

**Course Code:**

PVIS102

**Session:**

2017/18

**1. Course Title:**

3D Modelling and Animation

**2. Date of Production/Revision:**

1 April 2014

**3. Level:**

SCQF 11

**4. Credits:**

15

**5. Lead School/Board of Studies:**

School of Simulation and Visualisation

**6. Course Contact:**

Mike Marriot

**7. Course Aims:**

The aim of this course is to provide a comprehensive exploration of the relevant theoretical and practical issues involved in three-dimensional modelling and animation.

**8. Intended Learning Outcomes of Course:**

On successful completion of the course the student will be able to:

1. demonstrate a critical understanding and knowledge of 3D concepts and contemporary modelling and animation techniques, and its relation to medical and heritage visualisation and creating assets for serious games;
2. design and create a computer generated 3D model, demonstrating the principal techniques of 3D modelling and animation;
3. demonstrate self-direction through the development and management of a project of research

**9. Indicative Content:**

This course will cover issues including

- 3D Coordinate systems
- 3D Space and spatial awareness
- Scene setup and good workflow practice
- Modelling methods (polygonal modelling, NURBS modelling, subdivision surfaces), pros and cons of each method, and its applications
- Texture mapping, materials and shading
- Reference gathering
- Lighting and shadows
- Cameras
- Rendering
- Fundamentals of practical animation: keyframe animation, FK/IK, dynamics (particles and fluid)

**10. Description of Summative Assessment:**

No.	Assessment Method	Description of Assessment Method	Weight %	Submission week (assignments) or length (exam)
1	Coursework	Portfolio of work	100	Week 13 (indicative)

**10.1 Please describe the Summative Assessment arrangements:**

Students on this course will be assessed on their ability to:

- demonstrate a critical knowledge of 3D modelling and animation techniques and practice;
- show an understanding of the practice and theory contexts in relation to which their project is positioned;
- exhibit appropriate level of skill demonstrated in each area of modelling and animation;
- demonstrate good command of verbal, written and visual outcomes to communicate and articulate ideas;
- demonstrate ability to structure tasks and overall workload

**11. Formative Assessment:**

Individual feedback is available during tutorials to provide formative assessment. The wide range of coursework will provide the bulk of formative and summative assessment for the full range of 3D modelling and animation skills.

**11.1 Please describe the Formative Assessment arrangements:****12. Collaborative:**

Yes

No

**12.1 Teaching Institutions:**

The University of Glasgow

**13. Requirements of Entry:**

None

**14. Co-requisites:**

None

**15. Associated Programmes:**

MSc Visualisation

**16. When Taught:**

Stage 1

**17. Timetable:**

Timetable will be available in the induction week.

**18. Available to Visiting Students:**Yes No **19. Distance Learning:**Yes No **20. Placement:**Yes No **21. Learning and Teaching Methods:**

Method	Formal Contact Hours	Notional Learning Hours (Including formal contact hours)
Lecture	8	40
Studio		
Seminar/Presentation	1	5
Tutorial	1	5
Workshop	20	100
Laboratory work		
Project work		
Professional Practice		
E-Learning / Distance Learning		
Examination		
Essay		
Private Study	Not Applicable	
Other (please specify below)		
<b>TOTAL</b>	<b>30</b>	<b>150</b>

**22. Description of "Other" Teaching and Learning Methods:**

N/A

**23. Additional Relevant Information:**

This course is intended to provide students with an introduction to 3D modelling and animation techniques by acquiring the principal skills and knowledge required to successfully create and animate 3D objects and provide the student with the necessary skills to demonstrate this. The course will look at various modelling, texturing, rendering, and animation techniques. There will be a particular focus on how these techniques are used in 3D medical and heritage visualisation, in essence, how to build complex and anatomically correct 3D medical models, heritage buildings and artefacts, or game assets by hand.

**24. Indicative Bibliography:**

Ingrassia, M. (2008) *Maya for Games: Modeling and Texturing Techniques with Maya and Mudbox*. Oxford: Focal Press. ISBN 978-0240810645

Keller, E. (2010) *Mastering Autodesk Maya 2011*, John Wiley & Sons, ISBN 9780470639351

DERAKHSHANI, D. (2012) *Introducing Autodesk Maya 2013*. New York: John Wiley & Sons. ISBN 978 1118130561

PALAMAR, T. and LANIER, L. (2012) *Mastering Autodesk Maya 2013*. New York: John Wiley & Sons. ISBN 978 1118130582

LANIER, L. (2011) *Maya Studio Projects: Texturing and Lighting*. New York: John Wiley & Sons. ISBN 978 0470903278

McKINLEY, M. (2010) *Maya Studio Projects: Game Environments and Props*. New York: John Wiley & Sons. ISBN 978 0470524039