Course Outline

Federation UNIVERSITY·AUSTRALIA

Title:	COMPUTER GAME ENGINES
Code:	ITECH3206
Formerly:	CP764
Faculty / Portfolio:	Faculty of Science

Program Level:

	AQF Level of Program					
	5	**6**	**7**	**8**	**9**	**10**
Level						
Introductory						
Intermediate						
Advanced			✔			

Pre-requisites:	(ITECH2100 and ITECH3221)
Co-requisites:	Nil
Exclusions:	(CP764)
Progress Units:	15
ASCED Code:	029999

Learning Outcomes:

Knowledge:

K1. Describe the role of a game engine and programmer in the creation of a computer game;

K2. Illustrate and outline the issues involved in working in a creative environment;

K3. Describe the architecture and components of a computer game engine;

K4. Identify and discuss the fundamental theoretical concepts relating to computer game engines;

K5. Critically compare the technical and creative merits of computer game engines;

K6. Discuss the operation and data structures of an existing computer game engine.

Skills:

S1. Manipulate assets, settings and code in an existing computer game engine in the creation of a computer game;

S2. Modify code bases of an existing computer game engine;

S3. Demonstrate the operation and manipulation of an interface and data structures within an existing computer game engine;

S4. Interpret requirements and manipulate components in the creation of interactive user interfaces;

S5. Analyse and abstract design problems in the construction of efficient and creative user experiences.

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Application of knowledge and skills:

A1. Initiative and autonomy in adapting assets, settings and an existing game engine to creatively meet game design objectives.

Values and Graduate Attributes:

Values:

V1. Appreciate the place and responsibility of game development to influence the modern society.

Graduate Attributes:

Attribute	Brief Description	Focus
Continuous Learning	Concepts learnt in this course enable students to interpret, compare and use different game engine architectures and features, such that they can understand and select from new developments as they are invented in the future.	High
Self Reliance	Students will demonstrate their ability to show initiative and autonomy to modify and adapt algorithms, data structures, of existing game engines so they can be applied in new and creative ways.	High
Engaged Citizenship	This course discusses games and their place and influence on the modern society.	Low
Social Responsibility	This course discusses games and their place and influence on the modern society.	Low

Content:

Topics may include:

- Computer game engine architecture;
- Representation of graphics objects;
- Animation;
- Physics simulation;
- User input;
- Artificial intelligence for games;
- Real-time graphics effects.

Assessment:

Assessment for this course will be based on a number of tasks including practical assignments, laboratory exercises covering the creation and editing of multimedia assets, and an end of semester examination covering theoretical aspects of the course.

Learning Outcomes Assessed	Assessment Task	Assessment Type	Weighting
K1 - 6	Examination questions covering a range of programming constructs, algorithms, data structures, mathematics and physics theories and issues in relation to the creation and utilization of a computer game engine.	Examination(s)	40% - 60%

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S1 - 5, A1	Practice assignments where students will utilize initiative and autonomy in applying advanced skills in creatively manipulating assets, data structures, settings and code to create interactive computer games.	Assignments	40% - 60%

Adopted Reference Style:

APA

Presentation of Academic Work:

https://federation.edu.au/students/assistance-support-and-services/academic-support/general-guide-for-the-presentation-of-academic-work