list-style-type: none"> <li>◆ interpenetration</li> <li>◆ intersections of right prisms and cylinders</li> <li>◆ true shapes</li> <li>◆ ellipses</li> <li>◆ common geometric forms and partial cuts of those forms</li> <li>◆ components built from various simple combinations of forms</li> </ul>

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Views and techniques</b>	<p>The role, benefits and use of a variety of views and techniques in 2D and 3D formats:</p> <ul style="list-style-type: none"> <li>◆ communicating geometric shapes, objects and forms</li> <li>◆ components</li> <li>◆ assemblies</li> <li>◆ third-angle orthographic projection</li> <li>◆ tangency (internal and external radii location)</li> <li>◆ true lengths and true shapes</li> <li>◆ surface developments</li> <li>◆ a range of sectional views (full, part, revolved, and stepped) and cut-aways</li> <li>◆ assembly drawings (minimum three parts)</li> <li>◆ auxiliary views</li> <li>◆ exploded views (full and sectioned)</li> <li>◆ oblique, isometric and planometric views</li> <li>◆ use of appropriate scales</li> </ul>	<b>Views and techniques</b>	<p>Appropriate selection and use of 2D, and 3D and pictorial views and techniques, when producing graphic communications:</p> <ul style="list-style-type: none"> <li>◆ third-angle orthographic projection</li> <li>◆ tangency (internal and external radii location)</li> <li>◆ true lengths and true shapes</li> <li>◆ surface developments</li> <li>◆ a range of sectional views (full, part, revolved, and stepped) and cut-aways</li> <li>◆ assembly drawings (minimum three parts)</li> <li>◆ auxiliary views</li> <li>◆ exploded views (full and sectioned)</li> <li>◆ oblique, isometric and planometric views</li> <li>◆ use of appropriate scales</li> </ul>

Question paper (knowledge and understanding)		Assignment (skills)	
		<b>Techniques in sketching (paper-based and/or using electronic tablets or similar devices)</b>	Applying electronic and/or manual sketching techniques: <ul style="list-style-type: none"> <li>◆ proportion</li> <li>◆ line quality</li> <li>◆ vanishing points</li> <li>◆ line sketching using related orthographic views</li> <li>◆ single- and two-point perspective</li> <li>◆ oblique and isometric forms</li> </ul>
<b>Illustration techniques</b>	The use of illustration techniques used to support effective graphic communications.  The use and role of, and common techniques for representing: <ul style="list-style-type: none"> <li>◆ light</li> <li>◆ shadow</li> <li>◆ reflection</li> <li>◆ tone</li> <li>◆ layout</li> <li>◆ material</li> <li>◆ texture</li> </ul>	<b>Illustration techniques using manual and/or computer-aided formats</b>	Using illustration techniques to create effective and informative graphic communications for representing: <ul style="list-style-type: none"> <li>◆ light</li> <li>◆ shadow</li> <li>◆ reflection</li> <li>◆ tone</li> <li>◆ layout</li> <li>◆ material</li> <li>◆ texture</li> </ul> Visual enhancement techniques

Question paper (knowledge and understanding)		Assignment (skills)	
	3D-rendering techniques: <ul style="list-style-type: none"> <li>◆ light source</li> <li>◆ materials</li> <li>◆ reflections</li> <li>◆ shade</li> <li>◆ sited environment</li> </ul>		Creating scenes that place 3D models in relevant contexts.
<b>Techniques used for producing effective promotional documents and publications</b>	Techniques used in producing promotional documents and publications: <ul style="list-style-type: none"> <li>◆ colour theory:               <ul style="list-style-type: none"> <li>— warm, cool, contrast, harmony, accent, advancing and receding</li> </ul> </li> <li>◆ design elements and principles:               <ul style="list-style-type: none"> <li>— line, shape, texture, value, mass/weight, alignment, balance, contrast, depth, dominance, emphasis, proportion, rhythm, unity/proximity, white space, grid structure</li> </ul> </li> </ul>	<b>Producing effective promotional documents</b>	Applying and using: <ul style="list-style-type: none"> <li>◆ colour theory:               <ul style="list-style-type: none"> <li>— warm, cool, contrast, harmony, accent, advancing and receding</li> </ul> </li> <li>◆ design elements and principles:               <ul style="list-style-type: none"> <li>— line, shape, texture, value, mass/weight, alignment, balance, contrast, depth, dominance, emphasis, proportion, rhythm, unity/proximity, white space, grid structure</li> </ul> </li> </ul> <p>Techniques used to create promotional documents and graphic displays.</p> <p>Presenting research/investigation and generating ideas for work to support/justify a graphic communication proposal.</p>

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Using technology in graphic communication</b>	Ranges, features and use of graphic hardware and software computer systems and networks: <ul style="list-style-type: none"> <li>◆ file management</li> <li>◆ cloud computing</li> <li>◆ cloud storage</li> <li>◆ digital rights management</li> <li>◆ digital input and output devices</li> <li>◆ advantages and limitations of CAD</li> </ul>		
<b>Computer-aided design (CAD)</b>	Generic techniques, customs and practices used across a range of packages: <ul style="list-style-type: none"> <li>◆ 2D-drawing tools:               <ul style="list-style-type: none"> <li>— line, circle, rectangle, ellipse, trim, array (linear, box and radial), offset, mirror, project edge, extend, fillet, chamfer</li> </ul> </li> <li>◆ modelling features:               <ul style="list-style-type: none"> <li>— extrude, revolve, loft, helix, extrude/sweep along a path</li> </ul> </li> <li>◆ modelling edits:               <ul style="list-style-type: none"> <li>— shell, fillet (regular/irregular), chamfer (regular/irregular), mirror,</li> </ul> </li> </ul>	<b>Computer-aided design (CAD)</b>	Applying generic techniques, customs and practices used across a range of 2D and 3D CAD packages: <ul style="list-style-type: none"> <li>◆ 2D-drawing tools:               <ul style="list-style-type: none"> <li>— line, circle, rectangle, ellipse, trim, array (linear, box and radial), offset, mirror, project edge, extend, fillet, chamfer</li> </ul> </li> <li>◆ modelling features:               <ul style="list-style-type: none"> <li>— extrude, revolve, loft, helix, extrude/sweep along a path</li> </ul> </li> <li>◆ modelling edits:               <ul style="list-style-type: none"> <li>— shell, fillet (regular/irregular), chamfer (regular/irregular), mirror,</li> </ul> </li> </ul>

