# Raritan Valley Community College
# Course Outline

## ARTS 277 – Game Audio and Video

### I. Basic Course Information

A. Course number and Title: **ARTS 277 – Game Audio and Video**

B. Date of Proposal: **September 2006**

C. Sponsoring Department **Visual and Performing Arts**

D. Semester Credit Hours: **3**

E. Weekly Contact Hours: **4**

Lecture **2**
Lab **2**

F. Prerequisites: **CISY 106 – Fundamentals of Game Design**

G. Laboratory Fees: **Yes**

### II. Catalog Description

*(Prerequisite/s:* CISY 106 – Fundamentals of Game Design*; Co-requisite/s: None)*

This course will cover the theory, as well as practical applications, of audio and computer video techniques as used in the game industry. Emphasis will be placed on methods of sound integration and video effects and how they impact character development and enhance the game-playing experience. Additional audio topics covered include: sound perception, waveform editing, sound effects and an introduction to MIDI, music composition and voiceovers. Computer video topics include: image composition, virtual cameras, motion capture and video compression.

### III. Statement of Course Need

Students planning a career in game development must have at least a general knowledge of audio and computer video techniques to allow them to communicate with the specialists in these areas. Additionally, specific knowledge of video and audio techniques is necessary in the development of game characters, synchronization of sound and animation and to create additional layers of richness in the game environment.

## IV. Place of Course in College Curriculum

    A. Visual Arts Elective
    B. Requirement—Game Development Degree Program
    C. Requirement – Game Design Degree Program
    D. Computer Science Elective


## V. Outline of Course Content

This course explores the following topics:

- Video: Theory
  - Film Genres,
  - Visual narrative

- Video: Practical
  - Video Compression and Quality
  - Hardware and Software
  - Virtual Lighting
  - Virtual Camera Angles and Framing
  - Animation
  - Motion Capture
  - Computer Compositing
  - Post Production

- Audio: Theory
  - Audio history
  - Sound Perception
  - Setting a Mood
  - Ambient and Environmental Sounds
  - Character Development and Audio
  - Interactive Audio
  - Music, Voice, and Sound Effects
  - Legal and Ethical Issues

- Audio: Practical
  - Hardware and Software for Audio
  - Voice recording
  - Sound processing: Editing Waveform, Envelopes and ADSR Curves
  - Midi Sound Effects
  - Multi-tracking
  - Compression Methods
  - Character sound synchronization and timing charts
  - Adaptive and Interactive Audio
  - Audio Engines
  - Multi-channel Sound

## VI. Educational Goals and Learning Outcomes

## A. General Education Goals

After completion of this course, the student will be able to:

1. Apply creativity to problem solving; decision making; and quantitative reasoning (G.E. 1, 3, 4, 7)
2. Build communication skills (effective writing and speaking) through collaborative learning, utilizing team projects and multi-tasking.   (G.E. 2, 3, 6)

## Student goals for this course:

After successfully completing this course, students will be able to:
1. Briefly discuss the major film genres and the concept of visual narrative as applied to game development.
2. Compress video samples and maintain an appropriate level of quality
3. Demonstrate knowledge of the current hardware and software used for computer video editing
4. Describe the usage of virtual camera angles, framing and lighting
5. Describe several methods of motion capture and animation
6. Composite computer still and motion images
7. Describe computer video post production techniques used in the game industry
8. Demonstrate knowledge of the history of synthesized sound
9. Describe how sound is perceived
10. Describe the relationship between character development and audio
11. Explain the use of adaptive and interactive audio
12. Chart character phonemes on industry standard timing charts
13. Demonstrate knowledge of the current hardware and software used for computer audio including the following:
    a. Compress audio samples and maintain an appropriate level of quality
    b. Edit waveforms, sound envelopes and ADSR curves using appropriate software
    c. Create multi-channel sound tracks
    d. Produce basic midi sound effects
    e. Set a mood using sound effects, ambient and environmental sounds and music
14. Demonstrate knowledge of the legal and ethical issues related to sound and video sampling and the current copyright laws pertaining to music, video and audio recordings

**VII. Modes of Teaching and Learning**
- Lecture/Discussion
- Student Collaboration
- Laboratory

**IX. Grade Determinants**
- Homework – Throughout the semester, the student will complete homework assignments related to the topics discussed in class.
- Written paper on assigned topic (*e.g.,* character development and audio).
- Tests – Multiple-choice, mid-semester and final exams
- Projects – In addition to daily homework, three major projects will be assigned

**X. Text and Materials**
Suggested Textbook— Marks, Aaron. *The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, and Game Developers.* Gilroy, CA: CMP Books, 2003

**XI. Resources**
http://www.igda.org