

Advanced Higher Graphic Communication Draft Course/Unit Support Notes



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Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Contents

Introduction	1
General guidance on the Course/Units	2
Approaches to learning and teaching	5
Approaches to assessment	8
Equality and inclusion	12
Appendix 1: Further information on Units in the Course	13
Appendix 2: Reference documents	20

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the Advanced Higher Graphic Communication Course. They are intended for teachers and lecturers who are delivering the Course and its Units. They should be read in conjunction with the *Course Specification*, the *Course Assessment Specification* and the *Unit Specifications* for the Units in the Course.

These support notes cover both the Advanced Higher Course and the Units in it.

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General guidance on the Course/Units

Aims

The aims of the Course are to enable learners to develop:

- ◆ skills for enquiry, research and evaluation in the commercial contexts of graphic communication
- ◆ a critical understanding of the impact of advanced graphic communication technologies and activities on our environment and society
- ◆ skills in applying graphic communication design principles and techniques in the various contexts of commercial activity
- ◆ skills in the use of software applications in producing creative, meaningful and effective graphic items and solutions to contextualised problems and challenges
- ◆ skills in creatively applying graphic presentation work and animation techniques to satisfy the needs commercial activities and those of their audiences the ability to demonstrate independence in learning and thinking

Progression

In order to do this Course, learners should have achieved the Higher Graphic Communication Course.

Learners who have achieved this Advanced Higher Course may progress to further study, employment and/or training. Opportunities for progression include:

- ◆ Progression to further/higher education
 - For many learners a key transition point will be to further or higher education, for example to Higher National Certificates (HNCs)/Higher National Diplomas (HNDs) or degree programmes. Examples of further and higher education programmes that learners might progress to are degrees in graphic design and related disciplines
 - This Course provides a good preparation for learners progressing to further and higher education as learners doing Advanced Higher Courses must be able to work with more independence and less supervision. This eases their transition to further/higher education. Advanced Higher Courses may also allow 'advanced standing' or partial credit towards the first year of study of a degree programme.
- ◆ Progression to employment
 - For many learners, progression will be directly to employment or work-based training programmes.

Skills, knowledge and understanding covered in this Course

This section provides further advice and guidance about skills, knowledge and understanding that could be included in the Course.

Teachers and lecturers should refer to the *Course Assessment Specification* for mandatory information about the skills, knowledge and understanding to be covered in this Course.

The development of subject specific and generic skills is central to the Course. Learners should be made aware of the skills they are developing and of the transferability of them. It is the transferability that will help learners with further study and enhance their personal effectiveness.

Details of the mandatory skills, knowledge and understanding for this Course can be found in the Advanced Higher Graphic Communication *Course Assessment Specification*.

The development of subject specific and generic skills is central to the Course. Learners should be made aware of the skills they are developing and of the transferability of them. It is the transferability that will help learners with further study and enhance their personal effectiveness.

The table below shows where there are likely to be opportunities to develop mandatory skills in or across the Units. However, the delivery mode adopted and the approaches to learning and teaching will determine how and where the opportunities arise.

Mandatory skills and knowledge	Technical Graphics	Commercial and Visual /media Graphics	Course assessment
developing and presenting effective graphic communications which support and inform business, industrial and/or built environment sectors	✓	✓	✓
investigating, evaluating and skilfully applying common and contemporary technologies and techniques in the production of graphic communications which support technical activities	✓		✓
the development of knowledge and understanding of the role of graphic communication activities in meeting audience requirements	✓	✓	✓
analysing often complex features of graphic communications which support and inform business activities	✓	✓	✓

ethical, social and environmental considerations in the development and production of graphic communications	✓	✓	✓
knowledge and understanding of the key concepts that support the planning, design and production of technical, and commercial and visual media graphics	✓	✓	✓
a critical understanding of the impact of graphic communication activities on our environment and society	✓	✓	✓
ability to plan, manage and undertake a significant graphic communication project			✓

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Approaches to learning and teaching

Advanced Higher Courses place more demands on learners, as there is a higher proportion of independent study and less direct supervision. Some of the approaches to learning and teaching suggested for other levels (in particular, Higher) may also apply at Advanced Higher level but there will be a stronger emphasis on independent learning.

