COURSE OUTLINE OF RECORD

Number: CS G150                        TITLE: Mobile Game Programming

ORIGINATOR: Omid Pourzanjani
FORMERLY KNOWN AS:

CROSS LISTED COURSE:

SEMESTER UNITS: 4.0
HRS LEC: 54.0      HRS LAB: 54.0      HRS OTHER: 0.0
CONTACT HRS TOTAL: 108.0
STUDY NON-CONTACT HRS RECOMMENDED: 108.0

CATALOG DESCRIPTION:
This course will cover the principles of video game development for mobile devices. Students will be introduced to the basic building blocks of mobile platforms and the tools and components available for developing video games for these platforms. Concepts of graphics libraries, simulation tools, debugging facilities, memory and performance limitations, and development methodologies will be discussed and practiced. ADVISORY: Computer Science G148

JUSTIFICATION FOR COURSE:

PREREQUISITES:

COREQUISITES:

ADVISORIES:
• CS G148: Game Programming, Intermediate

ASSIGNED DISCIPLINES:
Computer science

MATERIAL FEE: Yes [ ] No [X] Amount: $0.00

CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]

GRADING POLICY: Pass/No Pass [X] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]

OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]

TRANSFER STATUS: CSU Transferable[X] UC/CSU Transferable[ ] Not Transferable[ ]

BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable

CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable

NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course

OCCUPATIONAL (SAM) CODE: C

REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:

REQUIRED FOR DEGREE OR CERTIFICATE: No [ ] Yes [X]
Video Game Development(Certificate of Achievement)
Video Game Development(Associate in Arts)

GE AND TRANSFER REQUIREMENTS MET:

COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:
1. Explain the component internals of mobile games and the interactions of these components.

2. Describe the current state of the mobile game environment.

3. Compare and contrast the current design tools, development environments, debugging facilities and deployment packages.

**COURSE OBJECTIVES:**

1. Demonstrate an understanding of the current state of mobile games.
2. Compare and contrast the functionality in the existing mobile gaming engines.
3. Demonstrate knowledge of current and popular mobile gaming engines.
4. Apply the theory and principle of the mathematical algorithms as optimized for mobile platforms.
5. Apply theoretical knowledge with hands-on lab assignments for drawing primitive objects and animating them.
6. Integrate sound and animation into the fabric of a computer game.
7. Design interactivity specific to small mobile devices.

**COURSE CONTENT:**

**LECTURE CONTENT:**

The following outline describes the course contents:

Essentials Of Mobile Gaming
- The Market And Culture For Mobile Games
- Getting To Know Mobile Platforms
- Java 2 Micro Edition (J2ME)
- Binary Runtime Environment For Wireless (BREW)
- Windows Mobile Smartphone

Mobile Game Programming Essentials
- Mobile Graphics Basics
- Learning The Basics Of Color
- Working With Graphics In J2ME
- Drawing Graphics Primitives
- Drawing Text
- Drawing Images
- Using Sprite Animation.
- Basics Of Artificial Intelligence (AI)

Handling Mobile User Input
- Handling Key Input With The Gamecanvas Class
- Detecting Sprite Collisions
- Working With Frame-Animated Sprites

Making Noise with Tones
- Querying A Phone For Its Audio Capabilities
- Playing Tones In Mobile Games
- Playing Digitized Sound And Music.
- Playing Wave Sounds In Mobile Games

Taking Advantage of the Wireless Network
- Multiplayer Game Basics
- Network Game Problems And Solutions
- Communicating Over A Network With Sockets

Debugging and Deploying Mobile Games
LABORATORY CONTENT:

In the lab section, students will be required to complete the following assignments:

- One Mobile Game-Engine Research Paper
- Four Programming Assignments
- One Individual or Group Term-Project

METHODS OF INSTRUCTION:

A. Lecture:
B. Lab:
C. Online:
D. Independent Study:

INSTRUCTIONAL TECHNIQUES:

COURSE ASSIGNMENTS:

Reading Assignments

Students will be assigned multiple chapters from the required textbook. The availability of additional materials will be made known to students to encourage further study into specific topics. Students will be assigned to read a large amount of online material. Various current (up-to-date) handouts will be made available to students on the subjects of mobile games, game engines, and multimedia.

Out-of-class Assignments

An optional library research paper will promote further study and research in interactive mobile game development or other related topics selected by the student and approved by the instructor.

Writing Assignments

Students will be required to write the game-play and high-level design for a specific game. They will then use this design document in implementing the game. The implementation process is an extensive series of problem solving tasks involving the integration of student-written algorithms, rules, and logic with off-the-shelf code-libraries.

METHODS OF STUDENT EVALUATION:

Midterm Exam
Final Exam
Short Quizzes
Written Assignments
Essay Examinations
Objective Examinations
Report
Projects (ind/group)
Problem Solving Exercises
Oral Presentations
Skills Demonstration

Demonstration of Critical Thinking:

Class assignments will be presented to the students in the form of problems requiring students to devise solutions in the form of software development projects. Also, students will be given various games engine technology architectures to study and analyze.
Required Writing, Problem Solving, Skills Demonstration:

Students will be required to write the game-play and high-level design for a specific game. They will use this design document in implementing the game. The implementation process is an extensive series of problem solving tasks involving the integration of student-written algorithms, rules, and logic with off-the-shelf code-libraries.

TEXTS, READINGS, AND RESOURCES:

TextBooks:
2. Well, Martin J. *J2ME Game Programming*, ed. Course Technology, 2004

Other:
1. A syllabus and multiple reference materials will be distributed by the instructor.

LIBRARY:

Adequate library resources include:

Comments:

Attachments:

[Attached Files]