NEW COURSE PROPOSAL

PROGRAM AREA   COMPUTER SCIENCE

1. **Catalog Description of the Course.** *[Follow accepted catalog format.]*

   Prefix COMP **Course#** 425 **Title** COMPUTER GAME PROGRAMMING **Units** (3)
   3 **hours** Lecture **per week**
   ☒ **Prerequisites** COMP151
   ☐ **Corequisites** none
   Description This course focuses on exploring software techniques for development of computer-controlled games. The topics include: principles of game design, integrating graphics, animation and audio in games, game control including methods based on artificial intelligence, networking for multi-player games, game optimization and deployment, and game development cycles.

	Graded	
☐ **Gen Ed**	☐ **CR/NC**	☐ **Repeatable for up to units**
Categories		
☐ **Lab Fee Required**	☒ **A - F**	**Total Completions Allowed**
	☐ **Optional (Student's choice)**	☐ **Multiple Enrollment in same semester**

2. **Mode of Instruction.**

	Units	**Hours per Unit**	**Benchmark Enrollment**	**Graded Component**	**CS #** (filled in by Dean)
Lecture	3	1	24	☐	
Seminar				☐	
Laboratory				☐	
Activity				☐	

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*
   Justification: This course is an elective for the Computer Gaming Minor. It will also be an elective in Computer Science and Math. The core of a computer game is a program. However, constructing a game program differs from writing programs that the students learned in other classes. It requires incorporation of techniques that cross boundaries of several disciplines. Game programs have to manage dynamically and intelligently the narrative, visuals and audio with the purpose of maximizing the perception of fun by the game player.

   This course is an elective and does not meet the University Writing and/or Language requirements..

   Learning Objectives:
   Upon completion of this course students will be able to:
   (Press enter for the next bulleted item)

   - Discuss principles of game development and design
   - Design computer game graphics like background worlds, characters, and menus
   - Design computer game audio for sound effects and background music
   - Program character controls and game logic
   - Create virtual worlds for games
   - Use networking code for multi-player games
   - Optimize game code for space and time efficiency
   - Deploy games for easy distribution

4. **Is this a General Education Course**   **YES** ☐   **NO** ☒
   If Yes, indicate GE category and attach GE Criteria Form:

A (English Language, Communication, Critical Thinking)
A-1 Oral Communication ☐
A-2 English Writing ☐
A-3 Critical Thinking ☐
B (Mathematics, Sciences & Technology)
B-1 Physical Sciences ☐
B-2 Life Sciences – Biology ☐
B-3 Mathematics – Mathematics and Applications ☐
B-4 Computers and Information Technology ☐
C (Fine Arts, Literature, Languages & Cultures)
C-1 Art ☐
C-2 Literature Courses ☐
C-3a Language ☐
C-3b Multicultural ☐
D (Social Perspectives) ☐
E (Human Psychological and Physiological Perspectives) ☐
UD Interdisciplinary ☐

5. **Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*
   (Press enter for the next bulleted item)

   - Theory of Fun
   - Game Design Principles
   - Game Architecture
   - Incorporating 2D Graphics
   - Character Animation
   - Building User Interfaces
   - Programming Game Logic
   - Collision Detection
   - Path Finding
   - Incorporating Audio
   - Artificial Intelligence for Games
   - Networking for Games
   - Incorporating 3D Graphics
   - Texture Mapping and Lighting
   - Scripting
   - Game State Persistence
   - Code Optimization
   - Game Deployment

Does this course overlap a course offered in your academic program? YES ☐ NO ☒
If YES, what course(s) and provide a justification of the overlap?

Does this course overlap a course offered in another academic area? YES ☐ NO ☒
If YES, what course(s) and provide a justification of the overlap?
Signature of Academic Chair of the other academic area is required on the consultation sheet below.

6. **Cross-listed Courses (Please fill out separate form for each PREFIX)**
   List Cross-listed Courses

   Signature of Academic Chair(s) of the other academic area(s) is required on the consultation sheet below

   Department responsible for staffing:

7. **References.** *[Provide 3 - 5 references on which this course is based and/or support it.]*

6/6/05 cp

(Press enter for the next number)

    1. Beginning Mobile Phone Game Programming, Michael Morrison, SAMS Publishing 2005

    2. Core Techniques and Algorithms in Game Programming, Daniel Sanchez-Crespo Dalmau, New Riders Publishing, 2004.

    3. Developing Games in Java, David Brackeen, New Riders Publishing, 2004

    4. Artificial Intelligence Game Engine Programming, Brian Schwab, Charles River Media, 2004

    5. Software Engineering for Game Development, John P. Flynt, Thomson Course Technology, 2005

8. List Faculty Qualified to Teach This Course.

Computer Science Faculty

9. Frequency.
   a.   Projected semesters to be offered: Fall ☒   Spring ☒   Summer ☐

10. New Resources Required. YES ☐ NO ☒
  If YES, list the resources needed and obtain signatures from the appropriate programs/units on the consultation sheet below.

   a.   Computer (data processing), audio visual, broadcasting needs, other equipment)

   b.   Library needs

   c.   Facility/space needs

11. Will this new course alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒
   If, YES attach a program modification form for all programs affected.

AJ Bieszczad   9/12/2005
Proposer of Course   Date

Approvals

_____
Program Chair   Date

_____
General Education Committee Chair   Date

_____
Curriculum Committee Chair   Date

_____
Dean   Date

1. Course Title: <u>COMP425 Computer Game Programming</u>

2. Program Area: <u>Computer Science</u>

Recommend Approval

Program Area/Unit	Program/Unit Chair	YES	NO (attach objections)	Date
Art				
Biology				
Business & Economics				
Education				
English				
History				
Liberal Studies				
Mathematics & CS				
Multiple Programs				
Psychology				
Library				
Information Technology				