

ATTACHMENT 5.

Kingdom of Saudi Arabia
The National Commission for Academic Accreditation &
Assessment

T6. Course Specifications
(CS)

Course Specifications

Institution Umm Al Qura University	Date 14-April-2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014108-3 Game Programming			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year/ Level 9 or 10			
6. Pre-requisites for this course (if any) 14012501-3 Computer Graphics 14013701-4 Artificial Intelligence			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

B Objectives

1. What is the main purpose for this course?

The main purpose of this course is to give the student thorough insight into game development from a programmers point of view. This includes the processes, mechanics, issues in game design, game engine development, build systems that employ common approaches to game AI, game physics, and game graphics.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

In addition to conventional graphics programming we introduced software used in the industry such as Blender, Corona SDK, Unity, etc.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

The aim of this course is to design and develop a computer game. Topics include game design, game mechanics, game strategies, game engine, UI design, 3D modeling, computer animation, graphics algorithms, and artificial intelligence. Project is an important component of this course. Students will work in small teams to design and develop an interactive and real-time three-dimensional game with multimedia elements such as animation, audio, video, etc. The course assumes that students have proficient programming skills in computer graphics (preferably in C++) and sufficient knowledge of user interface design.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Game Programming and Game Engine	3	2
Game Mechanics	3	2
Game Strategies	3	2
UI Design	2	2
3D Modeling and Animation	2	2
AI for Games	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit	2	1				3

3. Additional private study/learning hours expected for students per week.	3
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy			
On the table below are the five NQF Learning Domains, numbered in the left column.			
<p>First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). Second, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. Third, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)</p>			
Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	The students will be able to understand the common approaches to game AI, game physics, game graphics, and game engine.	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.2	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.3	The students will be able to efficiently use the power and resources of game hardware platforms and game engines	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
2.0	Cognitive Skills		

2.1			
2.2			
3.0	Interpersonal Skills & Responsibility		
3.1			
3.2			
4.0	Communication, Information Technology, Numerical		
4.1	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	lectures, labs, Q &A, online resources	A combination of quizzes, exams, assignments, projects, etc.
4.2			
5.0	Psychomotor		
5.1	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	Lab. demonstrations Co-operative learning	Lab. exams In-lab. evaluation
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)											
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	4.1	4.2	5.1
1.1			I	I								
1.2	I	I	I	I				P			I	
1.3	I			P								
4.1			I	I								
5.1												I

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance & class participation	1-15	5%

2	Quiz 1	3	10%
3	Quiz 2	5	10%
4	Labs	2-13	10%
5	Midterm	7	20%
6	Group Project	8	10%
7	Final exam	16	35%
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Faculty member has at least 6 hours per week. In addition to that appointment by email is also available.

E Learning Resources

1. List Required Textbooks

Game Coding Complete by Mike McShaffry and David Graham (latest edition)

Programming Game AI By Example by Mat Buckland (latest edition)

2. List Essential References Materials (Journals, Reports, etc.)

Mathematics for 3D Game Programming and Computer Graphics by Eric Lengyel (latest edition)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

Game Programming Patterns by Robert Nystrom

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

<http://www.gdmag.com/>

<http://gamasutra.com>

<http://www.rit.edu/gccis/gameeducationjournal/>

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

OpenGL API
Java 2D and 3D API
Blender Software

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

Lecture room (max 30 students)

Computer lab (max 15 students)

2. Computing resources (AV, data show, Smart Board, software, etc.)

C++ and Java Development Environments APIs and IDEs

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

No

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

Student Survey

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and course committee to review the course effectiveness.

Name of Instructor: Murtaza Ali Khan

Signature: Murtaza Ali Khan Date Report Completed: 15-April-2016

Name of Course Instructor Murtaza Ali Khan

Program Coordinator: _____

Signature: _____ Date Received: _____