Question paper (knowledge and understanding)		Assignment (skills)	
	<p>array (linear, box and radial), add, subtract, intersect</p> <ul style="list-style-type: none"> <li>◆ 2D constraints: <ul style="list-style-type: none"> <li>— linear, radius, diameter, perpendicular, parallel, fixed, tangent, concentric</li> </ul> </li> <li>◆ terminology: <ul style="list-style-type: none"> <li>— component, assembly, sub-assembly, work-plane/plane, axis, feature, profile, sketch, face, edge, datum, suppress</li> </ul> </li> <li>◆ assembly: <ul style="list-style-type: none"> <li>— 3D constraints (mate, align, centre axis, orientate, offset, tangent), stock/library components</li> </ul> </li> <li>◆ modelling concepts: <ul style="list-style-type: none"> <li>— top-down modelling, bottom-up modelling, vertices, edges and faces, modelling tree/hierarchy, modelling plan</li> </ul> </li> <li>◆ file types: <ul style="list-style-type: none"> <li>— dxf, 3ds, step/iges</li> </ul> </li> <li>◆ CAD libraries: <ul style="list-style-type: none"> <li>— use and function of CAD libraries and stock models</li> </ul> </li> </ul>		<p>array (linear, box and radial), add, subtract, intersect</p> <ul style="list-style-type: none"> <li>◆ 2D constraints: <ul style="list-style-type: none"> <li>— linear, radius, diameter, perpendicular, parallel, fixed, tangent, concentric</li> </ul> </li> <li>◆ terminology: <ul style="list-style-type: none"> <li>— component, assembly, sub-assembly, work-plane/plane, axis, feature, profile, sketch, face, edge, datum, suppress</li> </ul> </li> <li>◆ assembly: <ul style="list-style-type: none"> <li>— 3D constraints (mate, align, centre axis, orientate, offset, tangent), stock/library components</li> </ul> </li> <li>◆ modelling concepts: <ul style="list-style-type: none"> <li>— top-down modelling, bottom-up modelling, vertices, edges and faces, modelling tree/hierarchy, modelling plan</li> </ul> </li> <li>◆ file types: <ul style="list-style-type: none"> <li>— dxf, 3ds, step/iges</li> </ul> </li> <li>◆ CAD libraries: <ul style="list-style-type: none"> <li>— use and function of CAD libraries and stock models</li> </ul> </li> </ul>

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Desktop publishing (DTP)</b>	<p>Generic DTP terms and techniques including:</p> <ul style="list-style-type: none"> <li>◆ planning strategies: <ul style="list-style-type: none"> <li>— thumbnails, visuals and annotation</li> </ul> </li> <li>◆ generic DTP terms and techniques: <ul style="list-style-type: none"> <li>— copy/paste, import/export</li> <li>— single- and multi-page format</li> <li>— page size, orientation, grid, guides, snap, master page layers, document sizing</li> <li>— cropping (square and full cropping), rotate, text box, handles, text wrap, flow text along a path, extended text</li> <li>— colour fill, colour picking, textured fills, gradient fill, transparency, drop shadow</li> <li>— serif, sans serif and script fonts, font styles, placeholder text (lorem ipsum), reverse, drop caps</li> <li>— column, margin, gutter, caption, header, running headline, heading, title, footer, folio, column rule/rule, indent, hanging indent, line spacing, pull quote, justification</li> <li>— proofs (pre-press), registration marks, crop marks, bleed</li> </ul> </li> <li>◆ file types: <ul style="list-style-type: none"> <li>— raster (tiff, jpg, png, bmp), vector (svg, dxf) and their features</li> </ul> </li> </ul>	<b>Desktop publishing (DTP)</b>	<p>Applying and using generic DTP terms and techniques including:</p> <ul style="list-style-type: none"> <li>◆ planning strategies: <ul style="list-style-type: none"> <li>— thumbnails, visuals and annotation</li> </ul> </li> <li>◆ generic DTP terms and techniques: <ul style="list-style-type: none"> <li>— copy/paste, import/export</li> <li>— single- and multi-page format</li> <li>— page size, orientation, grid, guides, snap, master page layers, document sizing</li> <li>— cropping (square and full cropping), rotate, text box, handles, text wrap, flow text along a path, extended text</li> <li>— colour fill, colour picking, textured fills, gradient fill, transparency, drop shadow</li> <li>— serif, sans serif and script fonts, font styles, placeholder text (lorem ipsum), reverse, drop caps</li> <li>— column, margin, gutter, caption, header, running headline, heading, title, footer, folio, column rule/rule, indent, hanging indent, line spacing, pull quote, justification</li> <li>— proofs (pre-press), registration marks, crop marks, bleed</li> </ul> </li> <li>◆ file types: <ul style="list-style-type: none"> <li>— raster (tiff, jpg, png, bmp), vector (svg, dxf) and their features</li> </ul> </li> </ul>

Question paper (knowledge and understanding)		Assignment (skills)	
<b>Graphic communication technology and society</b>	<p>The impact and influence of CAD systems and graphic communication technologies on industry and society:</p> <ul style="list-style-type: none"> <li>◆ the paperless office</li> <li>◆ use of recycled materials</li> <li>◆ CAD, as it supports manufacturing and other industries</li> <li>◆ DTP in marketing and promotional activities</li> <li>◆ remote working</li> <li>◆ communication crossing international boundaries</li> </ul>		
		<b>Safe working</b>	The safe working practices and systems that support graphic communication activities in studios and other working environments.

