New Course Request

Indiana University

South Bend Campus

Check Appropriate Boxes: Undergraduate credit ☐ Graduate credit ☑ Professional credit ☐

1. School/Division Liberal Arts and Sciences

2. Academic Subject Code CSCI

3. Course Number 8583 (must be cleared with University Enrollment Services) 4. Instructor D. Vrajitoru

5. Course Title Game Programming and Design

Recommended Abbreviation (Optional)

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Fall 2005

7. Credit Hours: Fixed at 3.0 or Variable from ____________ to ____________

8. Is this course to be graded S-F (only)? Yes ☐ No ☒

9. Is variable title approval being requested? Yes ☐ No ☒

10. Course description (not to exceed 50 words for Bulletin publication: Pi CSCI C481 or CSCI B581.

Programming techniques and data structures for game implementation, elements of game design, current trends in the game industry, game theory, social aspects, and elements of artificial intelligence in games.

11. Lecture Contact Hours: Fixed at 3.0 or Variable from ____________ to ____________

12. Non-Lecture Contact Hours: Fixed at 0 or Variable from ____________ to ____________

13. Estimated enrollment: 15 of which 100 percent are expected to be graduate students.

14. Frequency of scheduling every other year. Will this course be required for majors? Yes ☐ No ☐

15. Justification for new course: Responds to a major trend in the computer industry and to an interest on the students' part.

16. Are the necessary reading materials currently available in the appropriate library? Yes ☐

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:

Hone Akheyan
Department Chairman/Division Director

Date 12/1/04

Dean of Graduate School (when required)

Date 

Approved by:

Date 12/10/04

Chancellor/Vice-President

Date 

University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724

University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
Game Programming and Design
Syllabus

Prerequisite: C481 or C581 Computer Graphics

Instructor: Dr. Dana Vrajitoru
Office: NS 337
email: danav@cs.iusb.edu
Phone: 520-4525
url: http://www.cs.iusb.edu/~danav/


Grading system:
- About 12 homework assignments, 20 points each
- 1 midterm exam, 50 points each
- 1 project, 50 points
- Final exam, 50 points

Guidelines for assignments:
- The assignments will be posted on the course web page.
- The assignments are due at midnight of the due date.
- The programming assignments are turned in by email.
- No homework accepted after 2 weeks from the due date. A homework turned in 1 week late loses 25% of the points. A homework turned in 2 weeks late loses 50% of the points.
- Reasonable expectations concerning the program structure and clarity: functions should be commented and should not contain more than 20 lines of code. Multiple source files are expected when appropriate.

Programming environment:
- OS: Linux, labs NS#207 and NS#209. Combinations will be provided by email.
- Compiler: g++. Examples of Makefiles will be provided.
- Libraries: OpenGL, Gnome
- Editor: emacs (recommended), pico or vi from telnet.

Grading system:

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Learning Disabilities:
If you need adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My office hours are
Syllabus

1. Introduction
   a. Motivation, types of games
   b. History of computer games
2. Review of graphical libraries and models.
   a. Review of OpenGL
   b. Object-oriented programming in games
   c. Event-based programming
   d. Real-time graphical programming
   e. Sound management
3. Game development cycle
   a. Basic idea and game rules
   b. Storyline
   c. Interface, game controls, play mode
4. Motion generation, collision detection, and animation techniques.
5. Elements of artificial intelligence in games.
6. Autonomous characters and behavior.
7. Game engines
   a. Definition and role of a game engine.
   b. Building the game skeleton.
   c. Building a game from an existing engine.
8. Multi-player and persistent state games, networking aspects.
9. Social aspects of game design and playing.

Documentation