



CAMOSUN COLLEGE
Trades and Technology
Computer Science

ICS 223 Gaming and Graphics Concepts
Winter Term 2020

COURSE OUTLINE

The calendar description is available on the web @ camosun.ca/learn/calendar/current/web/ics.html

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

- (a) **Instructor** Chris Newstead
- (b) **Office hours** Email to schedule an appointment (or just drop by)
Available after lectures or labs (Mon, Tues, Thurs, Fri).
- (c) **Location** TEC263 – However - I’m usually answering questions in the classroom
I was last in (see timetable posted on door).
- (d) **Phone** Better to email **Alternative:** _____
- (e) **E-mail** newsteadc@camosun.bc.ca
- (f) **Website** Course web site is on D2L as ICS-223 (Gaming and Graphics Concepts)

2. Intended Learning Outcomes

- Design and develop a graphical user interface with interface objects in a select development environment;
- Use written, oral, and electronic communication to convey technical information effectively;
- Use knowledge of game space and scenes to design, implement, test and debug a simple interactive game; and
- Apply professional standards to ensure legal and ethical use of tools and resources in the development environment.

3. Required Materials

- a) Required: **Thumb (Flash) Drive preferably USB 3 of at least 8GB
- b) Texts (Not Required)

1. **Hocking, Joseph.** *Unity in Action, Second Edition.* New York : Manning Publishing Co., • March 2018, ISBN 9781617294969.

c) Online Resources

- <https://msdn.microsoft.com/en-us/library/618ayhy6.aspx> Microsoft's C# Reference
- <https://msdn.microsoft.com/en-us/library/67ef8sbd.aspx> Microsoft's C# Programming Guide
- <http://unity3d.com/learn/tutorials> Unity Video Tutorials (Caution: some outdated, some more advanced)
- <http://docs.unity3d.com/Manual/index.html> Unity Online Manual

d) Software

- Unity Hub 2.2.2
- Unity 2019.2.X (X is currently 17f1)
- Gimp 2.10.14

e) Other

- Other resources may be provided as the course progresses in the form of online links or handouts.

4. Course Content and Schedule

(Can include: Class hours, Lab hours, Out of Class Requirements and/or Dates for quizzes, exams, lecture, labs, seminars, practicums, etc.)

This **tentative** schedule outlines weekly topics. The schedule is subject to change.

Note: This is only meant as a tentative weekly guide on what topics will be studied in the course. *The schedule can change at any time based on students' progress through the course and/or other incidentals.*

WEEK	LECTURE TOPIC	LAB TOPIC
Week 1	<ul style="list-style-type: none"> • Course Intro + Game Industry • What is Unity? Why Unity? • The Unity Visual Editor • Unity Scripts 	Lab 1 – Intro to Unity
Week 2	<ul style="list-style-type: none"> • The 3D Coordinate System • Lighting in Unity • Game Objects and Components 	Lab 2 – Creating and Lighting a 3D Space
Week 3	<ul style="list-style-type: none"> • Local vs.Global Space • Movement in Unity • Collision Detection 	Lab 3 – Adding a Player to a 3D Space
Week 4	<ul style="list-style-type: none"> • Gravity in Unity • Raycasting and Coroutines • HUD, Unity's Asset Store 	Lab 4 – Collisions, Enemies, and Projectiles

Week 5	<ul style="list-style-type: none"> • AI, Sphercasting • FSMs, Unity Prefabs 	Lab 5 – AI and Prefabs
Week 6	<ul style="list-style-type: none"> • Whiteboxing, Texturing • Skyboxing, Particle Systems 	Lab 6 – Making it Pretty
Week 7 : Family Day and Reading Break – No Classes		
Week 8	<ul style="list-style-type: none"> • Retained Mode GUI • Expanding the HUD using 2D Sprites 	Lab 7 – 2D GUI and Responding to Events
Week 9	<ul style="list-style-type: none"> • Camera Position • Camera-relative movement • Animating the Player 	Lab 8 – Moving from first-person to third-person
Week 10	<ul style="list-style-type: none"> • Colliding with Items • Collecting Items • Managing Inventory 	Lab 9 – Interacting with Items
Week 11	<ul style="list-style-type: none"> • Optional: Sound Effects and Music 	Lab 10 – Deploying Your Game to Windows
Week 12	<ul style="list-style-type: none"> • Optional: Deploying to IOS? and Android 	TBD
Week 13	<ul style="list-style-type: none"> • Project 	Project
Week 14	<ul style="list-style-type: none"> • Project 	Project

5. Basis of Student Assessment (Weighting)

(Should be directly linked to learning outcomes.)

Quizzes (approx. 5)	35%
Labs (approx. 10)	50%
Project	15%
Total:	100%

(a) Labs

Must complete all labs.

Must achieve a minimum average of 55% on the labs.

Late **assignments and/or labs** are subjected to an 15% penalty per week, except by the instructor's prior written permission or in the presence of a dire and documented short-term medical or family emergency. Labs are due midnight one week after they are assigned (unless otherwise specified) and grading is done based on a sample run and visual inspection of the code.

6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

We will be using a copy of Visual Studio 2019 for in class work and labs. If you have a strong preference for Linux or Mac, the material is do-able, but I am not able to support issues (outside the scope of coding) with the other platforms.

8. College Supports, Services and Policies



Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

Department Policies:

Grade review: You have 7 days after marks are posted to review with your instructor.

Academic Dishonesty:

1st violation: minus the weight of the deliverable and a note on your departmental file.

2nd violation: F in the course

3rd violation: Student Conduct [Policy](#) E-2.5 is applied

Missed Examinations/Quizzes: If a student misses a quiz or an exam, a mark of zero will be assigned unless there are extenuating circumstances. In such cases, the

proportion of grade assigned to the missed quiz or exam will be added to the proportion assigned to the final exam. The final exam will be held during exam week. NO consideration will be given to any student wishing to write the exam at any other time than that assigned.

Electronic Devices: The school's policy regarding electronic devices is that any student who has a cell phone or other unauthorized electronic device (ie. ipad, laptop, playbook, etc.) on their person or around their desk during an exam will be guilty of cheating and will a grade of "F" for the course.

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS <http://www.camosun.bc.ca/policies/policies.php>

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://www.camosun.bc.ca/policies/E-1.5.pdf> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete</i> : A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress</i> : A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal</i> : A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.