Cambridge TECHNICALS

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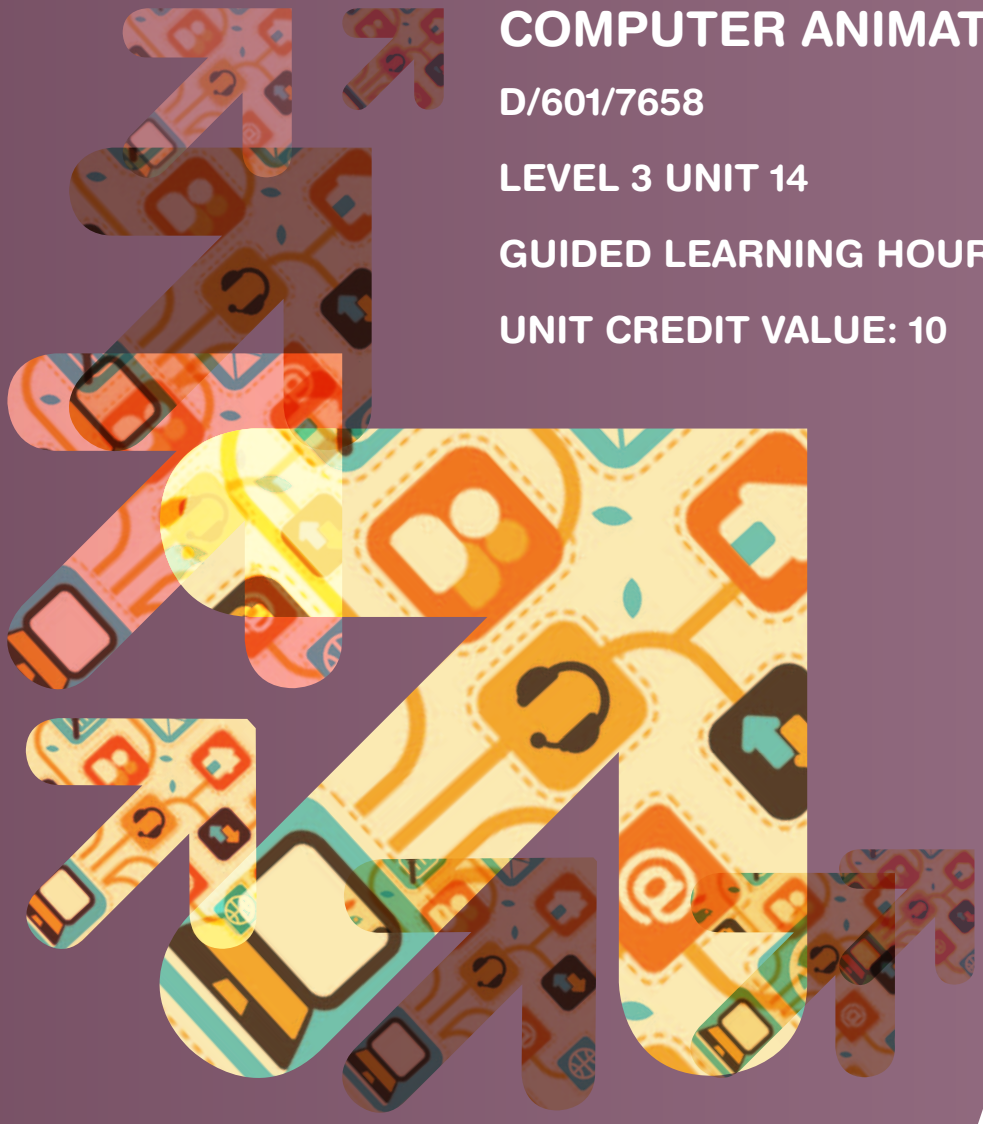
OCR LEVEL 3 CAMBRIDGE TECHNICAL

CERTIFICATE/DIPLOMA IN

IT



COMPUTER ANIMATION

D/601/7658

LEVEL 3 UNIT 14

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR

COMPUTER ANIMATION

D/601/7658

LEVEL 3 UNIT 14

AIM OF THE UNIT

This unit will allow learners to understand the different types of animation that are designed and created in industry for different mediums. They will learn about the possible uses in the media, gaming, on the web and on mobile phone applications. They will gain the knowledge and skills to use software to design and create different types of animation.

Computer animation is the method used to generate animated images using computer graphics. The more general term computer generated imagery (CGI) encompasses both static scenes and dynamic images, while *computer animation* only refers to moving images.

Modern computer animation usually uses 3D computer graphics, although 2D computer graphics are still widely used for a wide range of purposes and medium such as film. Computer animation is essentially a digital alternative to the stop motion techniques used in traditional animation with 3D models and frame-by-frame animation of 2D illustrations.

