



Accredited

# OCR LEVEL 2 CAMBRIDGE TECHNICAL CERTIFICATE/DIPLOMA IN IT

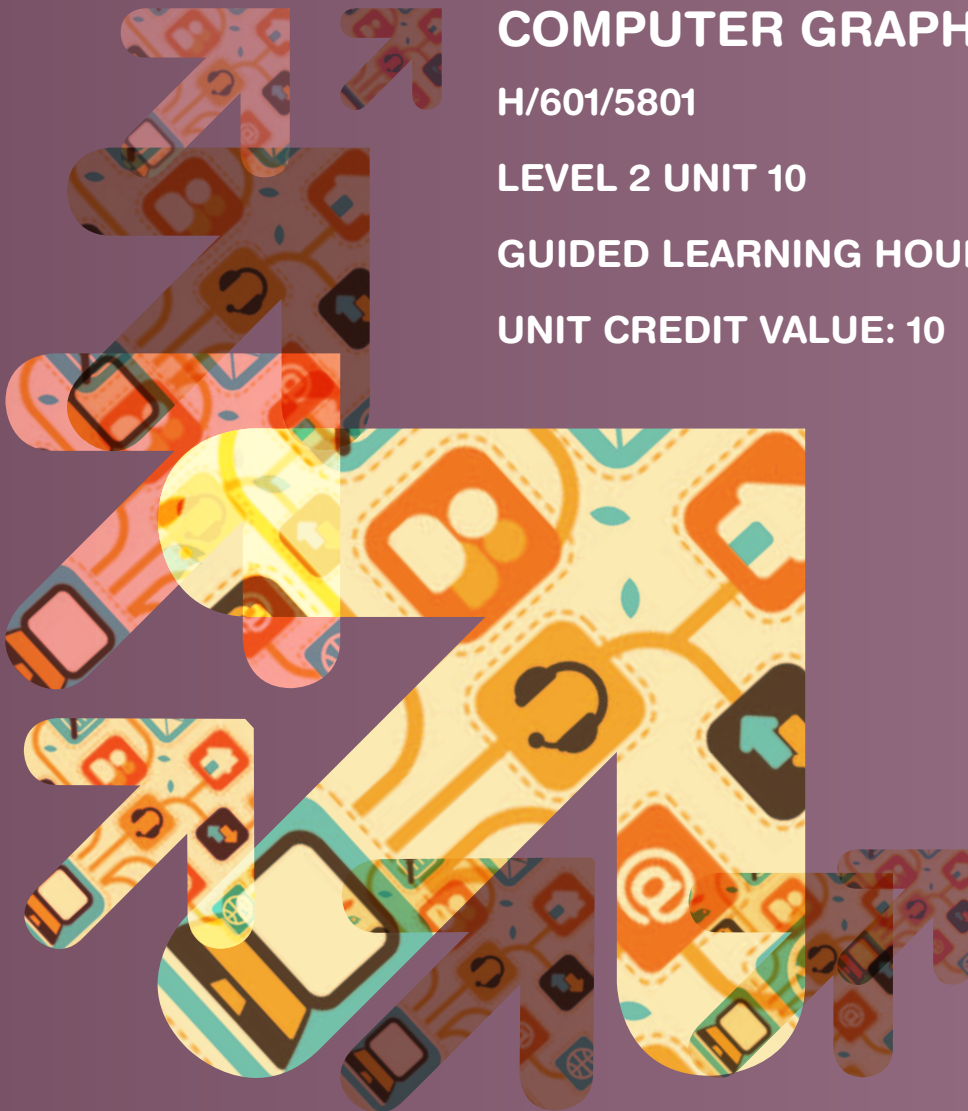
## COMPUTER GRAPHICS

H/601/5801

LEVEL 2 UNIT 10

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10



# COMPUTER GRAPHICS

H/601/5801

LEVEL 2

## AIM OF THE UNIT

Graphics come in a variety of formats, sizes and purposes. Everywhere you look you are likely to see images that have been created or edited using a computer and graphics software e.g. on websites, leaflets, posters, product packaging to name a few. Graphics can be made using a variety of methods such as through hand drawing, using a graphics tablet, a digital camera, video camera, or creating them from scratch on the computer. Businesses need to give themselves a professional image when they use graphics on their documents or products and in a rapidly moving industry, it is important for their graphics to be of a high quality or else a poor image can be given of the company.

