



COURSE DESCRIPTION FORM: Game Design and Development

INSTITUTION FAST School of Computing, National University of Computer and Emerging Sciences, Islamabad Campus

PROGRAM(s) TO BE EVALUATED BS-SE: Fall-2024

Course Description

Course Code	CS-4046																
Course Title	Game Design and Development																
Credit Hours	3																
Course Instructors	Bilal Khalid Dar																
Grading Policy	Absolute Grading																
Policy about missed assessment items in the course	Retake of missed assessment items (other than sessional/ final exam) will not be held. Student who misses an assessment item (other than sessional / final exam) is awarded zero marks in that assessment item i.e., late submission will not be accepted. For missed sessional/ final exam, exam retake/ pretake application along with necessary evidence are required to be submitted to the department secretary. The examination assessment and retake committee decides the exam retake/ pretake cases.																
Course Plagiarism Policy	Plagiarism in project or sessional/ final exam will result in F grade in the course. Plagiarism in an assignment will result in zero marks in the whole assignments category.																
Prerequisites by Course(s) or Topics	Data Structures																
Assessment Instruments with Weights (homework, quizzes, sessional exams, final exam, assignments, etc.)	Assessment with the weight. <table border="1"><thead><tr><th>Assessment Type</th><th>Weight</th></tr></thead><tbody><tr><td>Class Participation</td><td>03</td></tr><tr><td>Quizzes</td><td>12</td></tr><tr><td>Project</td><td>15</td></tr><tr><td>Assignments</td><td>10</td></tr><tr><td>Sessional Exams 1</td><td>12.5</td></tr><tr><td>Sessional Exams 2</td><td>12.5</td></tr><tr><td>Final Exam</td><td>35</td></tr></tbody></table>	Assessment Type	Weight	Class Participation	03	Quizzes	12	Project	15	Assignments	10	Sessional Exams 1	12.5	Sessional Exams 2	12.5	Final Exam	35
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Course Coordinator	Bilal Khalid Dar																
URL (if any)																	
Course Catalog Description	The course focuses on the introduction of digital game development process. It involves students in the process of developing two digital games using Unity 3D Game Engine and C# Scripting Language, while discussing the current practices and industry standards of																



	digital game development scene. Students will be introduced will complete game development pipeline and will produce a completely working 2D or 3D game. The course consists of hybrid lectures/labs where students will see (and give) presentations, discuss, and have time to work on their projects and get feedback from the instructor.																
Textbook(s)	Game Design Theory and Practice, Second Edition, Richard Rousew																
Reference Material	Theory of Fun for Game Design Unity Game Development Essentials, Will Goldstone																
Course Goals	<p>A. Course Learning Outcomes (CLOs)</p> <p>After course completion, the students shall be able to:</p> <ol style="list-style-type: none"> 1. Students will learn the Game Development Process Basics 2. Students will learn different aspects of game development (design, scripting, modelling, animation) and their application in the projects in industry. 3. Students will learn High Level Design Document (HLDD), including a prototype and project plan 4. Learn the basics of using Unity 3D to develop popular game genres along with C# 5. Students will learn to carry out a medium size project from scratch to end along with team management, 6. Students will learn to test their developed games and will learn about play test reports. <p>B. Program Learning Outcomes (PLOs)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; padding: 5px;">PLO 1</td><td style="width: 35%; padding: 5px;">Computing Knowledge</td><td style="width: 50%; padding: 5px;">Apply knowledge of mathematics, natural sciences, computing fundamentals, and a computing specialization to the solution of complex computing problems.</td></tr> <tr> <td style="padding: 5px;">PLO 2</td><td style="padding: 5px;">Problem Analysis</td><td style="padding: 5px;">Identify, formulate, research literature, and analyze complex computational problems, reaching substantiated conclusions using first principles of mathematics, natural sciences, computing, and artificial intelligence.</td></tr> <tr> <td style="padding: 5px;">PLO 3</td><td style="padding: 5px;">Design/Develop Solutions</td><td style="padding: 5px;">Design solutions for complex computing problems and design systems, components, and processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.</td></tr> <tr> <td style="padding: 5px;">PLO 4</td><td style="padding: 5px;">Investigation & Experimentation</td><td style="padding: 5px;">Conduct investigation of complex computing problems using research based knowledge and research based methods</td></tr> <tr> <td style="padding: 5px;">PLO 5</td><td style="padding: 5px;">Modern Tool Usage</td><td style="padding: 5px;">Create, select, and apply appropriate techniques, resources and modern computing and artificial intelligence tools, including</td></tr> </table>		PLO 1	Computing Knowledge	Apply knowledge of mathematics, natural sciences, computing fundamentals, and a computing specialization to the solution of complex computing problems.	PLO 2	Problem Analysis	Identify, formulate, research literature, and analyze complex computational problems, reaching substantiated conclusions using first principles of mathematics, natural sciences, computing, and artificial intelligence.	PLO 3	Design/Develop Solutions	Design solutions for complex computing problems and design systems, components, and processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.	PLO 4	Investigation & Experimentation	Conduct investigation of complex computing problems using research based knowledge and research based methods	PLO 5	Modern Tool Usage	Create, select, and apply appropriate techniques, resources and modern computing and artificial intelligence tools, including
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			prediction and modelling for complex computing problems.
PLO 6	Society Responsibility		Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal, and cultural issues relevant to context of complex computing problems.
PLO 7	Environment and Sustainability		Understand and evaluate sustainability and impact of professional computing and artificial intelligence work in solving complex computing problems.
PLO 8	Ethics		Apply ethical principles and commit to professional ethics and responsibilities and norms of computing and artificial intelligence practice.
PLO 9	Individual and Team Work		Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
PLO 10	Communication		Communicate effectively on complex computing and AI activities with the computing and artificial intelligence community and with society at large.
PLO 11	Project Management and Finance		Demonstrate knowledge and understanding of management principles and economic decision making and apply these to one's own work as a member or a team.
PLO 12	Life Long Learning		Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

C. Mapping of CLOs to PLOs

(CLO: Course Learning Outcome, PLOs: Program Learning Outcomes)

		PLOs											
		1	2	3	4	5	6	7	8	9	10	11	12
CLOs	1			✓	✓								✓
	2	✓	✓	✓		✓				✓			✓
	3	✓	✓	✓		✓			✓		✓		✓
	4			✓			✓						✓
	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



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