Skills, knowledge and understanding included in the course are appropriate to the SCQF level of the course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level, and can be found on the SCQF website.



# **Skills for learning, skills for life and skills for work**

This course helps candidates to develop broad, generic skills. These skills are based on SQA's Skills Framework: Skills for Learning, Skills for Life and Skills for Work and draw from the following main skills areas:

## **2 Numeracy**

2.2 Money, time and measurement

## **4 Employability, enterprise and citizenship**

4.2 Information and communication technology (ICT)

## **5 Thinking skills**

5.3 Applying

5.4 Analysing and evaluating

5.5 Creating

You must build these skills into the course at an appropriate level, where there are suitable opportunities.

# Course assessment

Course assessment is based on the information provided in this document.

The course assessment meets the key purposes and aims of the course by addressing:

- ◆ breadth — drawing on knowledge and skills from across the course
- ◆ challenge — requiring greater depth or extension of knowledge and/or skills
- ◆ application — requiring application of knowledge and/or skills in practical or theoretical contexts as appropriate

This enables candidates to:

- ◆ demonstrate aspects of breadth and application in a graphic context, based on recognised graphic principles and those used in industry and commerce
- ◆ produce practical responses to a graphics situation, which allows them to confirm their capabilities through challenge and application
- ◆ apply knowledge and understanding from across the course, to describe and explain graphic communication techniques, methods and standards
- ◆ apply knowledge and understanding from across the course, to interpret unfamiliar, potentially complex graphic communications
- ◆ apply skills, knowledge and understanding from across the course, to produce a response to a graphic communication brief

## Course assessment structure: question paper

### Question paper

**90 marks**

The question paper has a total mark allocation of 90 marks. This is 64% of the overall marks for the course assessment.

It has one section, allowing for a variety of response types across the paper.

The question paper gives candidates the opportunity to demonstrate skills, knowledge and understanding relating to the following:

Area	Range of marks
Computer-aided design techniques	20–30
Interpretation of graphic items	12–30
Digital technology in graphic communication	4–12
Drawing standards, protocols and conventions	7–14
Desktop-publishing features, design elements and principles	20–30

A proportion of marks are available for more challenging questions, which generally require interpretation and/or integration of more complex graphic communication techniques. This could be in complexity of the expected response, the descriptions and/or justifications of more detailed and/or complex processes, or problem solving, for example in computer-aided design techniques and processes.

Candidates may include sketches to further illustrate and support their response, however, sketching is not a requirement. Candidates are not required to draw with instruments.

Questions are a mixture of limited and extended responses and/or scenario-based questions, allowing for either written and/or sketched responses, and illustrations for descriptive purposes.

### **Setting, conducting and marking the question paper**

The question paper is set and marked by SQA, and conducted in centres under conditions specified for external examinations by SQA.

Candidates have 2 hours and 30 minutes to complete the question paper.

Specimen question papers for Higher courses are published on SQA's website. These illustrate the standard, structure and requirements of the question papers candidates sit. The specimen papers also include marking instructions.

## **Course assessment structure: assignment**

### **Assignment**

**50 marks**

The assignment assesses candidates' ability to apply graphic communication skills and knowledge acquired and developed during the course, in the context of defined tasks which require a response to a problem or situation.

It has three areas covering preliminary, production and promotional graphics. These may, or may not, be thematically related and include various tasks that candidates complete.

The assignment has a total mark allocation of 50 marks. This is 36% of the overall marks for the course assessment.

Marks are awarded for:

<b>Area</b>	<b>Range of marks</b>
Preliminary graphics	5–15
Production graphics	10–25
Promotional graphics	10–25

The assignment provides an opportunity for candidates to:

- ◆ demonstrate creativity when responding to realistic and contextualised graphic tasks and situations
- ◆ demonstrate skills when using graphic communication technologies to meet a purpose
- ◆ produce relevant preliminary, production and promotional graphic responses to a brief
- ◆ apply illustration and presentation techniques to create graphic responses with relevant visual impact and clear purpose
- ◆ produce 2D and 3D production drawings, applying appropriate standards, protocols and conventions (drawing includes manual or electronic production methodologies); including third-angle projection, dimensioning, line type and using scale
- ◆ produce promotional graphic publications with relevant visual impact, that are planned and designed to meet a market and purpose, with an agreed content and style
- ◆ review, evaluate and justify their decisions on the choice of graphic items and communication techniques employed

### **Setting, conducting and marking the assignment**

The assignment is:

- ◆ set by SQA, on an annual basis
- ◆ conducted under a high degree of supervision and control
- ◆ submitted to SQA for external marking

All marking is quality assured by SQA.

### **Assessment conditions**

#### **Time**

The assignment is carried out over 8 hours, starting at an appropriate point in the course, once all content has been delivered.

#### **Supervision, control and authentication**

Candidates must carry out the assignment:

- ◆ without interruption by periods of learning and teaching
- ◆ in a classroom environment
- ◆ on an individual basis, ie no group work is permitted
- ◆ in a supervised environment, to ensure that work presented is their own

#### **Resources**

This is a closed-book assessment. Candidates must not have access to learning and teaching materials, the internet, notes, exemplar materials, resources on classroom walls or anything similar.

Each assessment task includes instructions and details of any equipment or materials required.

### **Reasonable assistance**

Candidates must progress through each stage of the assignment without any teacher or lecturer intervention or guidance.

Once assignments are completed, they must not be returned to candidates for further work.

### **Evidence to be gathered**

Full details of evidence requirements are contained within each assessment task.

All candidate evidence (whether created manually or electronically) must be submitted to SQA in paper-based format.

### **Volume**

There is no word count.

Candidates should present their work on a maximum of 10 single-sided A3-sized pages, however, there is no penalty for exceeding this.

## **Grading**

Candidates' overall grades are determined by their performance across the course assessment. The course assessment is graded A–D on the basis of the total mark for all course assessment components.