For Advanced Higher Courses, a significant amount of learning may be self-directed and require learners to demonstrate a more mature approach to learning and the ability to work on their own initiative. This can be very challenging for some learners, who may feel isolated at times, and teachers and lecturers should have strategies for addressing this. These could include, for example, planning time for regular feedback sessions/discussions on a one-to-one basis and on a group basis led by the teacher or lecturer (where appropriate).

Teachers and lecturers should encourage learners to use an enquiring, critical and problem-solving approach to their learning. Learners should also be given the opportunity to practise and develop research and investigation skills and higher-order evaluation and analytical skills. The use of Information and Communications Technology (ICT) can make a significant contribution to the development of these higher-order skills as research and investigation activities become more sophisticated.

Learners will engage in a variety of learning activities as appropriate to the subject, for example:

- ◆ researching information for their subject rather than receiving information from their teacher or lecturer
- ◆ using active and open-ended learning activities such as research, case studies and presentation tasks
- ◆ making use of the internet to draw conclusions about specific issues
- ◆ presenting findings/conclusions of research and investigation activities in a presentation
- ◆ participating in group work with peers and using collaborative learning opportunities to develop teamwork
- ◆ drawing conclusions from complex information
- ◆ using appropriate technological resources using appropriate digital media resources
- ◆ demonstrating development, improvement and refinement of techniques and practices
- ◆ using real-life contexts and experiences familiar and relevant to young people to meaningfully hone and exemplify skills, knowledge and understanding
- ◆ participating in field trips and visits

Teachers and lecturers should support learners by having regular discussions with them and giving regular feedback. Some learning and teaching activities may be carried out on a group basis and, where this applies, learners could also receive feedback from their peers.

Teachers and lecturers should, where possible, provide opportunities to personalise learning, enabling learners to have choices in approaches to learning and teaching. The flexibility in Advanced Higher Courses and the independence with which learners carry out the work lend themselves to this. Teachers and lecturers should also create opportunities for, and use, inclusive approaches to learning and teaching. This can be achieved by encouraging the use of a variety of learning and teaching strategies which suit the needs of all learners. Innovative and creative ways of using technology can also be valuable in creating inclusive learning and teaching approaches.

Centres are free to sequence the teaching of the Outcomes, Units and/or Course in any order they wish. For example

- ◆ Each Unit could be delivered separately in any sequence.

and/or

- ◆ All Units may be delivered in a combined way as part of the Course. If this approach is used, the Outcomes within Units may either be partially or fully combined.

There may be opportunities to contextualise approaches to learning and teaching to Scottish contexts in this Course. This could be done through mini-projects or case studies. For example, undertaking studies on the creative industries of Scotland or on their wider contribution to international creative industries and activities.

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

The following skills for learning, skills for life and skills for work should be developed in this Course.

2 Numeracy

2.3 Information handling

4 Employability, enterprise and citizenship

4.1 Employability

4.2 Information and communication technology (ICT)

5 Thinking skills

5.4 Analysing and evaluating

5.5 Creating

Teachers and lecturers should ensure that learners have opportunities to develop these skills as an integral part of their learning experience.

It is important that learners are aware of the skills for learning, skills for life and skills for work that they are developing during the Course and that the activities they are involved in provide realistic opportunities to practise and/or improve them.

At Advanced Higher level it is expected that learners will be using a range of higher-order thinking skills. They will also develop skills in independent and autonomous learning.

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Approaches to assessment

Assessment in Advanced Higher Courses will generally reflect the investigative nature of Courses at this level, together with high-level problem-solving and critical thinking skills and skills of analysis and synthesis.