This unit will provide learners with the knowledge of hardware and software required to work with computer graphics. It will also guide them in the skills needed to create and use appropriately their own graphics.

The aim of the unit is to give learners experience and understanding of the hardware and software needed to create and edit computer graphics for a range of purposes.

## ASSESSMENT AND GRADING CRITERIA

<b>Learning Outcome (LO)</b>  The learner will:	<b>Pass</b> The assessment criteria are the pass requirements for this unit.  The learner can:	<b>Merit</b> To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	<b>Distinction</b> To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Know the hardware and software required to work with computer graphics	P1 identify the hardware and software required to work with computer graphics		
	P2 state the functions of a defined graphics software package	M1 compare graphics software used for creating and editing graphics	
2 Be able to create computer graphics to meet a user need	P3 describe the differences between raster (bitmap) and vector graphics		
	P4 use specialist hardware to acquire images for a defined purpose		
	P5 create an original graphic for a defined user need using graphics software	M2 use advanced techniques to combine multiple images to enhance your original graphic	D1 evaluate the tools and techniques used to enhance your original graphic
3 Be able to use computer graphics to enhance a document	P6 use graphics to enhance a document incorporating acquired images and objects	M3 identify legal implications associated with the use of images	D2 present the enhanced document obtaining feedback

## TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work though these do not need to be the same ones specified in the unit content.

### LO1 Know the hardware and software required to work with computer graphics

#### Hardware

- graphics specific (e.g. monitor, printer, graphics card, digital camera, scanner)
- general (e.g. processor, memory)
- file storage (e.g. CD ROM, hard drive).

#### Software

- vector graphics software (e.g. Corel Draw, Visio, Serif Draw Plus)
- raster graphics/bitmap software (e.g. Paintshop Pro, GIMP, Paint)
- dedicated manipulation software (e.g. Photoshop, Photoshop Elements, Serif PhotoPlus)
- costs (e.g. licences, freeware, online graphic editing).

#### Graphics facilities

- other tools (e.g. libraries, image viewers, photo galleries).

#### Tools and techniques

- standard software tools
  - freehand draw
  - rotate/Flip
  - resize
  - crop
  - group/ungroup
  - layout grids
  - special effects (e.g. sharpen, soften, posterise)
  - templates (e.g. presentations, web pages)
  - other (e.g. colour manipulation, shapes)
  - colour depth (e.g. 8 bit – 256 colours, 16 bit – 64,000 colours).

#### Advanced techniques

- layers
- filters
- masks
- juxtaposition/superimposition of images and text

- multiple images
- changing colour balance/contrast.

### LO2 Be able to create computer graphics to meet a user need

#### Computer graphics

- raster graphics/bitmaps
- vector graphics.

#### File handling

- converting and repurposing files
- file sizes
- file formats (e.g. bmp, jpg, gif)
- file management (e.g. naming files)
- folder structures
- moving files
- deleting files
- compression techniques.

#### User need

- user requirements
- target audience
- purpose
- constraints (e.g. budget, formats. colours, image size).

#### Reviewing

- checking text (e.g. proofreading, spellcheck, grammar)
- against requirements (e.g. size, download speed, image resolution)
- suggestions for improvement from client, user and self.

### LO3 Be able to use graphics to enhance a document

#### Manipulating within document

- combining information
- resizing
- cropping

- text wrapping
- positioning.

**Objects**

- images (e.g. jpeg, bitmap, clipart, vector)
- others (e.g. text, shapes, drawings).

**Relevant legal issues and guidelines**

- Copyright issues (e.g. Copyright, Designs and Patents Act 1988)
- Permissions (e.g. photography of children, buildings, businesses)
- Acknowledgements.

**Presenting**

- images and enhanced document
- web page, presentation.