### **Grade description for C**

For the award of grade C, candidates will typically have demonstrated successful performance in relation to the skills, knowledge and understanding for the course.

### **Grade description for A**

For the award of grade A, candidates will typically have demonstrated a consistently high level of performance in relation to the skills, knowledge and understanding for the course.

# Equality and inclusion

This course is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

For guidance on assessment arrangements for disabled candidates and/or those with additional support needs, please follow the link to the assessment arrangements web page: [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements).

# Further information

The following reference documents provide useful information and background.

- ◆ [Higher Graphic Communication subject page](#)
- ◆ [Assessment arrangements web page](#)
- ◆ [Building the Curriculum 3–5](#)
- ◆ [Guide to Assessment](#)
- ◆ [Guidance on conditions of assessment for coursework](#)
- ◆ [SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work](#)
- ◆ [Coursework Authenticity: A Guide for Teachers and Lecturers](#)
- ◆ [Educational Research Reports](#)
- ◆ [SQA Guidelines on e-assessment for Schools](#)
- ◆ [SQA e-assessment web page](#)

The SCQF framework, level descriptors and handbook are available on the SCQF website.

# Appendix 1: course support notes

## Introduction

These support notes are not mandatory. They provide advice and guidance to teachers and lecturers on approaches to delivering the course. You should read these in conjunction with this course specification, and the specimen question paper and coursework.

## Approaches to learning and teaching

The Higher Graphic Communication course reflects Curriculum for Excellence values, purposes and principles. The approaches to learning and teaching developed by individual centres should reflect these principles.

You should take personalisation and choice into account when planning learning and teaching. With the greater availability and ease of using graphic communication technology and software applications, centres can fully utilise all available technology, unless otherwise specified, for example where references are made to computer-aided design (CAD).

Decide what approaches best support your candidates to acquire knowledge and skills, and learn graphic communication principles and practice. Candidates can develop spatial awareness, cognition and reasoning in a number of ways through graphic communication. Holding, rotating, disassembling, re-assembling, folding, photographing, predicting, formal drawing, and sketching are all useful techniques to build capacity and understanding.

References to 'sketching' and 'drawing' in the course encourage candidates to use and experience both electronic and/or manual methods, and you should give them as much flexibility, personalisation and choice as possible.

Many approaches to communicating with graphics use a range of media and electronic technology. You should give candidates the opportunity to develop the appropriate knowledge and understanding that underpin successful graphic communication and visual literacy, and you should carefully select learning and teaching approaches to allow this.

## Learning and teaching strategies

You are encouraged to use a broad range of learning and teaching strategies, activities and learning resources to enrich candidates' experiences.

**Co-operative and collaborative learning** supports, encourages and enables candidates to reach their potential. Candidates are encouraged to think critically, develop confidence working as part of a team, and develop higher-order skills, such as analysis and problem solving.

You can use these approaches when setting open briefs and where the graphic responses from individual candidates, while being different, demonstrate that a variety of approaches can solve the same problem. Briefs should be set in a relevant and meaningful context. A number of project-based activities support this approach to learning, for example



competition-based work, charity and community, enterprise and business, and environmental themes.

**Problem-based learning** develops candidates' problem solving, decision making, investigative skills, creative thinking, team working and evaluative skills. It supports progression through the course and is useful at the end of a topic, where additional challenge is required to ensure candidates are secure in their knowledge and understanding, and can apply them in less familiar contexts. This provides a structure for the course assessment. For example:

- ◆ You could ask candidates to design a logo to promote an international sporting event, such as the Olympic or Commonwealth Games. People from many competing or visiting nations would need to understand the logo. Candidates would then apply their knowledge of sport, athletics, games, sporting equipment, international identity, language and language barriers, layout, colour, and textual information to address this task, before presenting a solution.
- ◆ You could ask candidates to communicate information for a residential development. The communication would need to promote sustainability. Candidates would then bring together and communicate the technological information for construction or engineering to the specialist, but also address the aspects of communicating green issues or similar environmental compatibilities to the general public or layperson.

Both of these tasks require candidates to draw on their graphic knowledge and skills in applying and communicating information to a mixed or diverse audience. Candidates can carry them out individually or in a group learning activity.

## Contexts for learning

You should develop a programme of learning that supports graphic communication in the world of work, with activities from graphic industries. Most communities have businesses or individuals with expertise who can contribute to the learning context by providing useful information, acknowledging the skill sets required and creating sustainable links with the centre.

Where appropriate, you could enrich the learning experience with guest speakers from industry, and educational visits and trips, for example a local newspaper production office, printers, signage, engineering, construction sales office, packaging, and retail outlets. These support learning through contextualisation. Links with industry, colleges and universities help candidates understand graphic communication in the context of the world of work, support their future progression and inform curriculum or career pathways decisions.

Learning about Scotland and Scottish culture could enrich the learning experience and help develop the skills for learning, life and work. Where there are opportunities to contextualise approaches to learning and teaching to Scottish contexts, you should consider this.

## **Learning and teaching resources**

You should use the resources that best support effective learning and teaching for graphic communication.

If you use CAD, it is important that candidates know and understand how to apply the principles, and that they do not rely on a device to generate an image or information. Candidates must have a secure knowledge base, so they can interrogate the graphic response to ensure that it is correct in appearance, and meets standards and conventions.

CAD and ICT are integral to learning and teaching the course and you should encourage candidates to explore them. Where appropriate, resources such as interactive boards, sketching or drawing tablets, scanners and visualisers should be encouraged. Interactive boards could improve the learning experience when delivering new learning related to software packages, and visualisers support the delivery of manual sketching, board work, and rendering, as well as tonal work with shadow and reflection using physical items.

There are inexpensive or free applications (apps) available for smartphones and popular digital tablets, with some provided by recognised graphics software providers. These can support sketching and rendering, importing common drawing formats, and instant electronic communication of the graphic via e-mail or social networking pages. As technology evolves, learning and teaching approaches should adapt and change, to reflect and capture their potential. If using apps, they must be able to contribute positively to learning in graphic communication. For example, if a candidate wants to and has the resources to demonstrate sketching using electronic devices, then you should encourage this.