This emphasis on higher-order skills, together with the more independent learning approaches that learners use, distinguishes the added value at Advanced Higher level from the added value at other levels.

There are different approaches to assessment, and teachers and lecturers should use their professional judgement, subject knowledge and experience — as well as their understanding of their learners and their varying needs — to determine which are the most appropriate or, where necessary, to consider workable alternatives.

Assessments must be fit for purpose and should allow for consistent judgements to be made by all teachers and lecturers. They should also be conducted in a supervised manner to ensure that the evidence provided is valid and reliable.

Unit assessment

Assessments must ensure that the evidence generated demonstrates, at the least, the minimum level of competence for each Unit. Teachers and lecturers preparing assessment methods should be clear about what that evidence will look like.

Sources of evidence likely to be suitable for Advanced Higher Units could include:

- ◆ meaningful contribution to group work and/or discussions (making use of log books, blogs, question and answer sessions, confirming individual learners have met the required standards)
- ◆ presentation of information to other groups and/or recorded oral evidence
- ◆ exemplification of concepts using (for example) a diagram, visuals etc
- ◆ interpretation of numerical data, market requirements or needs
- ◆ practical demonstration with commentary/explanation/narrative
- ◆ investigations
- ◆ answers to multiple choice questions
- ◆ short written responses
- ◆ extended response essay-type questions

Evidence should include the use of appropriate subject-specific terminology as well as the use of real-life examples where appropriate.

Flexibility in the method of assessment provides opportunities for learners to demonstrate attainment in a variety of ways and so reduce barriers to attainment.

The structure of an assessment used by a centre can take a variety of forms, for example:

- ◆ individual pieces of work could be collected in a folio as evidence for Outcomes and Assessment Standards
- ◆ assessment of each complete Outcome
- ◆ assessment that combines the Outcomes of one or more Units
- ◆ assessment that requires more than the minimum competence, which would allow learners to prepare for the Course assessment

Teachers and lecturers should note that learners' day-to-day work may produce evidence which satisfies assessment requirements of a Unit, or Units, either in full or partially. Such naturally-occurring evidence may be used as a contribution towards Unit assessment. However, this naturally-occurring evidence must still be recorded and evidenced through written reports, recording forms, PowerPoint slides, drawings/graphs, video footage or observational checklists.

Combining assessment across Units

Units will be assessed on a pass/fail basis. All Units are internally assessed against the requirements shown in the *Unit Specification*. Each Unit can be assessed on an individual Outcome-by-Outcome basis or via the use of combined assessment for some or all Outcomes.

A combined approach to assessment will enrich the assessment process for the learner, avoid duplication of tasks and allow for more emphasis on learning and teaching. Evidence could be drawn from a range of activities for a combined assessment. Care must be taken to ensure that combined assessments provide appropriate evidence for all the Outcomes that they claim to assess.

Combining assessment will also give centres more time to manage the assessment process more efficiently. When combining assessments across Units, teachers/lecturers should use e-assessment wherever possible. Learners can easily update portfolios, electronic or written diaries and recording sheets.

For some Advanced Higher Courses, it may be that a strand of work that contributes to a Course assessment method is started when a Unit is being delivered and is completed in the Course assessment. In these cases, it is important that the evidence for the Unit assessment is clearly distinguishable from that required for the Course assessment.

Preparation for Course assessment

Each Course has additional time that may be used at the discretion of the teacher or lecturer to enable learners to prepare for Course assessment. This time may be used near the start of the Course and at various points throughout the Course for consolidation and support. It may also be used for preparation for

Unit assessment, and, towards the end of the Course, for further integration, revision and preparation and/or gathering evidence for Course assessment.

For this Course, the assessment methods are a question paper and a project. Learners should be given opportunities to practise these methods and prepare for them.