## DELIVERY GUIDANCE

### **Know the hardware and software required to work with computer graphics**

Learners should become familiar with the hardware involved in graphics creation. Tutor led discussion and/or research groups could be used to investigate the various hardware components available to buy. It is useful for learners to become familiar with a range of software capable of creating and editing graphics and this may also include “Apps” available on smartphones. It is not important for centres to have access to these packages; it is more to make learners aware of their existence and capabilities. Examples of work created in these packages are usually available from the company’s websites. Learners should be clear about when is the best situation to use each package and be aware of strengths and weaknesses of each type of package and this could be part of a group discussion or presentation.

Learners should build up skills with the packages they will use later on in the unit. A range of methods can be used to introduce the tools such as tutor led demonstration, step by step instructions or video tutorials. Short exercises can be used to check that the learners fully understand the tools within the software. Learners should have opportunity to carry out a number of practice exercises using a program from each of the different categories exploring the different features and options available.

### **Be able to create computer graphics to meet a user need**

Learners should be shown a range of examples of how vector and bitmap graphics have been used. They can also research the types and uses of the different graphics types. Exercises can be used to test learner’s understanding of what the differences are and why each type has been used for a particular purpose across a range of packages.

Learners should be taught how to make the most out of using a digital camera and basic rules/guidelines of photography so they are able to take suitable photographs and use the features available. It is important for learners to collect their own image(s), either by using a digital camera, or creating a hand-drawn sketch and scanning it onto the computer. Images should not be provided by the tutor.

Learners should be taught the importance of file formats, compression techniques, image resolution and colour depth

to enable them to make appropriate choices when editing and creating graphics and find examples to support these are part of research exercises. Exercises could also be used to give learners an opportunity to experiment with different settings and to build confidence in the appropriate usage of them.

The creation of the graphic will be most effective if the learners have been assigned enough time to practice creating and editing graphics using software. Various editing techniques can be delivered through tutor led demonstrations, step-by-step tutorials, or video tutorials. Practice exercises can be used to learn advanced techniques such as layers, filters, masks, juxtaposition/superimposition of images and text, multiple images, feathering, changing colour balance/contrast and using multiple images.

Hand outs and group discussions can be used to analyse images. Learners should be aware of appropriate topics to discuss when evaluating, such as appropriateness for client and user need, suitability of size and file type etc. Evaluation techniques can be practised on images previously created as part of the practice exercises when learning the software, or images taken by the camera. The tutor might set an exercise with criteria to review them by.

### **Be able to use computer graphics to enhance a document**

The knowledge required from this criterion for creating documents to showcase the images could be covered when looking at the different software applications. Learners should familiarise themselves with document creation software such as word processing, desktop publishing or presentation applications, as well as techniques in these packages for adjusting images e.g. resizing, positioning.

Tutor led class discussion or group exercises can be used to research copyright issues associated with using sourced images, as well as relevant legislation e.g. Copyright, Designs and Patents Act 1988. An appropriate extension exercise for this topic would be to look at case studies of instances where images have been used without seeking permission; learners could work in small groups to discuss the consequences of using copyright without seeking permission and any legal implications for all assets used within their work.

Appropriate methods of presenting and gaining feedback should be researched. Time should be spent with learners discussing how to ask questions that will provide the most useful feedback and the best format for the feedback documentation.

## SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

### Assessment Criteria P1, P2, M1

P1 – The learner must identify a range of hardware and software required when working with computer graphics. The evidence could be in the form of a report or a presentation.

P2 – the learner must select a graphics software package and must state what different functions are available. This could be an extension from a software package identified in P1. Evidence could be in the form of a report or a presentation.

*For merit criterion M1 - the learner must compare a range of different graphics software used for editing and creating graphics. The comparison should include the features, cost and strengths and weaknesses of each. Evidence could be in the form of a report or a presentation.*

### Assessment Criterion P3

Learner evidence could be in the form of a written report or presentation. Learners must demonstrate that they understand the difference between raster (bitmap) and vector images. They must describe the type of image, the file size and differences in scaling and provide appropriate examples to support their findings. The use of images and annotations will support this.

### Assessment Criteria P4, P5, M2, D1

A scenario could be provided (examples below), which should allow some scope for creativity. An alternative would be to have learners create graphics for a real-life user. The images produced will be used in a document as part of criterion P6. An identified theme for the images collected/created as part of criteria P4 and P5 will ensure continuity and consistency of work. Learners must understand what they need to create and what the client and user's needs are e.g. purpose, house style, colours, image size. Centres may wish to consider setting a timed session for learners to create their images, giving a commercial feel to the process.