Electronic technology can also effectively capture a candidate's journey as they progress through the course. You should ensure that where electronic devices and applications are used, they do not undermine the principles taught and that they genuinely enhance the learning activities.

As well as traditional and electronic technology, you should make use of existing resources to complete graphics work and tasks. These resources could include pencils, markers, pastels, masks, inks and airbrush, application vinyl, texture boards, cutting mats, templates, curves, stencils, highlighting pens, compasses, light boxes, drawing boards, straight edges, and squares. You should select what best supports candidates' learning.

## **Areas of study for candidates**

### **2D orthographic drawing**

Candidates should experience more than a single approach to creating 2D drawings. You can teach, and candidates can learn, the principles of orthographic projection in many different ways, using a variety of learning and teaching techniques and resources. Candidates can develop graphical literacy by using computers, tablets, digital pens, sketching, paper and pencil, block work, plotting and drawing with instruments.

### **Sketching**

Developing skills in sketching supports many aspects of the course. It is a quick and effective means of recording, developing and communicating ideas graphically. As a problem-solving and creative tool, analytical and developmental sketching skills are important.

Where possible in 2D sketching, you should incorporate the principles of orthographic projection, with an emphasis on using recognised construction techniques and on establishing good proportion and line quality.

In pictorial sketching and representation, you should allow candidates to use a range of techniques and media to create 3D representations. Sketching is likely to use digital materials, applications and devices, as well as pencils, pens, templates or guides and paper in completing the sketch. Candidates may wish to maintain a sketchbook to record information and techniques for practice and reference.

When developing preliminary graphics, it is not necessary that you spend extended periods focusing on how to present the graphics. You should concentrate on developing skills to produce items quickly, as this is the technique necessary to develop new products. The aim is to focus on details or features in products that demonstrate analytical activities and skills. The purpose at this stage is to communicate relevant information, rather than demonstrate presentation skills.

### **3D CAD models, pictorial drawing and sketching**

Candidates should experience more than a single approach to creating 3D and pictorial drawings. You can teach, and candidates can learn, the principles of orthographic projection in many different ways, using a variety of learning and teaching techniques and media.

Candidates should build the skills and confidence necessary to produce work quickly, accurately, effectively and with sufficient detail to be convincing and realistic. Small, short skill-building proficiency tasks help develop these skills. You could consider these for learning activities, to help develop skills and understanding, and accelerate graphics production.

Where centres have sufficient resources, it is likely that candidates will sketch both manually and electronically. This allows for development of skills in both formats — similar to what happens in design and graphic environments. Progression would involve more complex objects or geometric forms, requiring greater treatments in terms of, for example texture, colour, tone, light and shade.

At the core of the course is the principle that candidates develop the skills and knowledge to create 3D and pictorial graphics, and they continue to develop problem-solving and design skills. Candidates should be able to demonstrate increased independent thinking and apply previously learned skills and knowledge to new situations, graphic projects and tasks.

### **Create multi-page promotional displays**

Presenting the skills and knowledge around a theme or in short contained tasks can aid learning. This approach highlights the connections between graphic styles and techniques as they apply to a given situation or problem. These approaches gradually build proficiencies in thinking, designing and applying graphic knowledge and skills in context.

Multi-page, promotional displays can take a variety of formats and can demonstrate that candidates have the necessary planning, skills and standards. This could be in paper or

digital production or in the form of a card or paper model. Candidates must not use wizards, as they do not show their capabilities.

### **Themed or short self-contained project work**

Presenting the skills and knowledge around a theme can aid learning. This approach can highlight the connections between graphic styles and techniques via a single extended project. It could also prepare candidates for progression through subsequent Graphic Communication courses. Similarly, by presenting work as a series of short, self-contained projects, candidates could be encouraged by shorter, more achievable goals. This approach allows you to adapt and refresh project work to suit the candidate.

### **E-learning**

There are a number of online resources. These provide a range of step-by-step tutorials from relative novice to advanced user. You could consider these for learning activities, to help develop skills and understanding, and accelerate graphics production.

### **Sequence of teaching topic areas**

There is no prescribed order to deliver the course topic areas. Resources and techniques will vary between centres and so it is likely that a preferred approach could emerge or that you might follow an existing tested strategy.

## **Suggested activities for candidates**

During the course, candidates should develop the skills, knowledge and understanding required to complete the course assessments. You should ensure that the following activities are covered:

### **Produce and interpret 2D orthographic sketches and drawings by:**

- ◆ applying appropriate drawing standards, protocols and conventions to produce orthographic sketches of everyday objects, components and assemblies with dimensions and complex features
- ◆ using graphic communication equipment accurately and effectively, and applying appropriate drawing standards, protocols and conventions to produce projected 2D line drawings of everyday objects, components and assemblies with dimensions and complex features
- ◆ describing and justifying the use of the main types of graphic communication employed in the design, manufacturing and marketing of a product

### **Produce 2D computer-aided designed production drawings by:**

- ◆ applying computer-aided design skills, knowledge and understanding accurately and effectively, and using appropriate drawing standards, protocols and conventions to create related orthographic views of single components and assemblies
- ◆ applying computer-aided design skills, knowledge and understanding accurately and effectively, and using appropriate drawing standards to create three examples of technical detail

- ◆ applying computer-aided design skills accurately and effectively, and using appropriate drawing standards to add textual and numerical information to orthographic computer-aided designed work

**Produce preliminary 2D designs and illustrations for a multi-page promotional document by:**

- ◆ illustrating preliminary orthographic sketches of geometric forms and everyday objects
- ◆ conducting preliminary research prior to the design of a promotional publication and preparing an outline specification
- ◆ applying knowledge and understanding of graphic elements and principles to produce preliminary layout designs for a multi-page promotional document