Examples of activities to include within this preparation time include:

- ◆ Preparing for the Components of Course assessment, for example:
 - preparing for non-question paper Components: selecting topics, gathering and researching information, evaluating and analysing findings, developing and justifying conclusions, presenting the information (as appropriate)
 - practising and refining practical graphic skills and techniques
 - practising question paper techniques, revising for the question paper

In relation to preparing for the project, teachers and lecturers should explain requirements to learners and the amount and nature of the support they can expect. However, at Advanced Higher level it is expected that learners will work with more independence and less supervision and support.

Authenticity

In terms of authenticity, there are a number of techniques and strategies to ensure that learners present work that is their own. Teachers and lecturers should put in place mechanisms to authenticate learner evidence.

In Advanced Higher Courses, learners will take greater responsibility for their own learning and work more independently, so teachers and lecturers need to have measures in place to ensure that work produced is the learner's own work.

For example:

- ◆ regular checkpoint/progress meetings with learners
- ◆ short spot-check personal interviews
- ◆ checklists which record activity/progress
- ◆ photographs, films or audio records

Group work approaches are acceptable as part of the preparation for assessment and also for formal assessment. However, there must be clear evidence for each learner to show that they have met the Evidence Requirements.

For more information, please refer to SQA's *Guide to Assessment*.

Added value

Advanced Higher Courses include assessment of added value which is assessed in the Course assessment.

Information given in the *Course Specification* and the *Course Assessment Specification* about the assessment of added value is mandatory.

In Advanced Higher Courses, added value involves the assessment of higher-order skills such as high-level and more sophisticated investigation and research skills, critical thinking skills and skills of analysis and synthesis. Learners may be required to analyse and reflect upon their assessment activity by commenting on it and/or drawing conclusions with commentary/justification. These skills contribute to the uniqueness of Advanced Higher Courses and to the overall higher level of performance expected at this level.

In this Course, added value will be assessed by means of a question paper and a project.

The question paper is used to assess whether the learner can retain and consolidate the knowledge and skills gained in individual Units. It assesses knowledge and understanding and the various different applications of knowledge such as reasoning, analysing, evaluating and solving problems.

The project is used to assess a wide range of high-order cognitive and practical skills and to integrate assessment, for example determining the needs of a client and creating a project brief and specification; planning and producing the final graphic solution or solutions; using recognised techniques and practice; and presenting and evaluating the solution and process. The project brings a number of higher-order skills together, such as skills relating to planning, analysis, synthesis, evaluation and report-writing. The learner will carry out a significant part of the work for the project independently with minimal supervision.

Equality and inclusion

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Course/Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Course.

It is important that centres are aware of and understand SQA's assessment arrangements for disabled learners, and those with additional support needs, when making requests for adjustments to published assessment arrangements. Centres will find more guidance on this in the series of publications on Assessment Arrangements on SQA's website: www.sqa.org.uk/sqa/14977.html.

The greater flexibility and choice in Advanced Higher Courses provide opportunities to meet a range of learners' needs and may remove the need for learners to have assessment arrangements. However, where a disabled learner needs reasonable adjustment/assessment arrangements to be made, you should refer to the guidance given in the above link.

Appendix 1: Further information on Units in the Course

Further information on delivery of the Course

Aims

Graphic Communication is a very practical activity and one that naturally embraces new technologies and practices. As technology has developed, so have the range of skills, and the demands made on those with graphical literacy. A wide range of abilities and experiences are needed by those working in any industry or profession involving graphic production or presentation. Advanced Higher Graphic Communication is designed to take advantage of the advances that are made within graphic technologies, while building on the learning developed through National 4, National 5 and Higher.

The Advanced Higher Graphic Communication Course consists of two Units and a Course assessment. The Course assessment in Advanced Higher Graphic Communication is structured in the form of a question paper and the Course project.

The Course Units cover:

- ◆ Technical Graphics
- ◆ Commercial and Visual Media

Each of these two Units contains a common element and two specialised sections.

