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?* (•) Yes ( ) No

Are you modifying a pathways program?* ( ) Yes (•) No

Effective semester* Fall 2019

Are you attaching any supporting documents?* (•) Yes ( ) No

(B) Program information

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

description

Calendar copy*

General information and admission requirements

The Game Programming minor is available to students in UOIT's Game Development and Entrepreneurship 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 include any indigenous content?*

○ Yes ◉ No

We have consulted with all impacted areas*

○ Yes ◉ N/A

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

This new course is associated with the following:*
- (•) 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*	◉ N (normal alpha grades) ○ P (pass/fail grade)
CLS (in-class delivery)*	◉ Yes ○ No
HYB (in-class and online delivery)*	○ Yes ◉ No
IND (individual studies)*	○ Yes ◉ No
OFF (off-site)*	○ Yes ◉ No

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

WEB (fully online - asynchronous)* ○ Yes ◉ No

N/A (not applicable)* ○ Yes ◉ No

Teaching and assessment methods*

This course is best taught through a 2 x 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

Does this course contain any indigenous content?*	○ Yes ◉ No
We have consulted with all impacted areas*	○ Yes ◉ N/A
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
- [x] 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.

Financial implications*	N/A
Effective semester*	Fall 2019
Are you attaching any supporting documents?*	○ Yes ◉ No
Additional supporting information, if applicable	

(B) Course information

Course subject code*	INFR	**Course number***	4800U
Course title (long form)*	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)			

Prerequisite(s) with concurrency

Credit restriction(s)

Is the credit restriction an equivalent course?

Recommended

Course restrictions

Course type

Activity Log

Lee Bazely

+ **Elective**

− ~~**Core**~~

☐ Core ☑ Elective

Is the course undergraduate or professional? ☐ Undergraduate ☐ Professional

Grade mode ○ N (normal alpha grades) ○ P (pass/fail grade)

CLS (in-class delivery) ○ Yes ○ No

HYB (in-class and online delivery) ○ Yes ○ No

IND (individual studies) ○ Yes ○ No

OFF (off-site) ○ Yes ○ No

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

WEB (fully online - asynchronous) ○ Yes ○ No

N/A (not applicable) ○ Yes ○ No

Teaching and assessment methods

Course learning outcomes

(C) Impact and consultation

Does this course contain any indigenous content?* ○ Yes ◉ No

We have consulted with all impacted areas* ○ Yes ◉ N/A

Consultation* N/A

(D) Routing

Faculty or program-level group* Faculty of Business and Information Technology