**Create a multi-page 2D promotional publication and a project set of promotional publications by:**

- ◆ using software accurately and effectively to construct a master page/template for a multi-page promotional publication
- ◆ producing a multi-page promotional publication with complex features, which communicates effectively with its target audience and has relevant visual impact
- ◆ describing and justifying the use of promotional graphics in industry and commerce and their impact on the environment and society

**Produce and interpret pictorial sketches and drawings by:**

- ◆ applying graphic communication skills to produce pictorial line sketches of everyday objects or buildings with complex features that demonstrate good proportion, line quality, and representation of the item
- ◆ applying graphic communication skills to produce pictorial line drawings of everyday objects or buildings with complex features that demonstrate accuracy in proportion, line quality, type and representation of the item
- ◆ describing and justifying the use of the main types of 3D and pictorial graphic communication employed in the design, manufacturing and marketing of a product

**Produce 3D computer-aided designed models and associated production drawings by:**

- ◆ applying computer-aided design skills accurately and effectively and using appropriate assembly techniques to create 3D models of everyday objects with complex features and technical detail
- ◆ describing and justifying 3D modelling techniques used to generate models of everyday objects with complex features
- ◆ applying computer-aided design skills, knowledge and understanding accurately and effectively and using appropriate drawing standards to add textual and numerical information to pictorial computer-aided designed work

### **Produce pictorial and 3D illustrations of everyday objects by:**

- ◆ illustrating preliminary pictorial sketches or drawings of everyday objects, to interpret the light source, surface texture and materials
- ◆ creating a rendered 3D computer-aided designed model of a complex everyday object to interpret the light source, with tonal change, surface texture and materials
- ◆ using computer-aided design software appropriately to create an environment or scene with relevant visual impact, applying surface texture and materials to situate and effectively enhance a pictorial illustration

### **Plan and produce promotional publications incorporating pictorial and/or 3D models by:**

- ◆ designing a preliminary layout to incorporate a pictorial and/or 3D model to create relevant visual impact in response to a brief or theme
- ◆ producing promotional publications to incorporate a pictorial and/or 3D model
- ◆ evaluating the effectiveness of the format to its target audience in relation to design principles and elements
- ◆ describing the purpose of 3D modelling in commercial/industrial settings, the impact on the environment and society

## **Preparing for course assessment**

You should give candidates opportunities to practise activities similar to those expected in the course assessment. For example, you could develop questions and tasks similar to those in the specimen question paper and specimen coursework.

In addition, the course has time that you can use at your discretion to prepare for course assessment. You can use this time at various points throughout the course for consolidation and support.

For the question paper, time is required for:

- ◆ revision and to consolidate learning
- ◆ question paper techniques
- ◆ familiarisation with past, specimen and sample question papers
- ◆ practice question paper(s) — for example prelim examination

For the assignment, time is required for:

- ◆ revision and to consolidate learning
- ◆ assignment techniques
- ◆ familiarisation with past, specimen and sample assignments
- ◆ practice assignment(s)

# Developing skills for learning, skills for life and skills for work

You should identify opportunities throughout the course for candidates to develop skills for learning, skills for life and skills for work.

Candidates should be aware of the skills they are developing and you can provide advice on opportunities to practise and improve them.

SQA does not formally assess skills for learning, skills for life and skills for work.

There may also be opportunities to develop additional skills depending on approaches being used to deliver the course in each centre. This is for individual teachers and lecturers to manage.

Some examples of potential opportunities to practise or improve these skills are provided in the following table.

Skill	How to develop
<b>2 Numeracy</b>	
2.2 Money, time and measurement	◆ using measurement, dimension and tolerance
<b>4 Employability, enterprise and citizenship</b>	
4.2 Information and communication technology (ICT)	◆ using graphics packages ◆ using digital input and graphic devices
<b>5 Thinking skills</b>	
5.3 Applying	◆ applying design knowledge to complex problems, modelling and conceptual thinking in communicating ideas
5.4 Analysing and evaluating	◆ carrying out situational analysis, graphic evaluation, thinking and analysing through sketching and drawing
5.5 Creating	◆ creating ideas, innovation and solutions to problems and briefs

# Appendix 2: standards and conventions — information and support for candidates

This appendix provides information on the expected use of standards and conventions for SQA Graphic Communication National Courses. It is not an exhaustive list of terms used in the graphics industry and does not cover every single term referred to in the course specifications. It is guidance and you should read it in conjunction with the rest of the course specification.





























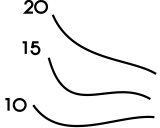
Note: this appendix **must not** be taken into the examination or displayed in any room where an examination is taking place.



## Building drawing symbols





These symbols are from the British Standard (BSI). You may be required to use these symbols in your assignment or project or asked about them in the question paper.


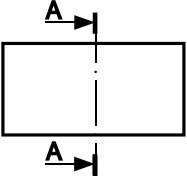
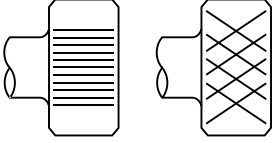
You **must** use the symbols and terms specified below:

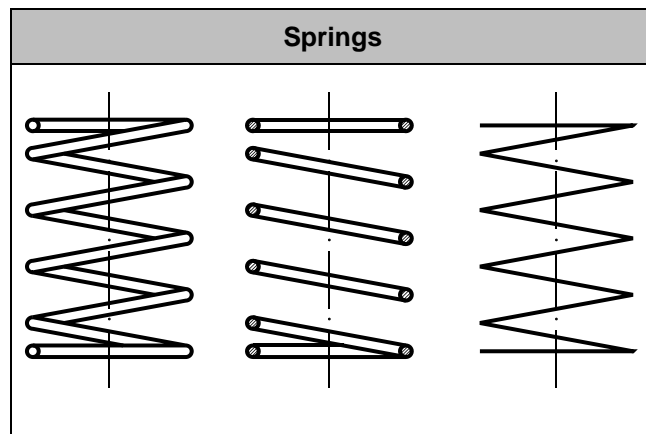
<b>Lamp</b>	<b>Switch</b>	<b>Socket</b>	<b>Radiator</b>	
				
