



CMPT 1030: Introduction to Game Engines

EFFECTIVE DATE

September 2020

DEPARTMENT

VR and AR

DESCRIPTION

Students will learn the basics of 3D interactive application design and development using the game engines Unity3D and Unreal Engine. Students will use a hands-on approach to learn the user interface of Unity and Unreal Engine, asset creation, node based and C++ scripting, and creating/compiling projects. Finally, students will create and deploy an application based on self-created and/or provided assets.

CREDITS

3.0

YEAR OF STUDY

1st Year Post-secondary

PREREQUISITES

Pre-calculus 12 with a B or equivalent; English 12 with a C+ or equivalent.

COREQUISITES

CMPT 1040

COURSE LEARNING OUTCOMES

Upon successful completion of this course, students will be able to:

- Explain the user interface for Unity3D and Unreal Engine
- Create a basic 3D environment and populate it with common object types
- Attach basic animations to player models and tune animations in each engine
- Add interactivity and manage user inputs appropriately
- Explain node based and C++ scripting
- Create logic using blueprints and C++
- Export and deliver an application in the target media and platform from each engine

PRIOR LEARNING ASSESSMENT & RECOGNITION (PLAR)

Consult with department head. PLAR may be available based on evaluation of student's portfolio.

HOURS

Lecture: 30

Lab: 30

INSTRUCTIONAL STRATEGIES

Lectures Demonstrations Guided practice in a computer lab

GRADING SYSTEM

Letter Grade (A-F)

PASSING GRADE

D

EVALUATION PLAN

Type	Percentage	Assessment activity
Assignments	35	7 assignments; 5% each
Project	25	Term Project
Midterm Exam	15	Midterm Exam
Final Exam	25	Final Exam

COURSE TOPICS

- Unreal Engine Overview
- Unity 3D Overview
- Content Pipeline (3D scene setup, texture and material workflow, camera workflow)
- Lighting and Rendering (material overview, camera workflow, post-processing)
- Behaviour and Scripting (blueprints in UE, behavior scripting in Unity, objects, actors, the player, pawns, world and levels)
- Creating Projects (populating the world, making it interactive with blueprints or script, packaging and distribution)
- Managing Project Objects (data pipeline, controlling objects, object's movements, object's lifetime and

activation)

- Virtual Worlds (building a tile world, moving camera, setting up animation, scripting animation, managing sound)

LEARNING RESOURCES

None

Notes:

- Course contents and descriptions, offerings and schedules are subject to change without notice.
- Students are required to follow all College policies including ones that govern their educational experience at VCC. Policies are available on the VCC website at:
<https://www.vcc.ca/about/governance--policies/policies/>.
- To find out how this course transfers, visit the BC Transfer Guide at <https://www.bctransferguide.ca>.

Broadway campus

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Downtown campus

250 West Pender Street
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Annacis Island campus

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