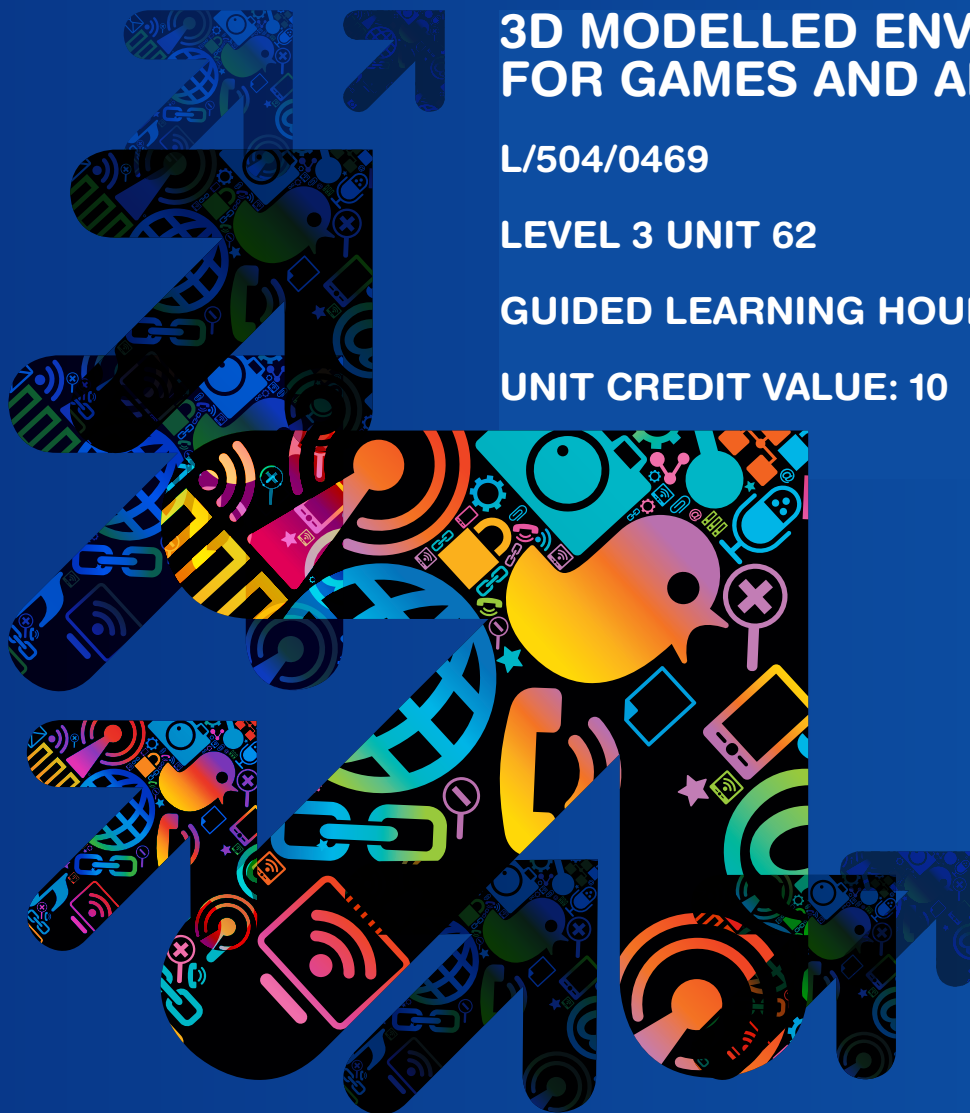




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# OCR LEVEL 3 CAMBRIDGE TECHNICAL CERTIFICATE/DIPLOMA IN MEDIA



## 3D MODELLED ENVIRONMENTS FOR GAMES AND ANIMATION

L/504/0469

LEVEL 3 UNIT 62

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR 

# 3D MODELLED ENVIRONMENTS FOR GAMES AND ANIMATION

L/504/0469

LEVEL 3

## AIM OF THE UNIT

By completing this unit learners will understand 3D modelling techniques for computer generated environments. They will gain skills in the design, planning and production of an animated 3D modelled environment, and demonstrate their knowledge of the process by creating a *how to guide*.

