Computational Thinking in Context: Game Development

CSE 1213

Credit Hours:
4.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture
Lab

Course Description:
Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to develop video games.

Course Goals / Objectives:
- Be competent with using basic constructs provided by high-level imperative programming languages: sequencing, selection, and iteration.
- Be familiar with algorithmic thinking.
- Be familiar with using basic data structure interfaces such as arrays or lists in simple programs.
- Be familiar with procedural composition.
- Be exposed to procedural abstraction by defining new blocks.
- Be familiar with basic terminology, software architecture and concepts of video game development.
- Understand the basic frame loop, sprite movement and graphics of 2D games.
Course Topics:
- Basic concepts of video games
- Introduction to programming for web-based games
- Loops, new definitions, simple controls
- Conditionals, Boolean expressions, advanced controls
- Nested loops, complex control structures
- Sprites, sprite sheets, image and canonical coordinates
- Course project: Breakout game
- Classes and objects
- Course project: 2D scroller

Designation:
Elective