Computer generated animations are more controllable than more physically based processes, such as effects or crowd scenes, and it allows the creation of images that would not be feasible without the use of technology. It can allow a graphic artist to produce such content without the use of physical props reducing time and cost.

To create the illusion of movement in an animation, an image is displayed on the screen and replaced by a new image with fractional changes and advanced slightly along a timeline the same as the process of historical flip books.

Learners will explore the techniques and developments within the sector, the animation styles and formats currently emerging and the techniques used for these animations. Learners will then use software to develop a planned animation.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand the types and uses of animation	P1 explain the different types of animation	M1 discuss the history of studios that produce animations	D1 compare the different animation styles of key animators
	P2 explain different uses of animation	M2 describe the benefits of using animations in the media	
	P3 discuss the advantages and limitations of animated GIFs		
2 Know the software techniques used in animation	P4 describe the software tools available for animation		
	P5 describe factors that need to be taken into account when creating animations for the web		
3 Be able to design and implement digital animations	P6 design computer animations using different animation techniques		
	P7 implement animations using different animation techniques	M3 use advanced software functions to enhance the animation	D2 justify how the use of advanced software functionalities has improved the animation

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 Understand the types and uses of animation

Sector

- different types of animation (e.g. zoetrope, cel animation, claymation, stop frame, CGI, flipbooks)
- studios that produce animations and their history (e.g. Disney, Ardman, Hanna-Barbera, Fox)
- key animators and their creations (e.g. Matt Groening, Ray Harryhausen, Katsuhiro Otomo).

Purpose of animation

- entertainment
- education
- simulations
- mobile applications
- marketing.

Areas of Use (e.g. film, computer games, scientific visualisations, architectural design, mobile phone applications)

Formats

- animated GIF
- other (e.g. shockwave, silverlight, quicktime, realplayer).

LO2 Know the software techniques used in animation

Software tools for animation

- frames
- layers
- onion skinning
- tweening
- morphing
- libraries and buttons
- scripting.

Considerations/techniques

- special techniques (e.g. rollovers, email attachments, e-cards)
- optimisation and compression
- file size and quality for delivery platform (e.g. mobile phone, PC monitor, High definition monitors).

LO3 Be able to design and implement digital animations

Use different techniques to design computer animation Storyboarding including:

- timings
- key frames
- layers
- layer naming
- frame rate
- scripting
- creating an animation (e.g. using layers, frame rates, tweening, onion skin)
- enhance the animation (e.g. interaction, scripting)
- improve the animation
- test the animation.

DELIVERY GUIDANCE

Understand the types and uses of animation

Learners need to research the different types of animations that are available and identify where these are used. It would be beneficial for learners to be shown different types and uses of animations via DVD, computer games, the internet and mobile apps prior to their own explorations to give them ideas. This should include animations from different studios and animators, the different styles, techniques and approaches for the different audiences.

Learners need to consider early animations like cel animation and stop motion and also recent CGI releases. They should discuss in groups the way that each has been created and present their finding back. They should also be given as a separate group exercise to discuss how else animations could be used in the media. They should then compare and contrast the benefits for current usage and this potential future usage. Due to the extensive nature of the industry and the sector group presentations and discussions will help to broaden learners ideas and understanding.

Learners must be made aware of the range of different file formats used in animation and their advantages and limitations. This is essential for the wider use of animations and repurposing. As a group they should consider delivery methods for computer animation this may be through wired, wireless (using different wireless standards and speeds), 3G. Further group and class discussions could allow learners to evaluate how these are best employed depending on the requirements of the user in terms of size of file, compressions and graphic quality.

Know the software techniques used in animation

Learners must be taught to use different types of animation software and the tools that can be used within them. They should be taught the basics of non-digital animations from simple flick books, stop motion animation (learners could experiment with creating a short animation using clay and a camera which can then have each shot edited together in a package such as movie maker) to the creation of digital animations. Learners should individually practice the creation of basic animations using this software to ensure they identify their own understanding and limitations.

Learners should be then be taught advanced software functions e.g. scripting and creating user interfaces and shown how these can most appropriately be used in an animation to gain effect. This should be followed with group discussions to identify the limitations and problems they had experienced with basic functions and to identify the potential opportunities and benefits from these advanced techniques. They should look at and practice where possible using software such as flash, expression blend or other popular software applications to try the tools and techniques. They should be taught to evaluate an animation and the tools used and how these can enhance and improve an animation for both animations they find in the media and those created themselves or by the group. Group discussions again to critique these widens the scope and thinking of the learner.

Learners should expand their earlier research on animations in the media to review websites they may have located animations on this could be anything from simple roll over effects to banners and scripting to gain an understanding of the factors that are needed to be considered when creating a web animation. They should look at the load times and the compression and optimisation settings that are needed, testing across a range of platforms that may include mobile technologies. They should be taught to consider the needs of the users or the people that will look at the site and how to meet the requirements of the client, this should then be reinforced with group discussions.

