



## Course Specifications

<b>Course Title:</b>	Game Design and Programming
<b>Course Code:</b>	501528-3
<b>Program:</b>	Bachelor in Computer Science
<b>Department:</b>	Department of Computer Science
<b>College:</b>	College of Computers and Information Technologies
<b>Institution:</b>	Taif University

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## A. Course Identification

<b>1. Credit hours:</b> 3
<b>2. Course type</b> <b>a.</b> University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> <b>b.</b> Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 14/5
<b>4. Pre-requisites for this course (if any):</b> 501435-3
<b>5. Co-requisites for this course (if any):</b> None

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	40

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b>            Introduce the current and future technologies for the game design and development. Topics may include game technologies, game programming, game psychology, game genres, game engine architectures, and tools for game design, development, and production.</p>
<p><b>2. Course Main Objective</b>            Students at the end of this course will be able to:</p> <ul style="list-style-type: none"> <li>• Understand the basic history and genres of games.</li> <li>• Demonstrate an understanding of the overall game design process.</li> <li>• Explain the design trade-offs inherent in game design.</li> <li>• Design and implement basic levels, models, and scripts for games.</li> </ul>

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Demonstrate an understanding of the basic history, genres, and motivation of games.	K1
1.2	Explain the process of game design, platforms, and game development environments.	K1
1.3		
2	<b>Skills :</b>	
2.1	Use the mathematics and algorithms needed for game programming.	S1
2.2	Design and implement basic levels, models, and scripts for games.	S2
3	<b>Values:</b>	
3.1	Work in a team to design and implement a complete two-dimension or three-dimensional video game.	V3

### C. Course Content

No	List of Topics	Contact Hours
1	History of games	2
2	Motivation and genre of games	3
3	Effects of games on people	1
4	Game design and development team and processes	2
4	Mathematics, physics and AI algorithms for games	5
5	Game general programming structure	3
6	Game engine design	3
7	Design a specific game	3
8	Creating game interface for the selected game	6
9	Prototype building for the selected game	9
10	Sprites drawing and animation for the specific game	3
<b>Total</b>		<b>40</b>

### D. Teaching and Assessment

#### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	<b>Knowledge and Understanding</b>		
1.1	Demonstrate an understanding of the basic history, genres and motivation of games.	Lectures, Project	<b>Direct Assessment</b> <b>Tool:</b> Quizzes/ Exams Homework/ Project/ <b>Indirect Assessment</b> <b>Tool:</b> Course Exit Survey
1.2	Explain the process of game design, platforms and game development environments.	Lectures, Project	<b>Direct Assessment</b> <b>Tool:</b> Quizzes/Exams/ Homework/Project/ <b>Indirect Assessment</b> <b>Tool:</b> Course Exit Survey

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	<b>Skills</b>		
2.1	Use the mathematics and algorithms needed for game programming.	Lectures, Project	<b>Direct Assessment Tool:</b> Quizzes/ Exams Homework/ Project/ <b>Indirect Assessment Tool:</b> Course Exit Survey
2.2	Design and implement basic levels, models, and scripts for games.	Lectures, Project	<b>Direct Assessment Tool:</b> Quizzes/ Exams Homework/Project/ <b>Indirect Assessment Tool:</b> Course Exit Survey
3.0	<b>Values</b>		
3.1	Work in a group to design and implement a complete two-dimension or three-dimensional video game.	Lectures, Project	<b>Direct Assessment Tool:</b> Quizzes/ Exams Homework/Project/ <b>Indirect Assessment Tool:</b> Course Exit Survey
3.2			

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Home Works/ Student Participation	Alt. Week	10%
2	Project	Week 3 -10	20%
3	Quizzes	Week 4 & 9	10%
4	Mid-Term	Week 6	20%
5	Final Examination	Week 12	40%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:**

- 6 hours per week in pre-determined office hours
- Consultation by appointment (as needed)
- Through emails
- Through BlackBoard Learn

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Introduction to Game Development by Steve Rabin, copyright Charles River Media Incorporated, 2 <sup>nd</sup> Edition, 2009. ISBN 9781584506799.
<b>Essential References Materials</b>	Game Architecture and Design: A new Edition, Andrew Rollings and Dave Morris, Publisher New Riders Publishing, 1st Edition, 2003, ISBN978-0735713635

<b>Electronic Materials</b>	Black board (LMS)
<b>Other Learning Materials</b>	Unity website: <a href="https://unity.com/">https://unity.com/</a>

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> <li>Classroom with 25 chairs</li> <li>Lab with 15 PCs and required software tools installed</li> </ul>
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> <li>Video projector / data show</li> <li>White board</li> </ul>
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	Deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	<ul style="list-style-type: none"> <li>Review CAF (Course assessment file)</li> <li>Alumni surveys.</li> </ul> Periodic exchange and remarking of tests or a sample of assignments with staff at another

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	CS council
<b>Reference No.</b>	Meeting #12
<b>Date</b>	23-10-1443