<b>Shower tray</b>	<b>Bath</b>	<b>Wash basin</b>	<b>Sink</b>	<b>WC</b>
				
<b>Sinktop</b>	<b>Heated towel rail</b>	<b>Concrete</b>	<b>Brickwork</b>	
				
<b>Door</b>	<b>Wood sawn, any type</b>	<b>Insulation board</b>	<b>Block work</b>	
				
<b>Fixed window</b>	<b>Window — hinged at side</b>	<b>Window — hinged at top</b>	<b>Window — hinged at bottom</b>	
				
<b>Window — pivoted, horizontal axis</b>	<b>Window — sliding horizontally</b>	<b>Drainage</b>	<b>North point</b>	
				
<b>Existing tree</b>	<b>Existing tree — to be removed</b>	<b>Proposed tree</b>	<b>Contours</b>	
				

## Technical graphic line types

You must use the following technical graphic line types in your work.

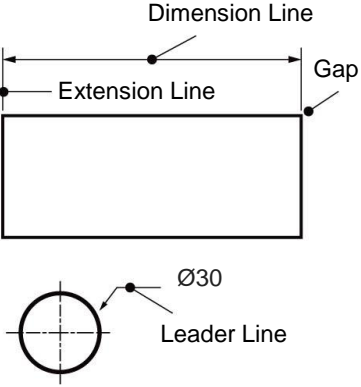
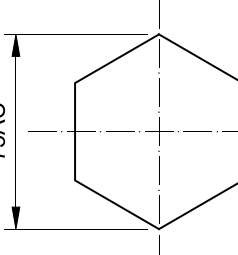
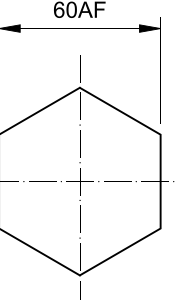

Outline solid	Projection line	Hidden detail line	Centre line
 <p>Continuous thick line for visible edges and outlines.</p>	 <p>Continuous thin line for projecting between views.</p>	 <p>Dashed thin line for hidden detail.</p>	 <p>Long dash, dot, chain line for centres of symmetry.</p> <p><b>Note:</b> BS 7308 (long dash, short dash chain) is also acceptable.</p>

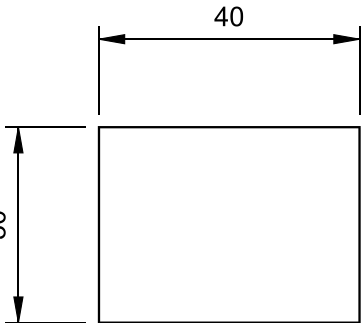
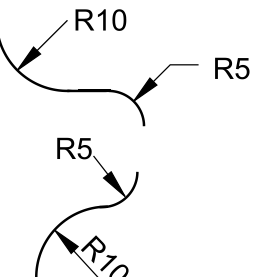
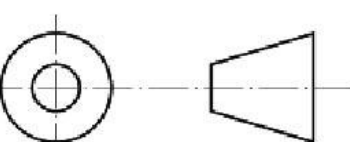
Fold line	Cutting plane	Knurling
 <p>Thin long dash, double dot, chain line to indicate folds on surface developments.</p> <p><b>Note:</b> BS 7308 (long dash, short double dash chain) is also acceptable.</p>	 <p>Long dash dotted thin line, thick at ends.</p> <p><b>Note:</b> BS 7308 (long dash, short dash chain line, thick at ends) is also acceptable.</p>	 <p>Straight      Diamond</p>

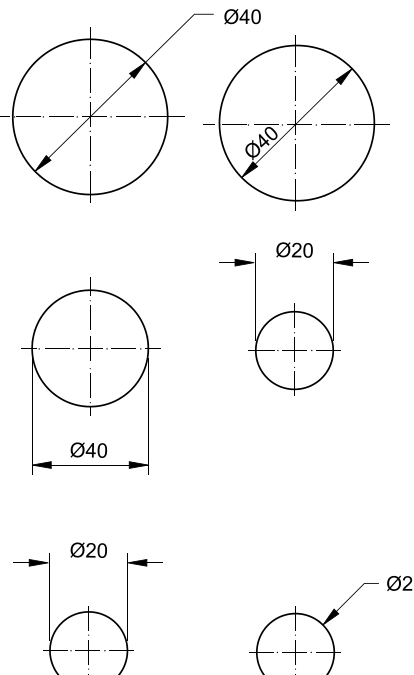
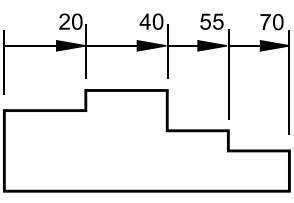
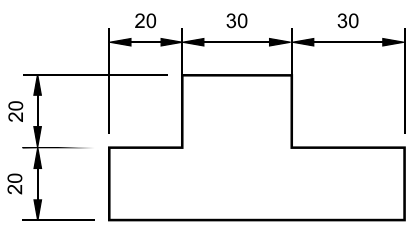


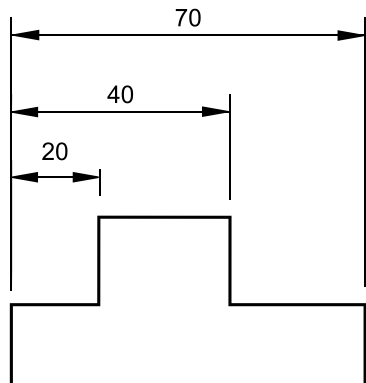
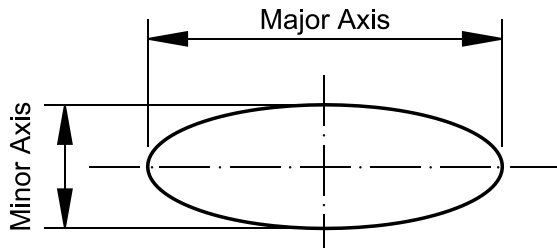
## Dimensioning conventions