## 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 Understand 3D modelling techniques	P1 Learners research a range of 3D modelling techniques for an environment using examples from existing media products, including: a) modelling process b) animation/motion generation c) intended application		
2 Be able to produce a design and plan for a 3D modelled environment, for use in a game or animation	P2 Learners produce a design and plan for the production of a 3D modelled environment for use in a game or animation, including: a) genre b) outline game plan c) environment visuals/ concept art d) storyboard e) possible animation techniques		
3 Be able to construct an animated 3D modelled environment, for use in a game or animation	P3 Learners use 3D environment modelling tools to construct a competent 3D modelled environment for use in a game or animation, including: a) floor area b) texturing/materials c) at least three textured objects/props d) rendering	M1 Learners create their own 3D modelled environment to a good technical standard and quality. Learners illustrate how they have used 3D environment modelling tools to construct their own game environment	D1 Learners create their own 3D modelled environment to a high technical standard and quality. Learners create a 3D modelled environment with a high level of visual appeal, which fully meets the intentions of the final game production
	P4 Learners competently animate the final functional 3D modelled environment for use in a game or animation, demonstrating realistic movement for the genre chosen	M2 The final animated 3D modelled environment created by learners is generally of a good technical standard and quality. The camera angles, movements and mise en scène are fit for purpose. The environment contains lighting and shadow that enhance the game's visual appeal	D2 The final animated 3D modelled environment created by learners is generally of a high technical standard and quality. Conventions of the chosen genre are followed and the environment contains dynamic props, lighting and shadow with which a user or character may interact
4 Be able to explain the process of creating a 3D modelled environment	P5 Learners produce a how to guide to illustrate the process of creating different 3D modelled environments and objects, using their own informative text and images	M3 The how to guide is well constructed by learners and has well-written, easy to follow step-by-step instructions with relevant and clear accompanying images. The guide is both technically correct and aesthetically engaging	

## 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.

### Understand 3D modelling techniques

For example:

- the form/shape of the 3D environment, polygons, faces, edges, extruding and lofting, spline based modelling
- how the 3D environment changes, use of lights, cameras, properties of the 3D environment - surfaces and textures, rendering
- computer/console games, animations, computer generated imaging for live action.

### Be able to produce a design and plan for a 3D modelled environment, for use in a game or animation

For example:

- visual style, terrain, landscape, cityscape, spacescape, abstract
- science fiction, sport, comedy, horror, super hero, children's animation
- vehicles, weapons, props, devices, foliage
- game level sketch, plan view/map, use images and photographic references if appropriate
- initial environment development visuals, initial sketches, mood board of other suitable game environments including:  
static prop – i.e. non moving or physics prop - moving prop  
i.e. moves when hit by another object or dynamic prop i.e. user moves the prop/models, textures, audio, 3D models, vehicles, weapons, devices, foilage etc.

For example:

- an industry standard series of panels or rough sketches which outline the sequence of the scenes, action and the plot of the game including sound
- vertex animation, cluster based animation, bones driven animation.

### Be able to construct an animated 3D modelled environment, for use in a game or animation

For example:

- polygon to mesh, faces, edges, extruding and lofting, spline based modelling
- terrain, track or course, mapping texture onto the 3D environment, bump map
- buildings, obstacles, natural features, foliage, planets, vehicles, equipment
- low, medium and high resolution.

For example:

- adjust intensity of lights, camera angles, shadows, focal length, aperture
- key frame elements of each scene, camera, lights and movement, final render to appropriate format
- could be viewer or character point of view.

### Be able to explain the process of creating a 3D modelled environment

- Using the evidence you have generated during your research and environment creation in this unit, create a *how to guide* that illustrates the process of creating a 3D modelled environment. This might include:
  - photos
  - initial sketches, game level sketch, plan view/map, multi view
  - screen grabs of: polygon modelling/NURBS modelling /subdivisional modelling, extrusions, 3D environment development
- the how to guide could take the form of a booklet, fact sheets, wall charts, film of process in audio-visual presentation for online use etc.
- limitations and advantages of software used.

## DELIVERY GUIDANCE

This unit is centre-assessed and externally moderated.

In order to achieve this unit, learners must produce a portfolio of evidence showing that they can meet all the pass grading criteria.

Portfolios of work must be produced independently. Portfolios put forward for moderation must be available for the OCR Visiting Moderator to access freely during the moderation visit, along with witness statements and any other necessary supporting documentation.

Centres must confirm to OCR that the evidence produced by learners is authentic.

In order to achieve this unit, learners must produce evidence that meets all the pass grading criteria. There are no other additional requirements for this unit.

Learners should gain knowledge, understanding and skills through practical tasks related to their own productions as well as professional produced media products. Whilst this could be a standalone unit it could also be an integral part of other units including 60, 63 and 64.

If working as a team, learners should ensure that they have identified their contribution to the planning and execution of any task involving teamwork, this should be supported by a witness statement from the tutor. If learners are working as a team this presents the opportunity for individuals to draw on their strengths and also to develop new skills.