- ◆ Technical Graphics:
 - Common Elements
 - Built Environment
 - Manufacturing and Engineering
- ◆ Commercial and Visual Media:
 - Common Elements
 - Commercial Print Media
 - Digital Visual Media

Possible approaches to learning and teaching

The structure of Advanced Higher Graphic Communication allows delivery to be open and flexible; however, meeting the needs of the learner should be considered when presenting the Course. While planning a coherent structure to learning is important, centres are advised to allow for creative, rich and challenging experiences that will enable learners to fulfil their potential. Linking with local industries and business can add depth and context to the learning; professional printing companies, engineering firms and graphic design studios are located throughout Scotland and many also have an online presence.

Graphic Communication is used in a wide range of sectors, and the Advanced Higher Course is designed to reflect this extensive profession. Using a model of graphic 'creators' and graphic 'users' may help pupils to better understand how graphics are used professionally and in wider society. Exploring how 'creators' use particular standards, methodologies and technologies in the production of graphical items, and examining how 'users' engage, relate and respond to graphics may deepen understanding.

Exploring preliminary, production and promotional graphics through a single project may engage some learners and deepen their understanding of graphic production and technologies. For other learners, it may be more beneficial to structure the Course through smaller individual projects that cover various aspects of the Units. Whichever method is employed, centres are advised to help learners explore various aspects of sketching, drawing, design skills, illustration and computer-aided design, enabling them to develop their skills in preparation for the Course project. Sketching, drawing, design skills and illustration can be approached from either a manual or electronic perspective, or, more likely, a combination of both.

The production of preliminary graphics may reflect how they are created and used professionally, and centres do not need to spend significant time in presentation. Preliminary graphics should clearly communicate designs, ideas and thoughts from one graphic creator to another, or to a graphic user. Technology may be utilised to ensure preliminary graphics communicate more effectively. For example, manual sketches may be digitally captured and manipulated through illustration and animation software. These could show the working relationships between sketched components, or perhaps the development of a graphical idea. Photographs may be altered to contain a preliminary graphic element and communicate a design intention. The aim is to share details or features in graphic products and demonstrate analytical skill and creativity. The purpose at this stage is to clearly communicate relevant information rather than demonstrate presentation skills.

There are a wide range of technologies that support engineers, architects, graphic designers and illustrators in using preliminary sketches and drawings more effectively. For instance, real pens that also record a computer vector graphic of what is drawn have many exciting possibilities – freehand sketches can be directly used to create 2D drawings or even 3D CAD models. Sketches can also be 'drawn' on to graphics tablet touch screens and tablet computers using a stylus may also be considered to be a sketch.

Drawing standards and production drawings are a key element to graphical literacy. Learners could deepen their understanding by experiencing the relationship between creating a production drawing and the ways in which items are made from a production drawing. This can involve pupils learning how 3D models or 2D drawings are used in conjunction with computer aided manufacturing equipment, either in school or at a local business. Using additive manufacturing technologies, 3D models can be used to produce a prototype. Experience of these technologies and the use of production graphics in context

will deepen the learners' understanding and should encourage some to broaden their awareness of the world of work.

Where appropriate, a range of technologies to produce production drawings should be introduced to learners; indeed, new methods of creating technical drawings are continually appearing. Manual and electronic techniques both have merit, and the learning and teaching of various methods could, where appropriate, match a context. It would be beneficial to use meaningful exemplars and contexts that engage learners in exploring the use of graphic communication in industry, commerce and society. This again may provide an exciting opportunity for collaboration with a local business or industry whereby learners may enhance their understanding through visiting and talking to experts.

Learners should be familiar with 3D modelling software and understand how it can be used to produce a range of technical and production drawings. It is expected that centres will allow candidates to use the 3D model to produce drawings, but this should not be to the detriment of understanding how these drawings are read and interpreted. Learners should be able to identify any errors that software or templates may make.

Presentation graphics should be seen as an opportunity to embrace many of the new developments, techniques and technologies that are emerging. For example, learners may use augmented and mediated reality to present graphical ideas; illustration graphics can be overlaid on to video and photographs to look photorealistic. Where appropriate, learners should experience a range of manual and electronic methods of presentation and illustration.

