Faculty of Engineering & Built Environment

School of Electrical Engineering and Computing

INFT3960: Games Production

Callaghan

Semester 2 - 2020

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

COURSE OUTLINE

OVERVIEW

Course Description

Building on prior programming knowledge, students will use available game engine technology to construct the operating elements of a game design. This course examines the techniques used in bringing a game to the point of distribution and transforming a design into a reality. Students will also come to experience and understand the relevance of other implementation issues such as physics engines, rendering tools, audio components, and the integration of the output from the art production tools used to create the game objects, world elements and backgrounds.

Assumed Knowledge

SENG1110 Object Oriented Programming OR INFT1004 Introduction to Programming

Students are expected to have at least a basic level of computer programming skills as well as basic computer literacy. This will include basic competency with the use of Interactive Development Environment and 'Office' style applications (word processing, presentation and spreadsheet), graphics production tools and internet/web browsers.

Contact Hours

Computer Lab
Face to Face On Campus
2 hour(s) per Week for Full Term

Lecture
Face to Face On Campus
2 hour(s) per Week for Full Term

Unit Weighting
10

Workload
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator **Callaghan**
Dr Keith Nesbitt
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Consultation: Please email for a consultation time

Teaching Staff Nathan Moore

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ICT307
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8:30am to 4:30pm (Monday to Friday) AEST

SYLLABUS

Course Content

Topics will be selected from:

- Fundamentals of computer game production
- 2D and 3D graphics
- Software development processes
- Integration of computer imagery
- 3D model generation
- Interface design
- Production design
- Game genres and themes
- Computer games production cycle
- Development tools for computer games
- Game engines

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. State the objectives and define the design requirements for a computer game

2. Implement a game based on design requirements

3. Compare and contrast the different technologies used in game development

4. Explain the impact of different development tools and key technologies that may be used in game development

5. Integrate and use existing development tools in the construction of an original computer game

6. Recognise and follow the keys phases of computer game development.

Course Materials

Required Reading:

- Introduction to Game Design, Prototyping, and Development: From Concept to Playable Game with Unity and C#, by Jeremy Gibson (Author).
  Publisher: Addison-Wesley Profession; 2nd ed (2017)

Required Text:

- Introduction to Game Development, by Steve Rabin (Editor)
  Publisher: Charles River Media; 2 edition (1 June 2009)

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

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Course Assessment Requirements:

- Assessment 2 - Formal Examination: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade which will show as FF on their formal transcript.
  However, students in this position who have scored at least 25% in the compulsory assessment item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item.

Pre-Placement Requirements:

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SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	3 Aug	Course Overview Design Process	Mod 1.1, Mod 1.2	
2	10 Aug	Unity3D Introduction Introduction C# Variables and Components Hello World	Mod 2.1, Mod 2.2, Mod 2.3, Mod 2.4	
3	17 Aug	Booleans Loops Lists and Arrays	Mod 3.1, Mod 3.2, Mod 3.3	11pm - 21 August 2020
4	24 Aug	Functions and Parameters Debugging	Mod 4.1, Mod 4.2	
5	31 Aug	Classes Object Oriented	Mod 5.1, Mod 5.2	
6	7 Sep	Agile Processes Risks and Prototypes Testing	Mod 6.1, Mod 6.2, Mod 6.3	
7	14 Sep	Puzzles Guiding the Player	Mod 1.1, Mod 1.2	11pm - 18 September 2020
8	21 Sep	Game Physics	Mod 2.1, Mod 2.2, Mod 2.3, Mod 2.4	
Mid-semester break				
Mid-semester break				
9	12 Oct	AI for Games	Mod 9.1	
10	19 Oct	Game Interface Storytelling in Games	Mod 10.1, Mod 10.2	
11	26 Oct	Graphics Pipeline Animation in Games	Mod 11.1, Mod 11.2	
12	2 Nov	Networked Games Course Review and Exam	Mod 12.1, Mod 12.2	11 pm - 1 November 2020
13	9 Nov	No Lecture		
Formal Examination Period				
Formal Examination Period				

