OCR
Oxford Cambridge and RSA

Unit Title:	Developing 3D digital games using game creation software
Level:	3
Sub-level:	Unit 316
Credit value:	8
Guided learning hours:	65

Unit purpose and aim

This unit helps learners to familiarise themselves with the more advanced aspects of developing digital games using game creation software. It allows them to understand the client brief and time frames and deadlines and preparation techniques to form part of the project planning and creation process:

- Candidates will investigate different types of digital games and discuss the platforms and emerging technologies
- Create and maintain a project plan for the creation of a digital games using game creation software to the client brief
- Create and edit the digital game using game creation software
- Evaluate the final product with against the original brief

The aim of this unit is for the learner to develop an awareness of the current use of game creation software to create 3D digital games. The learner will also learn how to exploit these technologies to reach new audiences and generate revenue.

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
1.Be able to investigate 3D game development environments	1.1 Research and describe 3D game development environments 1.2 Compare and contrast the key features of a range of game development platforms 1.3 Research the capabilities and limitations of 3D games engines and editors 1.4 Describe a range of target platforms supported	Candidates should explore the different types of 3D game development software. A minimum of 3 game engines/editors should be researched. Both open source and commercial software should be included in the comparison. Features of software for game creation may include 2D/3D environment support, drag and drop features, scripting, player interactivity features, asset libraries,

	1.5 Investigate current and emerging technologies for creating and playing 3D games	importing multimedia assets, (eg graphics, scenes, audio, video) Candidate should show an understanding of factors that limit the creation of 3D games e.g. target platform processing power, memory and display, graphics and rendering options in the game engine, customisation of 3D worlds and objects, output formats and file sizes, cost of development software Candidates should demonstrate awareness of both current and emerging technologies, language and best practice relevant to interactive media development

2 Be able to plan the creation of a playable 3D game to a client brief	2.1 Identify client requirements based on their brief to include the target audience
	
	2.2 Review an original game proposal with the client to identify the game mechanics
	
	2.3 Create and maintain a project plan to include
	
	   a) tasks
	   b) timescales
	   c) resources
	
	2.4 Create a game flow diagram including pathways, dialogue and associated gameplay
	
	2.5 Identify, source and reference assets, identifying copyright status
	
	2.6 Identify key stages, production constraints and contingency planning
		Game mechanics and gameplay may include spatial relationships, player ability and representation, re-spawning, game rules, interaction, objectives, upgrades, level of difficulty and scoring systems as appropriate to the brief.
		
		Candidates should show an understanding of the use of both simple and complex 3D objects. Explain the need for different views of an object, along with the importance of spatial relationships on integrity and playability of a 3D game between objects e.g. characters should not be expected to pass through solid objects(unless it is part of the game) Candidates should also show an understanding of navigation techniques through rooms/levels and associated actions.
		
		The flow diagram may be created manually and scanned for evidence or may

	2.7 Describe the legal and ethical issues regarding all aspects of the game creation	be created digitally by the candidate They should identify any assets needed, created and used The candidate should develop and show evidence of using a project plan throughout their work changing timings, if needs be, as the project progresses
3. Be able to create save and export the 3D game	3.1 Create the 3D game in line with the plan and game flow diagram 3.2 Import/create the 3D objects, characters and any identified assets 3.3 Create a player starting point and orientation 3.4 Use the features of the game creation software to set the properties of 3D objects and player interactions 3.5 Add lighting, sounds and effects 3.6 Add a game control and scoring facility 3.7 Create and use a detailed test plan to check for a) Spatial relationships b) Action triggered events c) Interactions d) Lighting, sounds and effects e) Graphics f) Playability and level of difficulty g) Navigation 3.8 Correct any identified faults and retest using the test plan. 3.9 Save and export the created game in the required format as specified by the client	Candidates should produce clear evidence of their ability to create a playable 3D game. Using the selected game creation software, candidates should: · Set the properties of 3D objects and environments · Apply and edit grid settings · Create and specify the geometric parameters and spatial relationships · Add/replicate simple and complex 3D objects. · Select and apply textures, lighting and effects · Import sound files and apply to events, actions or gameplay Candidates should show an understanding of using sound files for different purposes(e.g. background, action/event sounds, ambient sound) Candidates should include methods of activating a movable object (e.g. opening a door within the environment), specify 'open' and 'close' positions along with 'move' time and 'stay

	brief	open' time
	3.10 Organise electronic files using appropriate naming conventions to facilitate access by others	Candidates should also be able to create interactions within the 3D environment. This may relate to player interaction with either NPCs or movable 3D objects

The game control and scoring facility should allow the player to start/pause/exit the game and rate their game success eg using a points scoring system or game timer (this should be defined in the game mechanics)

Candidates must fully test their finished product to ensure it would be suitable for presenting to a client; this includes the spelling, grammar and consistency of any text and fonts used in addition to the identified criteria.

Further testing should ideally be carried out with the target audience and feedback obtained.