Presentation and promotional graphics have a large impact on the environment and society, and learners could be encouraged to consider issues such as the economic use of materials to reduce waste in the form of printing or vinyl cut signage, or the impact that images and text can have on society. Presentation, promotional and illustrated graphics are used in a range of scales, sizes and formats – not just A5, A4 or A3 – and non-standard dimensions could be explored to add depth, challenge and application to the Course.

Scotland has many professional design and print industries that may be willing to work closely with learners to enrich their experience. For instance, learners could help to produce promotional graphics using wide-format solvent printers or experience the production of offset-lithography leaflets, magazines or books. Learners may also see how graphic items are installed in a venue and how these graphics are used in wider society.

Learners could be encouraged to assume more ownership for their learning through centres allowing flexibility in the approach to tasks. Some learners may benefit from exploring creative solutions to problems and be readily adaptable to using various techniques and technologies to present their graphical work, while others may be more comfortable with the structure provided by a teacher or assessor.

Centres should clearly detail an achievable timeline or Gantt chart for the learner to follow, and make clear the expectations and the standards required to achieve success in the Course. Duplication of evidence should be avoided where possible. Assessment and evaluation should be embedded into the Course and not just imposed at key points. Use of critical self- and peer-evaluation techniques can help learners to develop confidence and understanding in critiquing graphical products.

Making use of the internet as a graphical platform that allows global communication, learners could also be encouraged to create a digital presence and share their graphical work online. Images blogs and videos could be displayed and public commenting and feedback encouraged. These online portfolios may serve as a way of learners presenting their work to potential employers, colleges or universities. Using web-based services may also present an exciting platform for delivering learning and teaching materials.

Possible strategies for learning and teaching

Graphic Communication can be delivered using a variety of learning and teaching strategies, and centres are encouraged to use those most appropriate to the learner. There is a wide range of tools and software available for supporting the teaching and learning of Graphic Communication techniques, skills and principles. Centres should use a broad range of technologies to ensure that their learners have the most realistic experience and a better understanding of those underlying principles. Centres may encourage learners to experiment with various technologies and techniques to create graphics with visual impact. Creativity and design should be encouraged throughout the process of creating preliminary, production and promotional graphic designs.

Graphics and creative industries rely on design briefs from clients, and this practice could be replicated through the use of Problem Based Learning (PBL). Design briefs can be set by the assessor, by the learner or, more likely, by a combination of both after discussing potential topics. Design briefs allow learners to investigate differing graphical solutions before developing a suitable response to a scenario. Research, development and planning are critical to success with PBL, and learners should be encouraged to take responsibility for and ownership of this process. Design briefs enable centres to challenge their learners to apply graphic techniques in a range of unfamiliar, relevant and exciting contexts. PBL has the added benefit of allowing Coursework to be topical and relevant from year to year, and also to cover important issues in society.

Centres are encouraged to make effective use of active learning and co-operative learning strategies to support, encourage and enable all learners to fulfil their potential. These methods support learners' ability to think critically and gain confidence in working as part of a team, and to develop higher-order skills such as analysis and problem solving. These are lifelong skills that will support learners as they progress from school learning to beyond.

Design is an integral part of the Graphic Communication Course and candidates may be encouraged to explore different techniques used to solve problems. Design may not necessarily be limited to presentational graphics; learners can

also use design skills when producing 3D CAD models, drawings or sketches for elements of their Coursework. Creativity, divergent thinking and ‘challenging the norm’, can be encouraged throughout the Course. When used as part of learning and teaching, any elements of design may be undertaken individually or as group work. Indeed, learners may work collaboratively on a PBL context, individually assuming responsibility for an area of design to include preliminary, production and promotional graphics. Individual learners can then ‘report back’ their work to a group for evaluation and then further development.

