School of Information and Physical Sciences

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	**Callaghan** **Computer Lab** Face to Face On Campus 2 hour(s) per Week for 11 Weeks starting Week 2 **Lecture** Face to Face On Campus 2 hour(s) per Week for 12 Weeks starting Week 1
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 Khaled Saleh
Khaled.Saleh@newcastle.edu.au
Consultation: Please see the course Canvas site for my contact hours for this course.

Teaching Staff   Please see the course Canvas site for details.

School Office   **School of Information and Physical Sciences**
SR233, Social Sciences Building
Callaghan
CESE-SIPS-Admin@newcastle.edu.au
+61 2 4921 5513
9am-5pm (Mon-Fri)

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   **Recommended Text:**
- Bond (2017). Introduction to Game Design, Prototyping, and Development, 2nd Edition. Addison-Wesley Professional: ISBN-13: 9780134659862
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:
- -

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:
- -

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Course Overview Design Process	Mod 1.1, Mod 1.2	
2	24 Jul	Unity3D Introduction Introduction C# Variables and Components Hello World	Mod 2.1, Mod 2.2, Mod 2.3, Mod 2.4	
3	31 Jul	Booleans Loops Lists and Arrays	Mod 3.1, Mod 3.2, Mod 3.3	Assignment 1
4	7 Aug	Functions and Parameters Debugging	Mod 4.1, Mod 4.2	
5	14 Aug	Classes Object Oriented	Mod 5.1, Mod 5.2	
6	21 Aug	Agile Processes Risks and Prototypes Testing	Mod 6.1, Mod 6.2, Mod 6.3	
7	28 Aug	Puzzles Guiding the Player	Mod 1.1, Mod 1.2	Assignment 2
8	4 Sep	Game Physics	Mod 2.1, Mod 2.2, Mod 2.3, Mod 2.4	
9	11 Sep	AI for Games	Mod 9.1	
10	18 Sep	Game Interface Storytelling in Games	Mod 10.1, Mod 10.2	
		Mid Term Break		
		Mid Term Break		
11	9 Oct	Graphics Pipeline Animation in Games	Mod 11.1, Mod 11.2	
12	16 Oct	Networked Games Course Review and Exam	Mod 12.1, Mod 12.2	Assignment 3
13	23 Oct	No Lecture		
		Examination Period		
		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	6 August 2023, 23:59	Individual	10%	1
2	Final Exam*	Formal Exam period	Individual	40%	1, 3, 4, 5
3	Assignment 2 - First Game Challenge Prototype	3 September 2023, 23:59	Individual	20%	2, 5
4	Assignment 3 - Final Game Prototype	22 October 2023, 23:59	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
Purpose	Produce a short initial Game Design document
Description	In this assessment, you will prepare a game evaluation and an initial game design. This will include the review of an existing game, as well as a game "pitch" for your own game design. A report template will be provided via the course Canvas site and this must be submitted as a PDF document.
Weighting	10%
Due Date	6 August 2023, 23:59
Submission Method	Online
	Online
Assessment Criteria	Effective and efficient response to the project brief. Degree of effort.
	See Assignment description on Canvas for details
Return Method	Online
Feedback Provided	Online - Feedback will be provided via Canvas.

Assessment 2 - Final Exam

Assessment Type	Formal Examination
Purpose	To test knowledge in theory and practice of game production
Description	Formal online 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.
Length	2 hrs
Due Date	Formal Exam period
Submission Method	
	Formal Exam
Assessment Criteria	
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

Purpose	To produce a first working game prototype that meets specifications.
Description	This assessment will involve students presenting their first game prototype. The prototype will include a Character Movement Demo. Demonstrations will be held via presentations in your assigned lab class. Demonstrations will also include a PowerPoint (or similar) presentation, and the slides must be submitted as a PDF to Canvas by the due date.
Weighting	20%
Due Date	3 September 2023, 23:59
Submission Method	Online In Class Digital Submission through Canvas Assessment Link / Presentation in lab 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 Canvas.
Return Method	Online
Feedback Provided	Online - .

Assessment 4 - Assignment 3 - Final Game Prototype

Assessment Type	Project
Purpose	Produce a final working game that meets specifications
Description	Final Game Prototype report and Presentation/Demonstration. For this assessment, you will complete a report on your final game prototype using the template provided on the course Canvas site. You will also demonstrate your working prototype in your scheduled lab class.
Weighting	30%
Due Date	22 October 2023, 23:59
Submission Method	Online In Class Digital Submission through Canvas Assessment Link / Presentation in lab 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 the course Canvas site.
Return Method	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).

Communication Methods	Communication methods used in this course include: - Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas 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.
Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.
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	The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where: 1. the assessment item is a major assessment item; or 2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system; 3. you are requesting a change of placement; or 4. the course has a compulsory attendance requirement. Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236
Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.

GRADUATE PROFILE STATEMENTS

The following table illustrates how this course contributes towards building the skills students will need to work in their

profession.

Level of capability
- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

Bachelor of Information Technology

	University of Newcastle Bachelor of Information Technology Graduate Profile Statement	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