Game Development Track

Description
This track emphasizes the design and development of software for entertainment and learning. If you are interested in working for a company that develops and maintains games, then this track may be of interest to you. This track will offer you deeper exposure to game development in terms of the content (e.g. graphics, sound) and of the technology needed to develop and maintain games. Game development requires understanding the varied skills needed to design a game at the technical level, and to also deliver a game that is engaging to its intended audience.

Several options are available in terms of coursework in graphics, artificial intelligence, and programming. You can approach this track in terms of a broad exposure to gaming or as a means to concentrate on one area of interest.

Software Engineering courses
There are no related elective courses for this track.

Application Domains
There are no related application domains for this track.

Courses in Other Programs
Courses relevant to this track exist in the Computer Science and Information Technology departments are:

Computer Science
4003-570 Computer Graphics I
4003-571 Computer Graphics II
4003-455 Artificial Intelligence
4003-552 AI For Interactive Environments

Information Technology
4002-380 Fundamentals of Game Design & Development I
4002-381 Fundamentals of Game Design & Development II
4002-387 Data Structures & Algorithms for Game Programmers I
4002-501 Foundations of 2D Graphics Programming
4002-502 Foundations of 3D Graphics Programming

Related Minors
If you are interested in exploring Computer Graphics, consider completing the Computer Science minor. After you complete CS1-3, you need to take 2 or 3 other courses that are not required for your SE degree. For example, 4003-570 Computer Graphics I and 4003-571 Computer Graphics II would allow you to complete the minor. The 4003-455 Artificial Intelligence course is another
course that can count towards the minor. Refer to the Course Catalog and the Computer Science department’s website for the most current information on their minor.

**Arranging your Track and Scheduling**
The courses discussed in this track count as free electives. As a reminder, you have 3 free electives. Also, the courses offered by the Computer Science can count towards a minor.

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<th>Course</th>
<th>Breadth</th>
<th>Graphics</th>
<th>Artificial Intelligence</th>
<th>Programming</th>
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<td><strong>Computer Science</strong></td>
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<tr>
<td>4003-570 Computer Graphics I</td>
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<td>4003-571 Computer Graphics II</td>
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<td>4003-455 Artificial Intelligence</td>
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<td>4003-552 AI For Interactive Environments</td>
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<td><strong>Information Technology</strong></td>
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<tr>
<td>4002-380 Fundamentals of Game Design &amp; Development I</td>
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<td>4002-381 Fundamentals of Game Design &amp; Development II</td>
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<td>if interested in level/character design</td>
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<td>4002-387 Data Structures &amp; Algorithms for Game Programmers I</td>
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<td>4002-501 Foundations of 2D Graphics Programming</td>
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In addition to the track courses, you should complete the Physics course sequence in order to apply the concepts to the game development track courses. The sequence should be taken by the end of your second year, as described in the SE program flowchart. A Matrix or Linear Algebra course is also recommended and can cover your Math/Science elective requirement. Check the latest course catalog information for any changes to course availability. Scheduling suggestions are arranged by course.

**Computer Science**
- 4003-570 Computer Graphics I is offered in fall, winter, and spring. This course should be taken in Year 3 or later.
- 4003-571 Computer Graphics II is offered in fall and spring. This course should be taken in Year 4 or later upon completion of 4003-570 Computer Graphics I.
• 4003-455 Artificial Intelligence is offered in fall, winter, and sometimes summer. This course can be taken in Year 4 or later. Note that 4003-450 Prog Language Concepts is a prerequisite so you should take that course as well (suggested in Year 3).
• 4003-552 AI For Interactive Environments is offered in spring. This course should be taken in Year 4 or 5, upon completion of 4003-455 Artificial Intelligence.

Information Technology
• 4002-380 Fundamentals of Game Design & Development I is offered in winter and can be taken in Year 2 (after completion of 4003-233 Computer Science 3)
• 4002-381 Fundamentals of Game Design & Development II; Prerequisites is offered in the spring can be taken in Year 2 (after completion of 4002-380)
• 4002-387 Data Structures & Algorithms for Game Programmers I is offered in spring and can be taken in Year 3 (after completion of 4003-233 Computer Science 3, 1017-311 University Physics I, and 1016-366 Discrete Math II.)
• 4002-501 Foundations of 2D Graphics Programming is offered in the winter and can be taken in Year 3 or later upon completion of 4003-570 Computer Graphics I)
• 4002-502 Foundations of 3D Graphics Programming is offered in spring and can be taken in Year 3 or later upon completion of 4002-501 Foundations of 2D Graphics Programming

Of the courses noted in the track, there is no requirement that you should complete the courses in any specific order (other any order needed as prerequisite for individual courses) nor is it required to take all of the courses. You should select those courses that suit your specific interests in game development.

Planning for a Minor
Before embarking on a minor you should meet with the department sponsoring the minor to register and review scheduling strategies. There may be a need to coordinate your co-op blocks based on the quarters in which courses are typically offered as well as considering course prerequisite chains required within the minor.

Track Advisor
Stephanie Ludi