Where possible, it may benefit candidates to experience the life cycle of graphics in a real context. For example, candidates may prepare some concept sketches for a point-of-sale product – perhaps for a cinema, sports centre or tourist attraction – and present these concept sketches for evaluation. This evaluation can be undertaken by their peers, or perhaps by representatives of the chosen attraction. The candidate may then use this feedback to further inform design work before creating production graphics for the point-of-sale product. The centre may have its own CAD/CAM equipment, or have a business or industrial link that will allow the candidate to produce the product. Promotional graphics could be used in digital format — cinema, TV or internet — or printed media.

Possible contexts for learning

Graphic Communication techniques, technologies and principles are an integral part of many professions. Numerous communities throughout Scotland will have businesses and individuals with graphical expertise who can contribute to the learning process and provide useful information and experience to enrich learners’ Coursework. They will also acknowledge the skill sets useful for success after full-time education and provide the candidate with a valuable insight to career pathways.

If the centre uses PBL, the context can be a real driver for learning and be used to combine graphic communication with issues relevant to society. For instance, learners may be challenged to develop graphics for a specific context such as a national sporting event or an anti-sectarianism campaign. This may involve the candidates creating production graphics for a physical display product, producing the actual promotional DTP, planning the positioning of the graphical items in a location plan, and creating animated illustrations to explain the design development or amplify their message. Such approaches would allow a centre to enrich the learning experience with guest speakers and educational visits or trips.

Centres could invite charities, school-groups or local business to provide a context for learners to work with. This graphical creator/graphical user approach enables learners to interact with their ‘client’ and create a range of graphical products that meet the context. In some instances, the learner may have a personal interest in other areas, and this may be used as a basis for contextual learning. This provides the centre an exciting opportunity to personalise the Course to the skills, experience and needs of the learner. Careful management of relationships with industrial and business partners by the centre will allow these links to flourish long term, which could be mutually beneficial to the centre, learners and local businesses.

Learning and teaching resources

Graphic Communication embraces and often drives technological development; new equipment, software and technology regularly become readily available. Centres may use discretion when choosing the resources that best support effective learning and teaching for graphic communication. Unless specifically stated in the outcomes, centres may use either manual or electronic methodologies, or a mixture of both, in supporting learners to realise their potential. It is important that learners can demonstrate the knowledge and understanding of the principles being applied, not just rely on a device for the correct generation of an image. Learners must be able to interrogate the graphic response both for correctness in appearance and in meeting standards/conventions from a secure knowledge base.

A broad range of technology can be utilised within the Advanced Higher Graphic Communication Course, and the open nature of the project allows for centres to exploit new developments. The use of CAD and ICT is integral to the graphics industry, and its use is prominent in the Course. Centres may wish to use a range of software packages to achieve the best results in sharing files between platforms – understanding common file formats is part of the *Course Assessment Specification*; this will also help the learner to understand how different software tools can be used to process graphics. In the graphics industry, 3D illustrations will regularly be ‘post-processed’ by a photo editing or 2D illustration application to refine, enhance or prepare the image for print or DTP.

There is a wide range of input, process and output devices that can support the teaching and learning of graphic communication. Interactive boards, tablet computers, drawing tablets, scanners, visualisers and digital pens are just a few of the devices that allow learners to input their sketches, drawings and ideas. The use of such equipment can improve the learning experience. Clever use of this technology can also bridge the conceived gap between the world of sketching and that of CAD. Digital pens, tablets, scanners and visualisers can be used to capture sketches, with the data then imported to CAD applications and manipulated as a vector graphic.

As the capability of candidates to create complex, high-impact, computer illustrations grows, so does the demand on the processing capability of most centres’ computing technology. To overcome this, centres could use computers in the evening, when they are otherwise not being used, as a ‘rendering farm’ to process images. There is a selection of inexpensive and free software to support this function. Alternatively, centres may upload the files to one of the many online processing centres that render images and animations, and then simply download the results. This could also provide another opportunity to work with a local business or industry that may have more powerful processing technology available.

