MECO319

Modelling and Animation

S1 Day 2017

Department of Media, Music, Communication and Cultural Studies

Contents

General Information

Unit convenor and teaching staff
Unit Convenor
James Neale
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Credit points
3

Prerequisites
39cp at 100 level or above

Corequisites

Co-badged status

Unit description
This unit teaches students how to conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds. Through the creative application of theoretical and practical knowledge students gain the necessary skills to demonstrate a working understanding of modelling, texturing, rigging and animation for video game construction and or moving image formats.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.

Develop the capability to create and edit polygonal models utilising 3D modeling tools.

Apply creative techniques to the application of texturing.

Understand and apply rigging to assets for animation.

Plan, create and present original components of a 3D world for a major project.

Demonstrate a working understanding of modeling, texturing, rigging and animation capabilities for game construction and or video/moving image formats.

General Assessment Information

Late submission incurs 10% penalty per day.

Assessment Tasks

Name	Weighting	Hurdle	Due
Modeling Assignment	10%	No	5pm Friday 31st March (Week 5)
Texturing Assignment	15%	No	5pm Friday 14th April (Week 7)
Animation Assignment	20%	No	5pm Friday 8th May (Week 9)
Major project	55%	No	5pm Friday 9th June (week 13)

Modeling Assignment

Due: **5pm Friday 31st March (Week 5)**
Weighting: **10%**

Task: Design and create polygon model of a humanoid (2 legged) character using not more than 5000 polygons. Follow design images you have chosen and make judicious use of proper polygonal topology.

Deliverable: A single blend file containing character model and packed reference images saved to your Sites folder.

Assessment criteria:

- Design aesthetic and coherency
- Polygonal efficiency
- Demonstration of correct use of polygon topology

On successful completion you will be able to:

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Develop the capability to create and edit polygonal models utilising 3D modeling tools.
- Demonstrate a working understanding of modeling, texturing, rigging and animation capabilities for game construction and or video/moving image formats.

Texturing Assignment

Due: **5pm Friday 14th April (Week 7)**
Weighting: **15%**

Task: Unwrap the polygon model from Assignment 1 to a 2048x2048 pixel map, then paint the

texture map to suit the character design. Select and use design images for reference and follow correct UV mapping techniques for proper UV layout.

Deliverable: A single blend file containing the unwrapped 3d model, packed reference images and the packed 2048px texture map, saved to your Sites folder.

Assessment criteria:

- Polygons that are UV-mapped evenly, squared and laid out optimally for the texture space
- Texturing that follows the chosen designs
- Design aesthetic

On successful completion you will be able to:

- Apply creative techniques to the application of texturing.
- Demonstrate a working understanding of modeling, texturing, rigging and animation capabilities for game construction and or video/moving image formats.

Animation Assignment

Due: **5pm Friday 8th May (Week 9)**
Weighting: **20%**

Task: Rig and animate the model from Assignment 2 in a looping animation, making sure the rig fits the model correctly and the mesh is deforming properly. The animation needs to play in a repeating loop so you are to ensure the start pose matches the end pose. The motion should suit the design aesthetic of your character.

Deliverable: 1 x blend file containing the animating model, saved to your Sites folder.

Assessment criteria:

- The rig fits to the 3d model's pivot points
- *T*he model deformation at each joint during the motion
- The looping of the animation
- The quality and integrity of the animation
- The motion in relation to the chosen design aesthetic

On successful completion you will be able to:

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Understand and apply rigging to assets for animation.
- Demonstrate a working understanding of modeling, texturing, rigging and animation capabilities for game construction and or video/moving image formats.

Major project

Due: **5pm Friday 9th June (week 13)**
Weighting: **55%**

Task: A complete and finished animation, featuring at least 1x original 3d character performing within fully textured and lit 3d environment. Animation is to be a minimum of 15 seconds length and including audio to suit.

Deliverable: 2 files = 1 x movie file (mp4 or avi) and 1 x zip file containing all project blend files packed with all textures and design reference images, saved to your Sites folder.

Assessment Criteria:

- Purposeful design aesthetic
- Integrity and believability of the motion
- The rendering and shading quality and consistency with the chosen design
- Editing and audio in keeping with the design aesthetic
- Entertainment and engagement
- Demonstration of a holistic understanding of 3d modeling, texturing, rendering and animation

On successful completion you will be able to:

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Develop the capability to create and edit polygonal models utilising 3D modeling tools.
- Apply creative techniques to the application of texturing.
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- Plan, create and present original components of a 3D world for a major project.
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Delivery and Resources

This unit uses the Blender 3D creation suite: https://www.blender.org/

Lectures begin in Week 1

Workshops begin in Week 2

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students

should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

MMCCS Session Re-mark Application http://www.mq.edu.au/pubstatic/public/download/?id=167914

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide

appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Develop the capability to create and edit polygonal models utilising 3D modeling tools.
- Apply creative techniques to the application of texturing.
- Understand and apply rigging to assets for animation.
- Plan, create and present original components of a 3D world for a major project.
- Demonstrate a working understanding of modeling, texturing, rigging and animation capabilities for game construction and or video/moving image formats.

Assessment tasks

- Modeling Assignment
- Texturing Assignment
- Animation Assignment
- Major project

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing

environments.

This graduate capability is supported by:

Learning outcomes

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Plan, create and present original components of a 3D world for a major project.
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Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
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Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them

competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

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Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Conceptually design and develop characters, props and scenes for the creation of three dimensional (3D) worlds.
- Plan, create and present original components of a 3D world for a major project.

Assessment tasks

- Modeling Assignment
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- Major project

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Develop the capability to create and edit polygonal models utilising 3D modeling tools.
- Plan, create and present original components of a 3D world for a major project.

Assessment tasks

- Modeling Assignment
- Major project

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- Plan, create and present original components of a 3D world for a major project.

Assessment task

- Major project

Changes from Previous Offering

This unit has changed 3D software packages from Maya to Blender. As a free and open source piece of software Blender offers greater accessibility and flexibility for students.