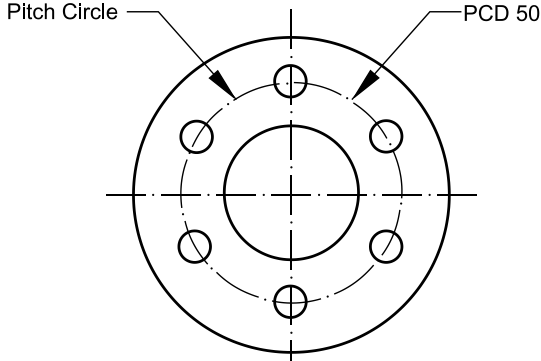
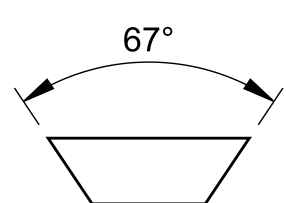
These are the conventions for technical graphic dimensioning that you must use in your work.

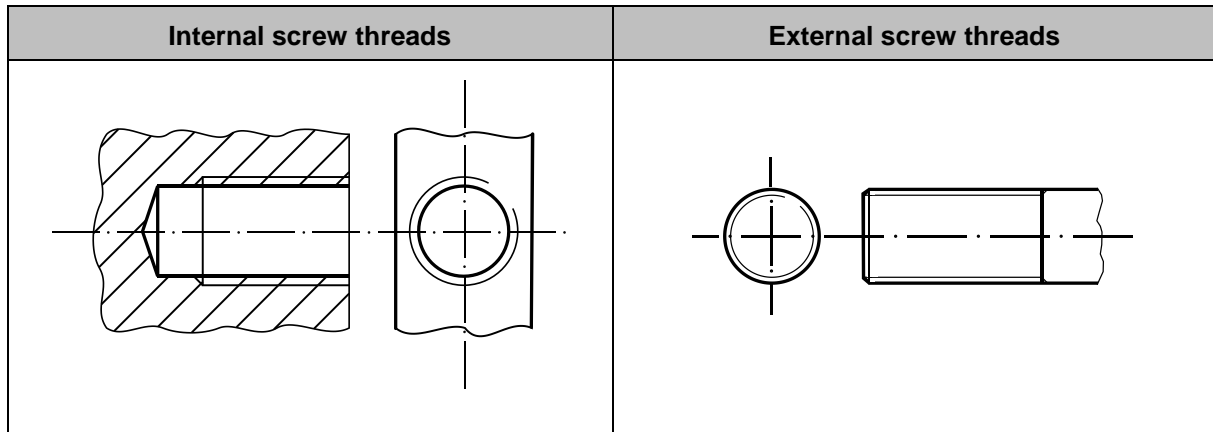
Leader line	Across corners	Across flats	Square
 <p>Dimension Line Extension Line Gap Ø30 Leader Line</p>	 <p>75AC</p>	 <p>60AF</p>	 <p>□ 30</p>

Linear	Radial	Projection symbol
 <p>40 30</p>	 <p>R10 R5 R5 R10</p>	 <p>Third-angle projection</p>

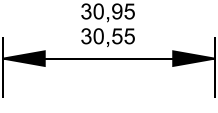

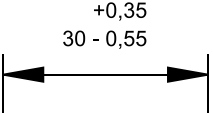
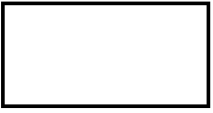
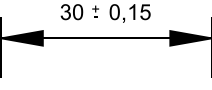

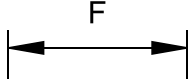
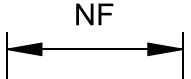
Diameter	Running	Chain
 <p>Technical drawings of a stepped shaft. The top row shows two front views of the shaft with diameters of <math>\varnothing 40</math> and <math>\varnothing 40</math>. The middle row shows a front view with diameter <math>\varnothing 40</math> and a side view with diameter <math>\varnothing 20</math>. The bottom row shows a side view with diameter <math>\varnothing 20</math> and a front view with diameter <math>\varnothing 20</math>.</p>	 <p>Running dimension drawing of a stepped shaft. The lengths of the four steps are indicated as 20, 40, 55, and 70.</p>	 <p>Chain dimension drawing of a stepped shaft. The lengths of the three steps are indicated as 20, 30, and 30. The heights of the steps are indicated as 20.</p>

Parallel	Major and minor axis
 <p>Parallel dimension drawing of a stepped shaft. The lengths of the three steps are indicated as 70, 40, and 20.</p>	 <p>Major and minor axis dimension drawing of an ellipse. The major axis is labeled "Major Axis" and the minor axis is labeled "Minor Axis".</p>

Pitch circle diameter	Angular dimension
 <p>Pitch circle diameter dimension drawing of a gear. The pitch circle is labeled "Pitch Circle" and the pitch circle diameter is labeled "PCD 50".</p>	 <p>Angular dimension drawing of a trapezoid. The angle is labeled <math>67^\circ</math>.</p>



## Tolerances

Common tolerance	Asymmetrical tolerance	Symmetrical tolerance	Functional tolerance	Non-functional tolerance
 	 	 		
<p>The common method shows the upper limit of the size placed above the lower limit.</p>	<p>The asymmetrical method shows the nominal size plus the upper and lower limits of the tolerance.</p>	<p>The symmetrical method shows the nominal size and the symmetrical tolerance expressed as a plus and minus.</p>	<p>A dimension that is essential to the function of a component or space.</p>	<p>A dimension that is not essential to the function of a component or space.</p>

# Administrative information

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**Published:** September 2018 (version 2.0)

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## History of changes

Version	Description of change	Date
2.0	Course support notes added as appendix 1. Standards and conventions — information and support for candidates added as appendix 2.	September 2018

Note: you are advised to check SQA's website to ensure you are using the most up-to-date version of this document.

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