MONASH University
Information Technology

**FIT3001
Advanced 3D**

Unit Guide

Semester 1, 2011

Last updated: 27 Feb 2011

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FIT3001 Advanced 3D - Semester 1, 2011

This unit builds upon the skills, techniques and theory introduced in FIT1033 Foundations of 3D towards an emphasis on 3D character design and modelling for animation. Students will be introduced to advanced techniques for character detailing (modelling and texturing) and character animation (rigging, binding and animation). The theoretical and practical considerations contributing to the conceptualisation, creation and preparation of 3D characters for animation sequences will constitute a key focus of this unit.

Mode of Delivery

Berwick (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial (requiring advance preparation)
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy research and assignment expectations

Unit Relationships

Prohibitions

MMS3409

Prerequisites

FIT1033 or FIT2015

Chief Examiner

Tom Chandler

Campus Lecturer

Berwick

Tom Chandler

Tutors

Berwick

Nori Tominaga

Learning Objectives

At the completion of this unit students will have:

- an understanding of the paradigms behind the development and application of computer generated 3D characters;
- an understanding of the principles of 3D animation theory and implementation, including character specific studies;
- a theoretical understanding of established and emerging procedures for 3D character modelling, detailing and preparation for animation;
- developed attitudes that enable them to appreciate the theories and practices adopted for complex 3D topology, modelling and animation techniques, including production pipelines;
- developed the ability to evaluate and implement suitable processes for 3D character creation and animation;
- developed the skills to design, model and texture original and geometrically efficient 3D characters;
- developed the skills to prepare (rig and bind) 3D characters for animation;
- developed the skills to animate and render 3D characters and objects.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:

a. engage in an internationalised world
b. exhibit cross-cultural competence
c. demonstrate ethical values

critical and creative scholars who:

a. produce innovative solutions to problems
b. apply research skills to a range of challenges
c. communicate perceptively and effectively

Assessment Summary

In-semester assessment: 100%

Assessment Task	Value	Due Date
Assignment 1: Modelling and Texturing your Character	30%	Monday 28 March 2011, 3pm
Assignment 2: Rigging, Binding and Preparing your Character for Animation	30%	Monday 2 May 2011, 3pm

Assignment 3: Animating your Character and Rendering a 15 - 20 second Animation	40%	Monday 6 June 2011, 3pm

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
http://www.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Required Resources

Autodesk® Maya® 2011 software will be provided on campus lab computers, and students are encouraged to register with the Autodesk Education Community (http://students.autodesk.com/) for their own educational trial version of Autodesk® Maya® 2011and related Autodesk software under the company's terms and conditions.

Additional subject costs

Some assignments will require the submission of a colour print (single page, A4). Coloured printers requiring credit are available on campus, though students can choose to have their coloured prints done commercially.

Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11		No formal assessment or activities are undertaken in week 0
1	28/02/11	Introduction to Character Creation	
2	07/03/11	Character Creation, Modelling Review	
3	14/03/11	Character Creation, Texturing Review	
4	21/03/11	Advanced Character Texturing and Modelling Techniques	
5	28/03/11	Introduction to Character Rigging, Binding and Constraints	Assignment 1 due Monday 28 March 2011, 3pm
6	04/04/11	Character Rigging and Binding	
7	11/04/11	Character Binding and Constraints	
8	18/04/11	Advanced Character Rigging, Binding and Constraint Techniques	
		Mid semester break	
9	02/05/11	Introduction to 3D Animation Process and Theory	Assignment 2 due Monday 2 May 2011, 3pm
10	09/05/11	Creating a Character Walk Cycle	
11	16/05/11	Animation Blocking, Timing and Secondary Motion	
12	23/05/11	Animation Finalisation and Rendering	
	30/05/11	SWOT VAC	No formal assessment is undertaken SWOT VAC

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Assignment 1: Modelling and Texturing your Character
  Description:
  In Foundations of 3D, the final assignment involved the creation and basic texturing of an original game character. In the first assignment of Advanced 3D, we will be revisiting 3D character creation, though this time the emphasis is on the creation of a sophisticated, textured character model which will later be rigged (in Assignment 2) and animated (in Assignment 3).

  Weighting:
  30%
  Criteria for assessment:
  Please refer to the Assignment 1 brief for details of the assessment criteria.
  Due date:
  Monday 28 March 2011, 3pm

- **Assessment task 2**

  Title:
  Assignment 2: Rigging, Binding and Preparing your Character for Animation
  Description:
  Using the character you have created in Assignment 1, this assignment requires you to implement a functional rig (internal skeleton) together with binding and constraints so that you can manipulate and animate your creation.
  Weighting:
  30%
  Criteria for assessment:
  Please refer to the Assignment 2 brief for details of the assessment criteria.
  Due date:
  Monday 2 May 2011, 3pm

- **Assessment task 3**

  Title:
  Assignment 3: Animating your Character and Rendering a 15 - 20 second Animation
  Description:
  This final assignment sees the animation of your character in a 15 - 20 second sequence.What will your character do in 15-20 seconds? This is entirely up to you, but the animation you plan and assemble should attempt to express the personality of your character and demonstrate the detailing you have invested in it through the course of the previous assignments.
  Weighting:
  40%
  Criteria for assessment:
  Please refer to the Assignment 3 brief for details of the assessment criteria.
  Due date:
  Monday 6 June 2011, 3pm

Examinations

Assignment submission

Assignment coversheets are available via "Student Forms" on the Faculty website:
http://www.infotech.monash.edu.au/resources/student/forms/
You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process:
http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:
http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Assessment
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-pc
- Special Consideration
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- Grading Scale
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html)
- Discipline: Student Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html)
- Academic Calendar and Semesters (http://www.monash.edu.au/students/key-dates/);
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/); and
- Academic and Administrative Complaints and Grievances Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis

- Website: http://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

Other Information

There is no tutorial class in Week 1, tutorial classes will start in Week 2.

Rearrangements will be made for the lecture and tutorials that fall on Good Friday in Week 8.

Reading List

Keller, Eric *Mastering Autodesk Maya 2011*, Sybex,ISBN: 0470639350

Derakhshani, DariushIntroducing Maya 2011Sybex, ISBN-10: 0470502169

Maraffi, Chris, "Maya Character Creation", Pearson, 2004
ISBN: 0-7357-1344-8

Wilkins, Mark, "Mel Scripting for Maya Animators", Elsevier, 2005
ISBN: 0-12-088793-2

Petitot, Luc, "Maya Ultimate Workshop", Editions Eyrolles, 2003
ISBN: 0-07-142169-6

Ratner, Peter, "Mastering 3D animation", 2nd edn, Allworth Press, 2004
ISBN: 1-58115-345-7

Ratner, Peter, "3D Human modeling and animation", Wiley, 2003
ISBN: 0-471-21548-1