RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

ARTS 106—Foundations of Game Engines

I. Basic Course Information

A. Course Number and Title: Foundations of Game Engines

B. New or Modified Course: New

C. Date of Proposal: Semester: Year: Spring 2017

D. Effective Term: Fall 2017

E. Sponsoring Department: Visual and Performing Arts

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 4 Lecture: 2
Laboratory: 2
Out of class student work per week: 10

H. Prerequisites/Corequisites: None

I. Laboratory Fees: yes

J. Name and Telephone Number or E-Mail Address of Department Chair at time of approval: Dennis Russo drusso@raritanval.edu

II. Catalog Description

Prerequisites: None
This course will introduce students to the art and programming aspects of developing for commercial game engines. The focus will be on the processes and techniques necessary to add creative and advertising components into functional computer game models. Students will work with game development programmers in industry standard software (Unity, Construct) on a series of modular assignments.

III. Statement of Course Need

A. This course is fundamental for the rest of the Game Art program. Students learn the essential technical and creative skills necessary to make art for video game and related interactive environments.

B. This course has a lab component that is required for students to work on both studio art and technology based game design. Students will be required to use computers, scanners and tablets, to perform tasks such as digital drawing and programming.

C. This course will generally transfer to institutions offering game and multimedia based design degrees. The skills used in this course will be required for transferring into any corresponding programs.

IV. Place of Course in College Curriculum

A. Free Elective

B. This Course meets a requirement for the A.S. Game Art degree.

C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

A. Technology and Technique Overview

1. The History of Art for Games
    a. Early vector games
    b. Early pixel games
    c. Arcade and first generation consoles.
    d. Concept art
    e. Cinematic elements
    f. Contemporary game engine design trends
2. Concepts
    a. Game brand design
    b. Marketing and packaging
    c. Concept art
    d. Interactive art assets
    e . Cinematic art assets
    f. Audio assets

B. Project Themes

1. Platform Games
2. First Person Combat/Exploration Game
3. Puzzle Game
4. Maze Game

5. Card/Board Game Adaptation

C. Asset Development

1. Traditional drawing (for concept art and storyboards)
2. Sprite Sheets
3. Tile maps
4. Particle sprites
5. User interface
   a. states
   b. animations
6. Interaction animations
7. Lighting
8. Introductory level shader technology

D. Code Integration and Development

1. Programmatic control of visual elements
2. Programmatic control of audio assets
3. Implement game play constructs
4. Porting constructs to multiple platforms (console, PC, web, moble, tablet)

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

At the completion of the course, students will be able to:

1. Apply appropriate technological tools to design projects. (GE-NJ 4,6 *)
2. Reference game art sources and their importance in the development of modern games and multimedia. (GE-NJ 1,6)
3. Demonstrate the application of analysis and problem solving to achieve design solutions. (GE-NJ 4, *)

B. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Produce professional quality assets for game and interactive media.
2. Assess how these assets interface into a programming environment.
3. Learn collaborative and team development skills.

C. Assessment Instruments:

1. Sketching and planning
2. Digital 3D projects
3. Research papers and presentations
4. Exams

**Embedded critical thinking*

VII. Grade Determinants

A. Technical Exercises
B. Exams
C. Individual Projects
D. Research Papers and presentations
E. Cohort/Team Projects

Grade Formats, Mode Determinants

A. Computer based studio art work
B. Lecture
C. Research
D. Online tutorials
E. Project completion

VIII. Texts and Materials

A. suggested textbook
B. instructor hand outs
C. art examples
D. game design examples
E. web video
F. online learning resources (Lynda.com, etc…)

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

A. MAC and PC workstations
B. Three dimensional game development software
C. Digital drawing tablets
D. Adobe creative cloud software
E. Unity game engine
F. Paper drawing tablet, pencils and other art supplies