

course program form information	CRN	Semester	Theoretical	Practical	Credits	Duration
	14999	0	3	0	3	3 h/week
<b>instructors</b>	Oğuz Orkun Doma <a href="mailto:doma@itu.edu.tr">doma@itu.edu.tr</a> <a href="http://oguzdoma.com/academic">oguzdoma.com/academic</a>					
<b>course description</b>	GAM 516E Serious Games provides an in-depth exploration into the realm of instructional game design, game mechanics, and the principles behind game development, emphasizing the intricacies of designing and developing serious games that serve real-world purposes. Through a blend of theory and practical application, students will not only grasp the fundamentals of gamified learning experiences but will also be equipped to critically evaluate and innovate in the domain of serious games. This course also addresses the broader implications and potentials of such games in various industries, from education and corporate training to safety and regulations.					
<b>course objectives</b>	Upon successful completion of GAM 516E Serious Games, students will be able to: <ul style="list-style-type: none"> <li>• Critically evaluate the principles of game design and programming with a focus on their real-world applications.</li> <li>• Appraise the broader implications, applications, and potential of serious games across different sectors.</li> <li>• Engage with contemporary research on Virtual Reality and video game engine technologies, understanding their potential and limitations.</li> <li>• Innovate in the design and development of serious games, ensuring optimal user experience and engagement.</li> <li>• Analyze the efficacy and potential of serious games as tools for advanced learning, training, and skill acquisition, considering the diverse needs of different audiences.</li> </ul>					
<b>assessment criteria</b>	%20 Two weekly assignments %30 Midterm Project %40 Final Project %10 Attendance and participation					
	Students are required to provide thorough documentation and demonstrations of their project submissions, including screen capture videos, presentations in given formats, design and development documentation, and project files. This documentation will be used for a careful assessment of the quality of the student's work and their understanding of the concepts covered in the course.					
	Formal digital submissions must be made via Ninova, ITU's official CMS. Large files can be submitted by uploading them to cloud platforms (such as Google Drive, OneDrive, Yandex.Disk) and sending links via Ninova. It is important to note that email submissions will not be accepted.					
<b>prerequisites</b>	<ul style="list-style-type: none"> <li>• Basic knowledge of programming concepts (e.g., variables, functions, conditional statements)</li> <li>• Basic knowledge of 3D modeling concepts and software (e.g., Blender, Maya, 3ds Max)</li> <li>• Basic knowledge of graphics editor software (e.g., Photoshop, GIMP)</li> <li>• Basic knowledge of game engines (e.g., Unreal Engine, Unity)</li> </ul>					
<b>computer, software, hardware and lab use</b>	For this course, each student must have access to a computer that meets the following minimum specifications (or better): CPU · Intel Core i5+-7500+, GPU · NVIDIA GeForce GTX 1070+/RTX 2060+, RAM · 12+ GB, and Windows 10 or higher.					
	Students are also recommended to have installed the following software: Unreal Engine 5.2 (with prerequisites), Blender 2.8 or above, PowerPoint and/or InDesign, Notepad++, 7-zip, Adobe Reader or Acrobat, and Audacity.					
<b>course structure</b>	The course will be conducted in online format, using Zoom and Ninova as meeting and CMS platforms. Discord and Ninova will be used for course communications.					
<b>resources</b>	<i>Serious Games: Games That Educate, Train, and Inform</i> – David R. Michael, and Sandra L. Chen, 2005. <i>Persuasive Games: The Expressive Power of Videogames</i> – Ian Bogost, 2007.					

## suggested weekly course plan

WEEKS	GAM 516E SERIOUS GAMES	DATE
1	Introduction and Course Overview	2023-10-05
2	<p><b>Lecture:</b> Introduction to Serious Games</p> <p><b>Reading:</b> <i>From game design elements to gamefulness</i> – Deterding et al., 2011.</p> <p><b>Video:</b> <i>How Video Games Can Level Up the Way You Learn</i> –Kris Alexander on TED, March 2023.</p> <p><b>Assignment I:</b> Analyze a Serious Game (due on W4)</p>	2023-10-12
3	<p><b>Lecture:</b> Introduction to Game Design Documents and One Page</p> <p><b>Discussion:</b> The impact of games on learning and teaching</p> <p><b>Review:</b> Present Assignment I progress</p>	2023-10-19
4	<p><b>Lecture:</b> A Brief History of Computer Graphics, Video Games &amp; Game Engines</p> <p><b>Presentation:</b> Submit and present Assignment I</p> <p><b>Assignment II:</b> Foundational Level Design (due on W6)</p>	2023-10-26
5	<p><b>Lecture:</b> A Brief History of VR &amp; VR Headsets</p> <p><b>Presentation:</b> Present Assignment I (continued)</p> <p><b>Reading:</b> <i>Does Computerized Working Memory Training [...] in Children with ADHD</i> - Prins et al., 2011.</p> <p><b>Reading:</b> How Video Games Are Saving Those Who Served – Wired, October 20, 2020.</p>	2023-11-02
6	<p><b>Lecture:</b> Serious Games for Social Impact</p> <p><b>Presentation:</b> Submit and present Assignment II</p> <p><b>New Assignment: Midterm Project</b> (due on W9)</p> <p><b>Discussion:</b> Implications of using video games as a form of treatment</p>	2023-11-09
7	<p><b>Presentation:</b> Present Assignment II (continued)</p> <p><b>Review:</b> Present Midterm Project progress</p> <p><b>Reading:</b> <i>The Limits and Strengths of Using Digital Games as ‘Empathy Machines’</i> - Farber et al., 2017.</p>	2023-11-16
8	<p><b>Review:</b> Midterm project review (pitch slides, playthrough video, and one page)</p> <p><b>Discussion:</b> How video games can foster understanding? <i>Papers, Please, LiS and This War of Mine.</i></p>	2023-11-23
9	<p><b>Presentation:</b> Submit and present Midterm Project review</p> <p><b>New Assignment: Final Project</b> - Edutainment Game Prototype Development – Introducing the final project and its requirements, Forming groups and brainstorming ideas for the final project</p>	2023-11-30
10	<p><b>Presentation:</b> Present Midterm Project review (continued)</p> <p><b>Reading:</b> <i>Playing for Fun, Training for War</i> – Sparrow et al., 2015.</p> <p><b>Podcast:</b> Call of Duty – Recode Daily by Vox, August 2020.</p>	2023-12-07
11	<p><b>Discussion:</b> Ethical implications of using video games for military recruitment and training</p> <p><b>Review:</b> Final Project – Preliminary design overview</p>	2023-12-14
12	<p><b>Review:</b> Final Project - Development, user experience and performance optimization</p> <p><b>Reading:</b> <i>How Online Gaming Could Enhance Your Career Prospects</i> – Wallinheimo et al., 2021.</p>	2023-12-21
13	<p><b>Review:</b> Final Project – Preparing the prefinal submission presentation and demo preview.</p> <p><b>Discussion:</b> The impacts of online gaming on soft skills and career development</p>	2023-12-28
14	<p><b>Review: Final Project</b> – Prefinal submission</p> <p><b>Presentation:</b> Preliminary presentation (pitch slides, playthrough video, and one page)</p>	2024-01-04
	<i>End of 2023-2024 Fall Term</i>	2024-01-05
	<b>Final Project Submission</b>	TBA
	<b>Presentation</b> and assessment of the Final Project.	
	<i>Announcement of the final grades</i>	2024-01-27