**P1:** Learners should have the opportunity to research a wide range of 3D modelling techniques used primarily in animation and computer games. It may be useful for learners if centres could arrange visits from guest speakers or practitioners. Learners could also use published information and the internet for their explorations. Special features on game discs and DVDs can be a good source of information on the modelling process' this may also be available in company published material. It may also be helpful for learners to participate in tutor led discussions on the modelling process and its potential applications and undertake short experimental tasks in the various techniques. Learners could use this as an opportunity to explore different 3D modelling techniques used in the creation of 3D modelled environments by practically engaging with these techniques and producing their own simple test sample models. Learners will need to be taught various 3D modelling techniques, if they are to undertake this as part

of an approach to P1. This could be done in teacher led skills workshops. Other suggested evidence could include a written report, diagrams and graphs, audiovisual presentation of the material, wall chart diagram of the production process, information sheets, a slide show with supporting notes, a blog, a verbal presentation with a supporting slide show of collected short tasks and notes on how they were produced.

**P2:** Learners could use the information they gathered in P1 to inform the design of their 3D environment. When planning the production of the 3D environment learners should keep in mind if the environment is to be used in a larger production and plan for this accordingly and, where possible, should be using professional practices. Evidence may take the form of a portfolio of work made up of the storyboard with animation techniques and camera directions, developed sketches, drawings from different angles with annotations, computer mock ups, stills of 3D modelled environment developments etc. Evidence could also be screen grabs and audio-visual presentations and written evidence.

**P3/P4/M1/M2/D1/D2:** Learners when constructing the 3D environment should wherever possible work to a deadline and follow industry standard production processes. Learners should be taught appropriate production skills in line with commercial practices, which may be possible through teacher led skills workshops, or where possible inviting guest practitioners to the centre. It is also important that learners adopt safe working practices. If working in a group, the learner should evidence their contribution to the process of generating the 3D environment in software packages by recording its development at various resolutions and stages in the production process leading up to the final rendered outcome and identifying which parts or stages they were responsible for. Evidence of learners' contribution should be supported by a witness statement from the tutor.

**P5/M3:** Suggested evidence for the how to guide could be a series of developmental screen grabs with guidance notes, a slide show presentation with images and notes on the process of modelling the 3D environment.

## RESOURCES

This section provides suggestions of suitable resources. The list is neither prescriptive nor exhaustive, and learners should be encouraged to gather information from a variety of sources.

Some suggested resources are intended for tutor use. The resources in this section were current at the time of production.

### Books

Wyatt, H & Amyes, T (2004)	<i>Audio Post Production for Television and Film: An introduction to technology and techniques</i> Focal Press (3rd edition)
Viers, R (2008)	<i>The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects</i> Michael Wiese Productions (3rd edition)
Theme Ament, V (2009)	<i>The Foley Grail: The Art of Performing Sound for Film, Games and Animation</i> Focal Press
Mott, RL (1990)	<i>Sound Effects: Radio, T.V. and Film</i> Focal Press
Hoffert, P (2007)	<i>Composing Music for Videogames, Web Sites, Presentations and Other New Media</i> Berklee Press Publications
Marks, A (2008)	<i>The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, Game Developers (Gama Network Series)</i> Focal Press (2nd edition)

### Websites

[www.telegraph.co.uk/culture/film/3671089/100-best-movie-soundtracks.html](http://www.telegraph.co.uk/culture/film/3671089/100-best-movie-soundtracks.html)

[www.moviefone.co.uk/2009/05/28/best-movie-soundtracks/](http://www.moviefone.co.uk/2009/05/28/best-movie-soundtracks/)

[www.filmsite.org/100soundtracks.html](http://www.filmsite.org/100soundtracks.html)

[www.tvadmusic.co.uk/](http://www.tvadmusic.co.uk/)

## LINKS TO NOS

Skillset – Interactive Media and Computer Games (2009)

- IM1** Work effectively in interactive media
- IM3** Prepare assets for use in interactive media products
- IM5** Design user interfaces for interactive media products
- IM6** Use authoring tools to create interactive media products
- IM10** Initiate interactive media projects
- IM11** Manage intellectual property rights
- IM20** Design electronic games

Skillset – Animation (2007)

- ANIM 2** Manage and store assets
- ANIM 8** Create designs
- ANIM 14** Set up 3D elements for animation
- ANIM 15** Create 3D animation
- ANIM 16** Render 3D animation
- ANIM 21** Create digital visual effects

ENTO – Health and Safety Standalone Units

- HSS1** Make sure your own actions reduce risks to health and safety



## **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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