For assessment criterion P4, learners must use specialist hardware e.g. scanner and digital camera, to import at least two images. It is important that the images acquired are appropriate for the scenario or theme. Evidence will be the collected image(s) which could be accompanied by annotations explaining the hardware used to acquire the image and any

tools and techniques used (e.g. camera settings, software used to import scanned image) or an explanatory document. Learners must include at least one image from a digital camera and one hand drawn scanned image.

Assessment criterion P5 requires learners to create at least one graphic from scratch, using appropriate graphic software. The graphic(s) created must be suitable for the purpose identified in the scenario. Evidence will comprise of the completed image, and could also be supported by screenshots and annotations explaining the tools/techniques used to create the image or a report describing the process.

*For merit criterion M2 this could be evidenced as an extension of P4 and P5; learners should use advanced techniques to enhance their graphic to incorporate multiple images that they have sourced. It is not necessary to use all of the listed advanced techniques but at least three would be appropriate. The graphic should be fit for purpose and be of a near-professional standard. Minimal help should have been given to the learners. Evidence for this criterion can include additional screenshots with annotations of techniques used, the completed graphics and a tutor witness statement.*

*For distinction criterion D1, learners must evaluate the tools and techniques used to create their original graphic. They must discuss why they used the tools (programs) and techniques (within the programs), what effect they have on the graphic and whether they are appropriate for inclusion in the document they will be creating as part of criterion P6. This could be evidenced as a report.*

### Assessment Criterion P6, M3, D2

The images created and edited as part of the previous learning outcome must be used to enhance a document to evidence P6. This document will be the main emphasis of the scenario, which is why the images should be appropriate for use in it. The document could be a large single sheet or multi-page document created, using possibly word processing, desktop publishing or presentation software. Additional techniques may need to be used in these programs to adjust the images e.g. positioning, resizing images.

The document and graphics must be appropriate for the scenario as identified. Evidence will be the document and before and after screenshots of any additional techniques used.



*For merit criterion M3, learners must identify the issues of using copyrighted images, e.g. what law protects images, why permission must be sought, how they would obtain permission to use copyright images and the implications if they do not gain permission,. They must record the copyright of any sourced images used within their graphics which could be in the form of a log or table. Learners must also consider who owns the rights to the images they have created; themselves or their client the user.*

*For distinction criterion D2, learners must present their created, sourced and edited images and graphics, along with the final enhanced document to at least three members of the target audience (identified in P4). They must use feedback sheets, questionnaires or interviews to gather the user's opinions. It is important that the audience completing the feedback sheets are aware of what they are reviewing and what the images are intended to do. There should be an opportunity for the target audience to identify possible improvements.*

*The images and document can be presented either as image files or alternatively be showcased in a presentation or web page. Evidence for assessment criterion D2 could be the completed feedback forms and final images or presentation or web page.*

## RESOURCES

You could use at least one of the following programs from each category:

- **vector graphics software** (e.g. Corel Draw, Visio, Serif Draw Plus)
- **dedicated raster graphics – bitmap software** (e.g. Paintshop Pro, The GIMP, Paint)
- **dedicated photo manipulation software** (e.g. Photoshop, Photoshop Elements, Serif PhotoPlus)
- **other** (e.g. Microsoft Word, PowerPoint)

### Suggested scenarios

- The local council would like a promotional brochure for a sports centre, images could comprise of a logo, map, character, suitable photo.
- A local car retailer would like a short booklet creating on their best vehicle offers.
- A local school would like an environmental information booklet creating for their students, discussing recycling and picking up litter etc.
- Use of an external client brief

## MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

**Unit 9:** Website Development

**Unit 11:** Multimedia Design

## LINKS TO NOS

**PI-1** Apply Copyright and other laws relating to usage and licensing of images

**PI-2** Agree the Photo imaging brief

**PI-17** Prepare Image Output

**PI-24** Source and acquire images

**DIS** – Design and imaging software



## **CONTACT US**

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

We're always delighted to answer questions and give advice.

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