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assignment 1 Game Design Report	11pm - 21 August 2020	Individual	10%	1
2	Final Exam*	Formal Exam Period	Individual	40%	1, 3, 4, 5
3	Assignment 2 - First Game Challenge Prototype	11pm - 18 September 2020	Individual	20%	2, 5
4	Assignment 3 - Final Game Prototype	11 pm - 1 November 2020	Individual	30%	2, 5, 6

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Assignment 1 Game Design Report

Assessment Type Report
Description Review of an existing game and presentation
Weighting 10%
Due Date 11pm - 21 August 2020
Submission Method In Class
Online
Digital Submission through Blackboard Assessment Link / Presentation in class
Assessment Criteria Effective and efficient response to the project brief. Degree of effort.
See Blackboard
Return Method In Class
Online
Feedback Provided In Class.

Assessment 2 - Final Exam

Assessment Type Formal Examination
Description Formal written exam in the formal exam period at end of semester
Weighting 40%
Compulsory Requirements Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course.
Due Date Formal Exam Period
Submission Method Formal Exam
Assessment Criteria See Blackboard
Return Method Not Returned
Feedback Provided No Feedback.
Opportunity to Reattempt Students WILL be given the opportunity to reattempt this assessment.
Refer to course outline for details.

Assessment 3 - Assignment 2 - First Game Challenge Prototype

Assessment Type Project
Description Character Movement Demo - First Game Challenge Prototype and Presentation/Demonstration
Weighting 20%
Due Date 11pm - 18 September 2020
Submission Method In Class

	Online Digital Submission through Blackboard Assessment Link / Presentation in class
Assessment Criteria	Degree of effort evident in implementation and testing of the game. Individuality and originality Look and feel of the game world (aesthetic quality). Evidence of applied project management skills and good programming practices. Effective and efficient response to the project brief. Presentation, structure and communication of report and demo material. See Blackboard
Return Method	In Class Online
Feedback Provided	In Class.

Assessment 4 - Assignment 3 - Final Game Prototype

Assessment Type	Project
Description	Final Game Prototype and Presentation/Demonstration
Weighting	30%
Due Date	11 pm - 1 November 2020
Submission Method	In Class Online
Assessment Criteria	Degree of effort evident in implementation and testing of the game. Individuality and originality Look and feel of the game world (aesthetic quality). Evidence of applied project management skills and good programming practices. Effective and efficient response to the project brief. Presentation, structure and communication of report and demo material. See Blackboard
Return Method	In Class Online
Feedback Provided	Online.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:

- Computer Lab (Method of recording)
- Lecture (Method of recording:)

Communication Methods

Communication methods used in this course include:

- Blackboard Course Site: Students will receive communications via the posting of content or announcements on the Blackboard course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse Circumstances

You are entitled to apply for special consideration because adverse circumstances have had an impact on your performance in an assessment item. This includes applying for an extension of time to complete an assessment item. Prior to applying you must refer to the Adverse Circumstances Affecting Assessment Items Procedure, available at https://policies.newcastle.edu.au/document/view-current.php?id=236. All applications for Adverse Circumstances must be lodged via the online Adverse Circumstances system, along with supporting documentation.

Important Policy Information

The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

	University of Newcastle Information Technology Graduate Profile Statements	Taught	Practised	Assessed	Level of Capability
1	Demonstrate a comprehensive understanding of the discipline of information technologies with an emphasis on net-centric applications, information management, and user requirements for ethical professional practice.				
2	Apply critical reasoning and systems thinking to understand and support the operation and constraints of contemporary enterprises and their dynamic environment.				
3	Work independently and collaboratively to locate, manage and organise information and resources and apply evidence-based methodologies to create, modify and maintain designs and design solutions.	X	X	X	3
4	Use creativity, problem solving skills, project management skills and technical expertise to analyse, interpret, evaluate and generate solutions to complex technical and organisational problems.	X	X	X	3
5	Demonstrate professional judgement and responsibility by communicating information technology principles, practices, standards to specialist and non-specialist audience clearly and persuasively.	X	X	X	3

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.