Video Game Development

PROGRAM OBJECTIVES

The Video Game Development program offers curriculum designed to support a team approach to game development. This team environment is a 'must have' in the gaming industry. Game creation requires a combination of skills, including programming, scripting, game level planning, and sound design. Our program content provides courses that support all of these skills. Students will have the opportunity to learn, think and respond within a team, by alternating in each varying role.

Portfolio development is also an important part of our program. A well-developed portfolio is a must for employment interviews. Students will complete multiple gaming projects while enrolled in the program: a game prototype, a C++ game, an HTML5 game, a DirectX game, several Unity Games, and several mobile games that will contribute to their portfolios.

CAREER OPPORTUNITIES

Career opportunities for graduates include entry-level employment as Quality Assurance/Game Testers, 2D/3D Game Programmers, Mobile Game Programmers, AI Programmers and Level Designers.

Note: Some career and education options may require advanced degrees, further training or experience.

PREREQUISITES

- High school diploma or equivalent, or mature student status
- Successful completion of an entrance examination

GRADUATION REQUIREMENTS

A student must attain an overall average in each module of at least 70% in order to graduate and receive a diploma. A student must complete all requirements of Student Success Strategies as well as the Field Placement requirements for this program.

PROGRAM OVERVIEW

Course	Hours
Student Success Strategies	20
Software Lab - Computer Fundamentals	40
Video Game Design	80
Math & Physics Fundamentals for Games	80
Digital Media & Portfolios	80
Business & Organization for the Video Game Industry	80
Introduction to Programming for Video Games	80
Prototyping Video Games	80
Game Engines I 2D	80
Game Engines I 3D	80
Game Engines I Project	80
Graphics Programming for Video Games	80
AI & Data Structures for Games	80
Porting & Refactoring Games	80
Asset Creation for Video Games	80
Mobile Video Games I	80
Mobile Video Games II	80
Game Engines II 2D	80
Game Engines II 3D	80
Game Engines II Project	80
Career Planning and Preparation Level I	20
Career Planning and Preparation Level II	20
Video Game Field Placement	16 weeks
TOTAL DURATION	**93 weeks**

NOTE: In order to continuously improve our programs, Eastern College reserves the right to modify programs at any time. Program delivery order may vary depending on program start date. This diploma program may not be available at all campuses.

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COURSE DESCRIPTIONS

Student Success Strategies

In this orientation module, emphasis is placed on thinking about achieving success from Day One. This module stresses the importance of developing non-technical skills to enhance personal, academic, and career success. This includes understanding learning styles and honing practical study skills, such as memory, reading, note-and-test-taking techniques. Personal exercises will focus on teamwork, decision making and problem solving skills, setting SMART goals and maintaining a positive attitude; techniques for managing change, stress and conflict will also be explored.

Software Lab: Computer Fundamentals

Through a combination of theory and hands-on-practice, this module examines the role and use of the computer in today's workplace. Emphasis is placed on those computers outfitted with the Microsoft Windows operating system. Students will review basic computer concepts, Windows OS usage, and complete hands-on training exercises in business-standard software applications, including Microsoft Outlook and Microsoft Word. Keyboarding skills are also honed via daily keyboarding exercises and drills.

Video Game Design

This course introduces students to the historical development of video games and the social and cultural effects video games have on society. An analysis of existing video game mechanics, technical design, documentation, planning and implementation will allow students to approach video game design from a knowledge perspective. Students will generate game design documentation for both existing and their own video games.

Math & Physics Fundamentals for Games

In this course, students will identify key mathematical and physics concepts found in video games. Students will recognize and interpret these concepts as they are applied to video game processes. Students will work through specific math and physics concepts used in most games and game engines.

Digital Media & Portfolios

This course introduces students to the criteria used to identify and evaluate digital and interactive media and related technologies. Focus will be placed on the practices and tools used to create and maintain an online presence and portfolio within the video game industry.

Business & Organization for the Video Game Industry

This course introduces students to the business side of the video game industry and teaches them core concepts for getting and staying organized. Task management and communication skills and tools will ensure that the student has the knowledge required to be effective in their studies and their environments within the video game industry.

Introduction to Programming for Video Games

This course introduces students to programming and various object-oriented problem-solving techniques. Students will identify essential object-oriented terminology and techniques commonly applied to video game development. This course examines the fundamentals of programming and applies those to simple games. This foundation will be built upon in future courses.

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Mobile Video Games I

In this course, students learn how to develop mobile games in Java for use on the Android mobile platform. Students in this course will also work as a team to apply knowledge and skills mastered to develop and optimize a mobile Android video game. Additionally, students will be mentored throughout the process to relay the skills and thought processes necessary to produce commercial quality mobile video games.

Mobile Video Games II

In this course, students will learn how to build 2D games for the Apple iOS platform (iPhone/iPad) using the Apple Swift programming language within the Xcode IDE. Students in this course will also work as a team to apply the knowledge and skills mastered to develop a video game prototype that can be showcased within an online portfolio. Additionally, students will be mentored throughout the process to relay the skills and thought processes necessary to produce commercial quality mobile games for iOS.

Game Engines II 2D

This course will extend students' knowledge of 2D game programming and development using the Unreal game engine and the Blueprints as well as the C++ programming language. Students will learn how to work with the Unreal Engine which will allow them to develop and publish 2D games that can be targeted to multiple platforms including mobile devices.

Game Engines II 3D

This course will extend students' knowledge of the Unreal Engine and 3D game programming for video games. Students will apply their knowledge of the Unreal Engine as they expand into the 3rd dimension while still leveraging blueprints. Mathematics and physics principles learned earlier will be applied to create and publish fully functional 3D games using the Unreal Engine and the C++ Programming language.

Game Engines II Project

Students in this course work as a team to apply knowledge and skills mastered in Video Game Design, Business & Organization, Engines II 2D, and Engines II 3D courses to develop an Unreal video game of choice. Students will be mentored throughout the process to produce commercial quality video games.

Career Planning and Preparation - Level I

This module introduces tools for planning and preparing for a successful job search, so that students can maintain a career-focused approach throughout their education program. Students will learn about the "Hidden" Job Market and ways to access it in their upcoming job search, how to research opportunities and network for industry contacts, and use appropriate etiquette when communicating with prospective employers. Students will identify their personal skills, values and preferences for the workplace, begin preparation of a professional resume and references, and organize proof documents for their career portfolio. Class discussions on various self-management topics introduced in Student Success Strategies will round out this module, which is a pre-requisite for Career Planning and Preparation - Level II.

Career Planning and Preparation - Level II

This module continues to build on the concepts and skills introduced in Career Planning and Preparation - Level I. Students will learn how to conduct an effective job search and identify various methods of applying for work with today's technology. Students will create a personal list of "Top Employers" and target current industry opportunities, while finalizing their professional resume, portfolio and career correspondence. Students will learn to identify the different types

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and forms of interviews, practice responding to typical questions, and practice follow-up, evaluation and negotiation techniques they can use to ensure success. Self-management topics from Career Planning and Preparation - Level I will be reviewed, with a focus towards on-the-job success in both learner placements and post-graduate employment.

Video Game Field Placement

At the successful completion of the classroom hours of this program, students will be placed in a 400-hour/16-week internship at Video Game development related organization. Students will have the opportunity to apply their new and developed skills in a real-world environment. Host sites include businesses and organizations which have an online presence and are engaged in software, game and/or interactive media design, development and testing.

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