The realisation of ideas is a motivator for those interested in design, engineering, architecture and illustration. Centres may choose to enrich the learning experience by allowing candidates to use technology that helps realise their designs. Wide-format and solvent printers, laser cutters, 3D printers, CNC routers/millers, vinyl cutters and stereo projection technology (3D

projectors/VDUs) can make Coursework more relevant, engaging and exciting. Such technology is already widespread in business and industry, and having an awareness of such equipment helps candidates prepare for the world of work. In particular, 3D printing technology is widely used by CAD technicians, architects and engineers to assist in the visualisation of 3D models and the interaction of various components. As 3D printing technology continues to develop and cost comes down, it becomes more realistic for centres to acquire, maintain and operate such equipment. Alternatively, many industries, businesses and individuals are investing in prototyping solutions so; again, centres with sustainable relationships with outside partners may be able to take advantage of this.

There is a wide selection of inexpensive and free software that can support design, illustration, drawing and the animation of graphics. As technology evolves, learning and teaching approaches will likewise adapt and change to reflect and capture the potential of these technologies. Where such devices are being used, they must be able to contribute positively to learning in graphic communication. For example, where a learner has the facility and desire to demonstrate sketching using electronic devices, this should be encouraged – it represents personalisation and choice in learning. Electronic technology might also be used effectively in capturing a learner's journey as they progress through the Course. Technology should not be used to drive the creative process, but be regarded as a tool that is used by designers, engineers, architects and illustrators to realise their ideas. Centres should be sure that, where electronic devices and applications are being used, they do not undermine the principles being taught and that they do in fact genuinely enhance the learning activities.

As well as traditional and electronic technology, it is likely that centres will make use of existing resources in the completion of graphics work and tasks. Such resources are still used in graphic industries and should not be omitted or avoided. Such resources might include pencils, markers, masks, inks, application vinyl, texture boards, cutting mats, templates, curves, stencils, highlighting pens, compasses, light boxes, drawing boards, straight edges, and squares.

Effective communication and collaboration technologies are increasingly common, and are becoming ever more powerful and efficient. Centres may wish to use aspects of social media, file sharing and digital portfolios to share, promote and evaluate graphic tasks. Care should be taken to adhere to local education authority guidelines and policies regarding such communication technologies. There are several websites that allow graphic artists, illustrators, CAD technicians, architects and engineers to share computer graphics, photographs and CAD files. These digital archives can provide a wonderful resource to assessors and learners, whereby materials, textures, images and models can be downloaded free of charge and used in 3D scenes, DTP work or illustrations. However, care must be taken to ensure that learners are not credited for creating any work they have only downloaded. Likewise, most 3D CAD software will have a comprehensive library of standard components — many meeting ANSI, ISO and BSI standards — that can be used in a CAD model. While learners are free to use these components, they can only be assessed on the use of the component, not on the creation of the component.

Appendix 2: Reference documents

The following reference documents will provide useful information and background.

- ◆ Assessment Arrangements (for disabled candidates and/or those with additional support needs) — various publications are available on SQA’s website at: www.sqa.org.uk/sqa/14977.html.
- ◆ Building the Curriculum 4: Skills for Learning, Skills for Life and Skills for Work
- ◆ Building the Curriculum 5: A Framework for Assessment
- ◆ [Course Specifications](#)
- ◆ [Design Principles for National Courses](#)
- ◆ [Guide to Assessment](#)
- ◆ [Overview of Qualification Reports](#)
- ◆ Principles and practice papers for curriculum areas
- ◆ *SCQF Handbook: User Guide* and SCQF level descriptors
- ◆ [SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work](#)
- ◆ [Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool](#)
- ◆ [Coursework Authenticity: A Guide for Teachers and Lecturers](#)

Administrative information

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History of changes to Advanced Higher draft Course/Unit Support Notes

Course details	Version	Description of change	Authorised by	Date

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