MONASH University
Information Technology

FIT3145
Games engine programming

Unit Guide

Semester 1, 2014

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

Last updated: 20 Feb 2014

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FIT3145 Games engine programming - Semester 1, 2014

This unit exposes students to a variety of industry standard games engine environments and development techniques. Students will develop an appreciation and basic working knowledge of a number of different platforms used in contemporary games development. The unit aims to provide students with a practical insight into contemporary, industry standard, games development process and games engines.

Mode of Delivery

Caulfield (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour tutorial

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

Unit Relationships

Prerequisites

FIT2049 and FIT2073

Chief Examiner

Mr Derrick Martin

Campus Lecturer

Caulfield

Derrick Martin

Consultation hours: Wednesday 10am - 2pm

Tutors

Caulfield

Jason Haasz

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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Based on student feedback this unit is well structured and no changes have been made for this semester.

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

Academic Overview

Learning Outcomes

At the completion of this unit students will be able to:

- understand the games development pipeline as used in industry;
- appreciate the number of formal and informal games development platforms that exist and why they are used;
- research new and unfamiliar games development environments and adapt to their use;
- understand how to formally approach the use of a new development environment in the games context;
- critically analyse and explore new games development technologies, including graphics and audio engines, for suitability of use for specific games projects;
- create basic games prototypes in a number of contemporary game engines and development frameworks;
- demonstrate a working knowledge of the Microsoft XNA framework of game development, including C#.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Game development Engines, historical background to game engines	
2	Unity, Game engine research processes	Forum and Lecture Participation weekly, due before midnight each Wednesday, from Week 2 to Week 10
3	3DGame Studio, Gamebryo, NeoAxis	Research and Presentation of Findings of a Specific Game Engine Depending on schedule, due during one lecture, from Week 3 to Week 10
4	Crystal Space, FMOD, OGRE	
5	Box2D, Leadwerks, Torque	Document describing game (due week 5, worth 5%)
6	CryEngine, Newton, Shiva	
7	Game Maker, PyGame, Unreal	
8	Abyssal Engine, Irrlicht, PhyreEngine	
9	Esenthel Engine, IwGame Engine, Panda3D	
10	C4 Engine, JMonkeyEngine, Visual3D Game Engine	
11	JigLibX, Game Engine Overview	
12	Class Test (Case Study)	Class Test (Case Study) Week 12 during lecture. Working prototype due Week 12
	SWOT VAC	No formal assessment is undertaken in SWOT VAC. Assignment (Game Creation) due 3pm Monday, Week 15
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach helps students to initially encounter information at lectures, discuss and explore the information during tutorials, and practice in a hands-on lab environment.

Assessment Summary

In-semester assessment: 100%

Assessment Task	Value	Due Date
Research and Presentation of Findings of a Specific Game Engine	20%	Depending on schedule, due during one lecture, from Week 3 to Week 10
Class Test (Case Study)	20%	Week 12 during lecture
Lecture and Forum Participation	15%	Weekly, due before midnight each Wednesday, from Week 2 to Week 11
Assignment (Game Creation)	45% (5% for project plan, 5% for milestone completion, 30% for game, 5% for reflective document)	Document describing game (due week 5, worth 5%), working prototype with completed key gameplay (due week 12, worth 5%), complete game (worth 30%), reflection document (worth 5%) in week 15.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurd

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

- **Assessment task 1**

 Title:
   Research and Presentation of Findings of a Specific Game Engine
 Description:
   Students will choose a game engine and present research findings related to the engine
   (see Moodle for game engines and times that each presentation will occur).

   Students will answer questions from peers and staff attending and in the following week
   on Moodle forums.

   Students are expected to provide a copy of their presentation and presentation notes as
   part of this assessment task.
 Weighting:
   20%
 Criteria for assessment:
   Students will be assessed based on clarity, completeness, presentation skills, research
   quality and answering questions posed by peers during the presentation and in the
   Moodle forums.
 Due date:
   Depending on schedule, due during one lecture, from Week 3 to Week 10
 Remarks:
   Please refer to Moodle for a detailed description of expectations for this assignment.

- **Assessment task 2**

 Title:
   Class Test (Case Study)
 Description:
   Students will be given a case study and will be required to decide which game engine
   (from the engines discussed during semester) is appropriate for the project. Students will
   discuss the reasons behind their choice, benefits and negatives regarding the engine they
   are proposing and expected game design process and workflow based on the engine
   chosen.
 Weighting:
   20%
 Criteria for assessment:
   Clarity and reasoning behind choices, completeness and appropriateness of discussion.

Due date:
> Week 12 during lecture

Remarks:
> Please refer to Moodle for a detailed description of expectations for this assignment.

- ## Assessment task 3

Title:
> Lecture and Forum Participation

Description:
> In the lecture time, students will create written feedback related to each of the weekly presentations done by students and post the feedback on the Moodle forums.

Weighting:
> 15%

Criteria for assessment:
> Clarity and appropriateness of feedback.

Due date:
> Weekly, due before midnight each Wednesday, from Week 2 to Week 11

Remarks:
> Please refer to Moodle for a detailed description of expectations for this assignment.

- ## Assessment task 4

Title:
> Assignment (Game Creation)

Description:
> Students will design and create a working game and a reflective document describing their thoughts on the game engine chosen for this task. As part of this assignment, students will create a document describing their game (due week 5, worth 5%), create a working prototype with completed key gameplay (due week 12, worth 5%), then submit a complete game (worth 30%) and reflection document (worth 5%) in week 15.

Weighting:
> 45% (5% for project plan, 5% for milestone completion, 30% for game, 5% for reflective document)

Criteria for assessment:
> For the project plan, (worth 5%): completeness, clarity and appropriateness of description of the project.
>
> For the prototype (worth 5%): completeness of key gameplay elements of the game.
>
> For the game (worth 30%): completeness, originality and technical (programming, design, art, etc) skills shown.
>
> For the reflective document (worth 5%): clarity of discussion, depth, range and appropriateness of discussed elements.

Due date:
> Document describing game (due week 5, worth 5%), working prototype with completed key gameplay (due week 12, worth 5%), complete game (worth 30%), reflection document (worth 5%) in week 15.

Remarks:
> Please refer to Moodle for a detailed description of expectations for this assignment.

Learning resources

Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Faculty of Information Technology Style Guide

Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see
http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html

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

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

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.monash.edu.au/exams/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.

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz). Please note that it is your responsibility to retain copies of your assessments.

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Other Information

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: www.policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures ; http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.h
- Assessment in Coursework Programs; http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration; http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.ht
- 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/dates/
- Orientation and Transition; http://intranet.monash.edu.au/infotech/resources/students/orientation/
- Academic and Administrative Complaints and Grievances Policy; http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.h

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.h

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

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 http://www.monash.edu.au/students. For Malaysia see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Malaysia, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Disability Liaison Unit

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://www.monash.edu/equity-diversity/disability/index.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus