Game Programming minor

*2019-2020 - UG - Minor Program Adjustment

(A) Proposal summary		
Home faculty*	Faculty of Business and Information Technology	
Summary of proposed changes*	INFR 4450U is added to the choice of electives. INFR 4800U is removed as a core and added instead as an elective. The number of core courses has gone from 5 to 4 and the electives from 1 to 2. CSCI 4110U is removed as a choice in the electives and replaced with the new course.	
Is a new course associated with this proposal?*		
Are you modifying a pathways program?*		
Effective semester*	Fall 2019	
Are you attaching any supporting documents?*	● Yes ○ No	
B) Program inf	formation	
Program or shared core name*	Game Programming minor	
Program type	Minor	
Degree type	Minors	
Program or shared core description		
Calendar copy*	General information and admission requirements	

Calendar copy*

General information and admission requirements

The Game Programming minor is available to students in UOIT's <u>Game Development and Entrepreneurship</u> program. The Game Programming minor complements other courses by focusing on more advanced programming courses that will allow students to hone their skill sets and take their game development skills to the next level.

The Bachelor of Information Technology — Game Development and Entrepreneurship degree with a minor in Game Programming requires a minimum of 18 credit hours in Game Programming courses.

Students must complete five core courses and a minimum of one Game Programming elective course.

To apply for a minor in Game Programming, students are required to have successfully completed the following courses with an overall GPA of 3.0 with no less than a 3.0 in each of:

INFR 2810U – Computer Architecture

INFR 2140U - Object Oriented Programming

Students must maintain an overall GPA of 3.0 in the minor, with a minimum 3.0 course grade in each minor course to maintain Game Programming minor status.

Game Programming minor required courses

CSCI 2020U Software Systems Development and Integration
CSCI 2040U Software Design and Analysis
INFR 2140U Object Oriented Programming
INFR 2810U Computer Architecture
INFR 4800U Debugging Techniques

Game Programming minor elective courses (choose one two from the list below)

CSCI 4060U Massively Parallel Programming
CSCI 4100U Mobile Devices
CSCI 4110U Advanced Computer Graphics
CSCI 4160U Interactive Media

CSCI 4640U Distributed Computing INFR 4550U Advanced Computer Graphics for Games INFR 4800U Debugging Techniques

Program learning outcomes

(C) Pathways programs

Proposed transfer credit block

(D) Detailed proposal information

Enhanced academic opportunities*

These changes will provide students with more course options (addition of advanced graphics as an optional course in the game programming minor) and we could schedule Advanced Graphics and Debugging Techniques in alternating years depending on availability of professors and student interest.

Financial/ resource implications*

N/A

Enrolment implications*

N/A

Transition plan*

This requirement could be implemented immediately, current students in the Game Programming Minor would be informed that they can take Advanced Graphics as an option instead of Debugging Techniques when offered. Since this change wouldn't happen until 2019/2020, the current students would not be affected as Debugging Techniques is offered this winter 2019.

Additional supporting information, if applicable

(E) Impact and consultation

Does this change O Yes No include any indigenous content?*



consulted with all impacted areas*



Consultation*

N/A

INFR - 4450U - Advanced Computer Graphics for Games

*2019-2020 - UG - New Course

(A) Proposal summary		
Home faculty*	Faculty of Business and Information Technology	
	 A Minor Program Adjustment A Major Program Modification A New Program None of the above 	
Will this new course appear anywhere other than the course description section of the calendar?*	● Yes ○ No	
Program(s) impacted*	Game Development & Entrepreneurship program Game Development - Programming Minor	
Effective semester*	Fall 2019	
Are you attaching any supporting documents?*	● Yes ○ No	
(B) Course information		
Course subject code*	INFR Course number* 4450U	
Course title (long form)*	Advanced Computer Graphics for Games	
Subject area*	Information Technology	
Course description*		

This course introduces students to the most current and advanced topics in computer graphics focusing on concepts that are used in the video game industry. As this course is programming heavy, students will be expected to be familiar with C/C++, OpenGL/DirectX, and development using a modern game engine. Students will be required to develop graphical algorithms from cutting-edge research areas related to computer graphics, visualization, photogrammetry, and computer vision.

Credit hours* 3				
Lecture hours	3	Lab hours		
Tutorial hours		Other hours		
Cross-listing(s)				
Prerequisite(s)	INFR 2350U and INFR 3345U			
Prerequisite(s) for Banner				
Corequisite(s)				
Prerequisite(s) with concurrency				
Credit restriction(s)				
Is the credit restriction an equivalent course?				
Recommended				
Course restrictions				
Course type*	Core Elective			
Is the course undergraduate or professional?*	Undergraduate Professional			
Grade mode*	Grade mode* ● N (normal alpha grades) ○ P (pass/fail grade)			
CLS (in-class (delivery)*	● Yes ○ No	HYB (in-class and Yes No online delivery)*		
IND (individual (studies)*	Yes No	OFF (off-site)* O Yes No		

WB1 (virtual Yes No No meet time - synchronous)*

WEB (fully online Yes No - asynchronous)*

N/A (not Oyes No applicable)*

Teaching and assessment methods*

This course is best taught through a 2×1.5 hour lecture schedule. The first 1.5 hours is a weekly lecture that introduces a new topic and assigns research papers or discussion topics to the students for the second 1.5 hours. The second 1.5 hour time slot is intended for discussion and student presentations where some weeks student groups will present and compare two research papers and/or results of an algorithm experiment

Evaluation will be performed as:

Group Presentations 20%

Mini-Project 15%

Final Project 40%

Final Exam 25%

Group presentations will be assessed by the professor and peer evaluation and students will be expected to make at least 2 major group presentations throughout the semester.

The Mini-Project will require groups of students to experiment with recent software systems and workflows to create and render a realistic 3D environment

The Final Project will require groups of students to develop a final game using a game engine that focuses on stylized-realism in terms of environment, character, animation, and special effects.

Course learning outcomes*

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

- Analyze SIGGRAPH papers
- •Compare the latest computer graphics algorithms along dimensions of efficiency, performance, graphical quality
- Create new solutions to computer graphics problems
- •Develop workflows and pipelines for the acquisition and realtime rendering of 3D models of environments

Compare algorithms for realistic scene acquisition and rendering

(C) Impact and consultation

Agenda Item 10.1.2(e)

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Does this course contain any indigenous content?*	○ Yes • No
We have consulted with all impacted areas*	
Consultation*	N/A

(D) Financial implications

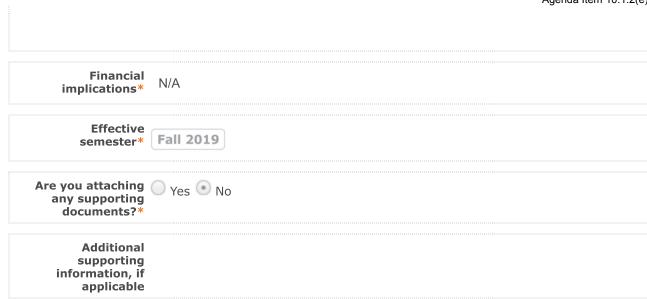
Financial implications*

This course will satisfy a need in the curriculum for those interested in learning more about modern computer graphics algorithms and they have been asking for such a course for the past 2-3 years.

INFR - 4800U - Debugging Techniques

*2019-2020 - UG - Course Change v2

(A) Proposal summary		
Home faculty*	Faculty of Business and Information Technology	
Course changes*	Contact hours	
	Co-requisite(s)	
	Course description	
	Course instructional method	
	Course number or course subject code	
	Course title	
	Credit restriction(s) and/or equivalencies	
	Credit weighting	
	Cross-listing(s)	
	Grade mode	
	Learning outcomes	
	Prerequisite(s)	
	Remove course from academic calendar	
	Teaching and assessment methods	
	☑ Other	
Other changes	Change course type from core to technical elective.	
	In the current Game Programming Minor for the Undergraduate Game Development& Entrepreneurship program, the course INFR4800U Debugging Techniques is currently a "required" course and thus must be scheduled each year. This has been an issue to find an instructor for each offering and as such we propose that INFR4800U be changed to an "optional" course.	
Is this course change associated with a program proposal?*	● Yes ○ No	
Reason for change and ways in which it maintains/enhance course/program objectives*	This change will provide students with more course options (addition of advanced graphics as an optional course in the game programming minor) and we could schedule Advanced Graphics and Debugging Techniques in alternating years depending on availability of professors and student interest.	



(B) Course information

Course subject Course number* 4800U INFR code*

Course title (long Debugging Techniques

Course title (short form)

Subject area

Information Technology

Course description

In this course, students will experientially learn modern techniques for debugging software effectively. A focus on tools, core machine architecture and understanding of how to solve problems will be gained by debugging progressively large systems with insidious bugs.

Credit hours 3

Lecture hours 3

Lab hours 3

Tutorial hours

Other hours

Cross-listing(s)

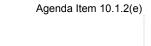
Prerequisite(s)

INFR 2140U

Prerequisite(s) (for Banner)

Corequisite(s)

Course learning outcomes (C) Impact and consultation Does this course contain any indigenous content?* No



We have Ores N/A consulted with all impacted areas* Consultation* N/A

(D) Routing

group*

Faculty or program-level Faculty of Business and Information Technology