

Liverpool John Moores University

Title: ADVANCED COMPUTER GAMES PROGRAMMING & WORKSHOP
Status: Definitive
Code: **6024COMP** (103008)
Version Start Date: 01-08-2011

Owning School/Faculty: Computing and Mathematical Sciences
Teaching School/Faculty: Computing and Mathematical Sciences

Team	Leader
Sud Sudirman	Y

Academic Level: FHEQ6 **Credit Value:** 24.00 **Total Delivered Hours:** 72.00
Total Learning Hours: 240 **Private Study:** 168

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24.000
Practical	36.000
Tutorial	12.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Report one	50.0	
Report	AS2	Report two	50.0	

Aims

*To develop the student's skills and expertise in developing computer games
To introduce advanced techniques and platforms (API) and hardware applicable to game development
To examine current gaming hardware
To examine the role of application programming interfaces (APIs) applicable to modern game development.*

To expose the students to the process, and techniques of creating advanced computer/video games under simulated conditions of a real-world video game software development company.

Learning Outcomes

After completing the module the student should be able to:

- 1 Develop advanced techniques applicable to games software.
- 2 Use an appropriate API (DirectX, OpenGL, etc...) to implement a particular aspect of computer games development.
- 3 Define a game concept and negotiate the resources, milestones and deadlines with the tutor.
- 4 Apply Software Development Methodologies to game development.
- 5 Use appropriate Platform (PC or Console) to develop games, using rapid prototyping and long term and large development.
- 6 Write documentation for complete process of game development.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Report 1	1	2	6			
Report 2	2	3	4	5	6	

Outline Syllabus

A large part of this course is workshop based. Sessions will involve the design and development of a large piece of software developed through group-work, supported by lectures on the following subject:

Reviewing basic games techniques: the game loop, game engines, etc.

Presentation of Game APIs, e.g. DirectX

Game Engine Architecture and Components

Windows Game Programming and DirectX

Programming techniques for games using DirectX: animation, sprites, collision detection, physics. GUI programming for games , Tile-based graphics, Sprites & bitmap animation, Collision detection, Page & side scrolling algorithms, Differing game types, modes, & perspectives, Rapid prototyping & game testing, Game project management, Game design documentation ,Game input devices, Artificial Intelligence in games, Physics based modeling, Optimisation techniques.

Learning Activities

Lectures will be accompanied by hands-on practical laboratory sessions. Directed reading (Internet based) will be used to supplement course material.

Practical use of Software engineering techniques, game APIs and programming language, in game development for individual and team-based assignments.

References

Course Material	Book
Author	Harbour, J.S.
Publishing Year	2006
Title	Beginning Game Programming
Subtitle	
Edition	2nd Edition
Publisher	Course Technology PTR
ISBN	1598632884

Course Material	Book
Author	Hight, J., Novak, J.
Publishing Year	2007
Title	Game Development Essentials: Game Project Management
Subtitle	
Edition	
Publisher	CENGAGE Delmar Learning
ISBN	1418015415

Course Material	Book
Author	Rucker, R.
Publishing Year	2003
Title	Software Engineering and Computer Games
Subtitle	
Edition	
Publisher	Addison Wesley
ISBN	0201767910

Course Material	Book
Author	DeLoura, M.
Publishing Year	2000
Title	Game Programming Gems
Subtitle	
Edition	
Publisher	Charles River Media
ISBN	1584500492

Course Material	Book
Author	DeLoura, M.
Publishing Year	2001
Title	Game Programming Gems 2
Subtitle	

Edition	
Publisher	Charles River Media
ISBN	1584500549

Course Material	Book
Author	Treglia, D.
Publishing Year	2002
Title	Game Programming Gems 3
Subtitle	
Edition	
Publisher	Charles River Media
ISBN	1584502339

Course Material	Book
Author	Sinan Si Alhir
Publishing Year	1998
Title	UML in a Nutshell
Subtitle	
Edition	
Publisher	O'Reilly and Assoc
ISBN	1565924487

Course Material	Book
Author	Lamothe, A.
Publishing Year	2002
Title	Tricks of the Windows Games Programming Gurus
Subtitle	
Edition	2nd Edition
Publisher	SAMS
ISBN	0672323699

Notes

The main objective of this course is to expose the students to the process and techniques of creating advanced computer/video games under simulated conditions of a real-world video game software development company.