

Module code: MOD004123	Version: 1 Date Amended: 21/Jan/2014
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1. Module Title
Analytical Techniques for Game Developers

2a. Module Leader
Shabnam Sadeghi Esfahlani

2b. Department
Department of Computing and Technology

2c. Faculty
Faculty of Science and Technology

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc (Hons) Computer Gaming Technology		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Game developers regularly face unique challenges in implementing their chosen game mechanics. Many of these challenges cannot be met using existing capabilities within a game engine and must be implemented from first principles. These game mechanics can range from 2D or 3D spatial operations, solving complicated combat or logical equations, and calculating trajectories as examples. Without the knowledge of fundamental mathematical concepts, game developers will be limited in the type of mechanics they can implement and therefore the complexity of their games. This module will help students to assess their existing analytical and mathematical skills and sympathetically enable them to remedy any basic deficiencies. It will then develop the core mathematical skills needed for successful study on the BSc (Hons) Computer Gaming Technology degree. This module will also introduce students to key mathematical techniques which help game developers analyse and solve practical challenges in game development. It will provide a solid background in relevant basic techniques while also providing an environment in which to solve typical game development problems. The module will be assessed by two in-class tests.

6b. Outline Content

- Functions
- Geometry & Trigonometry
- Quadratics
- Algebra
- Vectors
- Matrix Algebra

6c. Key Texts/Literature

The reading list to support this module is available at: <http://readinglists.anglia.ac.uk/modules/mod004123>

6d. Specialist Learning Resources

Students will have access to a specialist game development lab, with the latest industry standard game development tools such as the Unreal Engine, Cry Engine, Unity 3D, 3D Studio Max, C# programming tools. Access to the internet and Anglia Ruskin University VLE are provided. Access to the Library search services will also be an important resource.

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Understand the basic techniques of elementary mathematics.
2	Knowledge and Understanding	Know how to express and manipulate relationships in mathematical form.
3	Intellectual, practical, affective and transferrable skills	Identify appropriate mathematical techniques which can be used to solve a variety of practical game development problems.
4	Intellectual, practical, affective and transferrable skills	Apply mathematical methods to a variety of practical game development problems.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2017/8	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	12	1-2	Each week for 12 weeks, a lecture or tutorial will be provided for 1 hr
Other teacher managed learning	24	3-4	2hr Workshops will be provided each week for 12 weeks, to offer support for the topics being covered
Student managed learning	114	1,2,3,4	9.5 hours each week for 12 weeks
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Practical	1,2,3,4	40 (%)	Fine Grade	30 (%)
In-Class test 1hr					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Practical	1,2,3,4	60 (%)	Fine Grade	30 (%)
In-Class test 1.5hr					

**In order to pass this module, students are required to achieve an overall mark of 40%.
 In addition, students are required to:**

(a) achieve the qualifying mark for each element of fine graded assessment of as specified above
(b) pass any pass/fail elements