Course Number	CS 487	Course Title	Software Aspects of Game Development
Semester Hours	3	Course Coordinator FA20	Tong Shu

Catalog Description	This course focuses on software implementation and development aspects of game production including: software process, system architecture, frameworks, entity management and interaction design, game design, production and business issues as well as technical foundations in graphics modeling and rendering, collision detection, physics, artificial intelligence, and multiplayer techniques.

Textbooks
SP17

Bond, J. G. (2017). *Introduction to Game Design, Prototyping and Development: From Concept to*

Playable Game with Unity and C#. Addison-Wesley Professional, 2nd Edition. ISBN: 9780134659862.

References

References to Java, OpenGL, JOGL and documentation for other packages such as game engines used in projects. Links to related articles and resources.

Course Learning Outcomes

- To appreciate major components, challenges and approaches in constructing computer games.
- To be able to design and implement computer gaming applications.

Assessment of the Contribution to Student Outcomes
SP20

Outcome →	1	2	3	4	5	6	7
Assessed →	X	X	X	X	X	X	

Prerequisites by Topic

CS 330 with a grade of C or better or graduate standing.

Major Topics Covered in the Course

1. Introduction to video games and game design history, categories, social impact, ratings, associations game design, flow, design representations {6 classes}
2. Software tools & practices: tools, practices/methodologies {4 classes}
3. Game Implementation: graphics foundations/standards/subsystems, I/O devices, architectures and language options, frameworks/engines, entity management, resource management, collision detection and resolution, event handling and user interaction design 2D/3D viewing, onscreen controls, HUD, controlling the process, teams, contracts, postmortems usability/play-testing/Q.A {21classes}
4. Technical foundations and future directions: 2D/3D modeling, transforms and animation textures, lighting, rendering, physics and simulation, artificial intelligence, audio/multimedia, networking/mobile gaming {9 classes}

NOTE: When course is taken as 500-level credit (CS 591 "Special Topics"), there will be additional requirements such as a research project.

Latest Revision: Fall 2020