The developed game should be exported in a format that can be played without specialist software. |
| 4. Understand how to evaluate the product against the original brief | 4.1 Identify parameters and constraints that influenced any decisions that were made

4.2 Critically evaluate the quality of the finished product and its fitness for purpose

4.3 Evaluate the game created with the client and analyse feedback

4.4 Identify areas for improvement and further development of the game, using your own | Critical personal evaluation, commenting on the quality of finished product and its fitness for purpose

Obtain feedback from the client and/or the target audience

Identify parameters and constraints that influenced decisions made. For example asset manipulation, file formats, compression techniques, permission and subject matter/location, copyright, IPR, trademarks |

	critical evaluation and the analysis of client feedback 4.5 Review the technical and aesthetic qualities of the final outcome	etc Maintain accurate written records of relevant information about assets obtained, such as source, ownership, any restrictions on use, where they are located, filenames given

Assessment

Assessment will consist of the candidate producing evidence to an OCR set or centre devised brief. All the learning outcomes and assessment criteria must be clearly evidenced in the submitted work, which is remotely moderated by OCR within their e-portfolio solution.

Results will be Pass or Fail.

Evidence requirements

This unit aims to equip the candidate with the ability to produce professional work for a client to create a digital games using game creation software to a standard that meets the requirements of the brief. The candidate is able to work with the client to an agreed design brief to produce a completed product and to use the necessary tools and source the required resources as appropriate.

1   Candidates should present a report or presentation to show their research and investigations, discussing the platforms and technologies of digital games.

2   A project plan to show that they have identified and considered the client requirements, that they understand the appropriate equipment, resources and formats of developing digital games using game creation software to meet the brief. Candidates should be able to produce a project plan to create and manage the digital game.

Candidates should create sketches or drawings of ideas.

These sketches should be digitised and submitted with a planning document for moderation.

The project planning document, showing workflow, tasks, timescales etc must clearly meet all the learning outcomes must be submitted for moderation.

3   Be able to produce the digital games using game creation software in line with their plan to include:

·   Creating the 3D game in line with the plan and game flow diagram

·   Importing/creating the 3D objects, characters and any identified assets

- Creating a player starting point and orientation

- Using the features of the game creation software to set the properties of 3D objects and player interactions

- Adding lighting, sounds and effects

- Adding a game control and scoring facility

- Creating and using a detailed test plan to check for

  a) Spatial relationships

  b) Action triggered events

  c) Interactions

  d) Lighting, sounds and effects

  e) Graphics

  f) Playability and level of difficulty

  g) Navigation

- Correcting any identified faults and retest using the test plan.

- Saving and exporting the created game in the required format as specified by the client brief

These produced files should be digitised for submission although candidates should be encouraged to create them digitally initially.

Evidence should also include a list of file names, types and properties of created files.

Candidates should submit the edited files and annotated screen captures in a report will also assist in evidencing their activities.

4 Candidates should prepare an evaluation file to compare the finished product to the original brief and plan.

This should include the identification of any parameters and constraints that influenced decisions that were made e.g. file formats, asset manipulation, software and hardware constraints, copyright permissions, a critical evaluation of the quality of the finished products, their fitness for purpose and justifying the choices made.

An evaluation of the digital game using game creation software with the client must be recorded, feedback logged and analysed.

In this critical evaluation candidates should also identify areas for improvement and further development of the digital game using their own critical evaluation and the analysis created from the client feedback.

Guidance on assessment and evidence requirements

Candidates must produce all work to an acceptable standard and meet all the identified assessment objectives and learning outcomes.

A report that incorporates, for example, client discussion, written brief, specification, end user requirements, purpose and timescales must be submitted.

Screen captures of the finished product do not evidence the planning process.

Screen captures will need to evidence the creation process, using an appropriate range of tools and techniques

Candidates should submit files created at all stages of the process to include the final product. This evidence should be provided in compressed digital formats.

Students should produce a critical evaluation reflecting upon how successfully the product meets the requirements of the brief, identifying any parameters and constraints that influenced their decisions. (e.g. file formats, asset manipulation, software and hardware constraints, copyright permissions) identifying what they would do differently if faced by a similar task and why.

You should refer to the 'Admin Guide: Vocational Qualifications (A850)' for Notes on Preventing Computer-Assisted Malpractice.

Details of relationship between the unit and national occupational standards

OCR Creative iMedia		Content crossover with National Occupational Standards	
Unit	Title		
316	Developing 3D digital games using game creation software	IM1 PI 1	Work Effectively in Interactive Media Apply Copyright and Other Laws Relating to Usage and Licensing of Images

Resources

Equipment: A computer system capable of running a range software packages that will enable the candidate to meet the requirements of the client must be used. Other equipment may include cameras, microphones and props.

Additional information

For further information regarding administration for this qualification, please refer to the OCR document '*Admin Guide: Vocational Qualifications*' (A850).