Be able to design and implement digital animations

Learners must be taught storyboarding techniques and will look at professional storyboarding – this can be found on some extended DVD film editions that show the storyboarding process that is used in film. It may be possible to visit a local company that create animations or film to see how they use the storyboarding process in a professional setting. They should practice as small groups or individuals to create storyboards for existing film clips or perhaps advertisements and then compare to the original to see that they have captured all the details. This exercise clearly identified to them the amount of detail that is required for a storyboard. They should also then create a storyboard for a new animation which is reviewed or implemented by other members of the larger group. This will again highlight any details that have not been considered or logged.

They must be taught frame rates, timings and scripting, to enable them to fully appreciate the delivery of the final product. Learners can practice storyboarding for a set of additional scenes for an existing animated movie which has the timings and frame rates already in place. They should discuss as a group the benefits of the software they are using, the advanced functionality and suggest how it can improve the animations that they have or will be creating.

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

Assessment Criteria P1, M1, D1

The assessment criteria could be evidenced by the use of a report or presentation. It must include images to enhance and illustrate the points made. For P1 learners should explain different types of animation including zoetrope, stop motion, cel animation, cut-out animation and CGI animation.

For merit criterion M1 learners should discuss the studios that produce animations and their animation history. They should consider at least three studios and their evidence could be presented in the form of a report that may include images to support or explain their discussion.

For distinction criterion D1 learners should compare the different animation styles of the key animators at studios giving some examples of their characters including their characteristics and how these are portrayed through the medium of animation. Learners should compare the styles across a range of criteria which may include genre, angles, features and lighting. This could be presented in a report that contains explanations and details of the comparison on the styles of animation and the features and characteristics of the characters. The use of images may support the evidence.

Assessment Criteria P2, M2 and P3

The learners, for this assessment criterion P2, should explain the different uses for animation giving examples from each category within the teaching content for learning outcome one and using screen captures to illustrate their examples. These findings could be presented in the form of a presentation or booklet.

Learners could provide evidence in the format of a report using a table to discuss the advantages and limitations of GIF animations with comparisons to other, different formats. This discussion should include the limitations and advantages in terms of size, quality methods of delivery, platforms.

For merit criterion M2 learners could extend these findings by describing where these animations are used in the media and the benefits of their use. The should give examples from different areas and describe how these have enhanced the chosen areas of use. This could be evidenced in the form of a report that is enhanced by the use of images to illustrate the learners' points and findings.

Assessment Criterion P4

Learners should describe the software tools available for animation. Learners could provide screen captures of the tools available for animation in action which could form the basis of a report or presentation. The tools should be described in detail as to what function they perform in the authoring of an animation. The evidence should include a range of basic and more advanced tools that can be used in line with those identified in the teaching content for Learning Outcome 2 and any others the learner has used.

Assessment Criterion P5

Learners should describe factors that need to be taken into account when creating animations for the web. Learners could evidence this criterion with a written report or presentation describing their findings from research carried out. This may include screen captures of websites and the animations to evidence areas they have considered when they creating their own animation. They should describe a range of factors that need to be considered when creating animations for the web as per the teaching content for Learning Outcome 2 with those considered clearly identified as part of the evidence with the appropriate descriptions.

Assessment Criterion P6

Learners should design computer animations using different animation techniques. Learners will evidence this criterion with the production of their design for animations. This should take the form of an in depth storyboard covering the various aspects of their animation which should be a minimum of 45 seconds in length. The storyboard can be either produced on a computer or be hand drawn. It should be of a good quality and consideration should be given to overall animation length, length of each shot, scripting camera angles in addition to those identified in the teaching content for the learning outcome. The design should include at least three different animation techniques.

Assessment Criteria P7, M3 and D2

For P7, learners should implement animations using different animation techniques. The implementation of the animation can be evidenced through screen captures and narrative as to how the animation of a minimum of 45 seconds was put together (there must be evidence that the animation lasts for

the required time). The evidence will be the animation which has been produced.

For merit criterion M3 learners should evidence that they have used advanced software functionality to enhance the animation (this could be annotations in the form of a report). The advanced functionality should include some form of user interaction with the animation and use of scripting in order to enhance the animation.

For distinction criterion D2 learners must justify how the use of these enhanced functionalities has improved the animation rather than just being used to fulfil. The advanced functionality must enhance and be integral to the finished animation. These justifications must be detailed and make reference to the purpose and design of the animation and the benefits of the enhancements. This could be evidenced in the form of a report with images and screen captures to support it.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 16 2D animation production

Unit 18 Web animation for interactive media

LINKS TO NOS

4.3 Human Needs Analysis

4.6 Human Computer Interaction (HCI) Design

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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