

CPSC 585 - Video Game Programming

Instructors: Nigel Brooke, Marcin Chady, Alexei Pepers, Ben Stephenson
Lectures: Tuesday January 3 - Saturday January 7, 2023, 09:00 - 17:00
Location: ICT 516

Objectives

This course provides an introduction to video game development. Its main objective is to expose the students to the processes and techniques of creating video games. Teams of students will experience a condensed version of the entire video game development process, designing and developing a game from scratch.

Assignments and Grading

- Project 100%
 - Basic Deliverables - 50%
 - Milestone 1 - 10% (*Monday, January 23rd, 2023, 12:00 PST*)
 - High-concept design document
 - Feature list, task estimates and assignments, rough schedule
 - Game application framework
 - Milestone 2 - 15% (*Friday, February 10th, 2023, 12:00 PST*)
 - “Red brick” level rendering
 - Player driving model
 - Some functional gameplay
 - Milestone 3 - 15% (*Monday, March 6th, 2023, 12:00 PST*)
 - First playable
 - Most game rules implemented
 - Functional opponent driving AI
 - Working 3D, audio engine
 - Refined gameplay
 - Milestone 4 - 10% (*Monday, March 27th, 2023, 12:00 PST*)
 - Feature complete
 - Final Product - 50% (*Friday, April 14th, 2023, 12:00 PST*)
 - Wow Factor - up to 10% bonus

Late Policy

10% per day that an assignment is late.

Contact

Nigel: nigel@steamclock.com (Questions about lecture material and assignments)

Marcin: marcin.chady@cdprojektred.com (Questions about lecture material)

Alexei: alexeipepers@gmail.com (Questions about lecture material)

Ben: bdstephe@ucalgary.ca (Questions about course logistics, room access, registration, etc.)

Lecture Outline (Still subject to change)

Day 1: Tuesday, January 3

- 09:00-10:00 Introductions & Course Overview
- 10:00-10:45 Gaming Industry
- 10:45-11:30 Fun
- 11:30-12:00 Game Architecture 1
- 12:00-13:00 LUNCH
- 13:00-14:00 Game Architecture 2
- 14:00-15:00 Gameplay
- 15:00-17:00 *Workshop: Game design brainstorm, pitches*

Day 2: Wednesday, January 4

- 09:00-10:00 Development Languages
- 10:00-11:00 Memory and Game Content
- 11:00-12:00 Graphics 1
- 12:00-13:00 LUNCH
- 13:00-14:00 Graphics 2
- 14:00-15:00 *Workshop: Examining*
- 15:00-17:00 *Workshop: Game design continued*

Day 3: Thursday, January 5

- 09:00-10:00 Physics
- 10:00-11:00 Driving Simulation
- 11:00-12:00 *Workshop: Examining Rocket League*
- 12:00-13:00 LUNCH
- 13:00-14:00 Console Architecture
- 14:00-15:00 Driving AI
- 15:00-16:00 *Workshop: Cyberpunk 2077 Driving*
- 16:00-17:00 *Workshop: Technical design*

Day 4: Friday, January 6

- 09:00-11:00 Real-time Programming
- 11:00-12:00 C++ Pitfalls
- 12:00-13:00 LUNCH
- 13:00-14:00 Networking
- 14:00-15:00 *Workshop: Examining*
- 15:00-16:00 Sound
- 16:00-17:00 *Workshop: Debugging Roundtable (+Project workshop if time permits)*

Day 5: Saturday, January 7

- 09:00-10:00 Procedural Content Generation
- 10:00-11:00 Game Engines
- 11:00-12:00 The Future of the Games Industry
- 12:00-13:00 LUNCH
- 13:00-14:00 *Workshop: Getting a job*
- 14:00-15:00 Project Management
- 15:00-16:00 *Guest lecture*
- 16:00-17:00 Wrap up