RARITAN VALLEY COMMUNITY COLLEGE
COMPUTER SCIENCE (CS) DEPARTMENT

CISY- 114 Interactive Multimedia I

I. Basic Course Information

A. Course Number and Title: **CISY- 114, Interactive Multimedia I**

B. New or Modified Course: **Modified**

C. Date of Proposal: Semester: **Fall** Year: **2013**

D. Sponsoring Department: **Computer Science**

E. Semester Credit Hours: **3**

F. Weekly Contact Hours: **4** Lecture **2**
Lab **2**

G. Prerequisites: **Recommended that student has experience typing and using mouse prior to taking this course.**

H. Laboratory Fees: **Yes, at current rate**

I. Name and E-Mail Address of Department Chair: **Dr. Thomas Edmunds, tedmunds@raritanval.edu**

II. Catalog Description

Prerequisites: Recommended that student has experience typing and using mouse prior to taking this course. Interactive Multimedia I teaches the principles and application of effective interactive communication in a multimedia environment. Topics include multimedia building blocks hardware, software, and emerging technologies. Student focuses on the final assembly and optimization of various media formats prepared for authoring consumption and presenting that content in linear and hierarchical navigation systems. Media formats include text, graphics, animation, sound, and video. Students will study concepts related to the design, development, management, usability, and distribution.

III. Statement of Course Need

A. Interactive multimedia authoring is central to information technology. It spans internet web sites, internet and television advertising, eLearning, eCommerce, gaming, and entertainment such as cartooning. The Information Technology (IT) function plays a central role in developing and delivering digital multimedia based

applications. As well non-IT professionals such as graphic specialists, marketing and product development professionals are involved with digital multimedia deliverables. As such IT professionals and non-IT professionals need literacy on how digital multimedia is created and delivered utilizing authoring software.

B. A central tool in interactive multimedia is authoring software skills. This course aims to combine the principles of multimedia, interactivity with the learning of the lead authoring software technology available when the course is held. Today the Flash authoring software is in decline and HTML5 and native apps are options to those pursuing this field and expertise. As such students learn using the authoring software as they would in real situations such as with content and media developed by other disciplines.

C. This course generally transfers as a digital arts and media required course or as elective credit.

IV. Place of Course in College Curriculum

A. Free Elective
B. Required for following degree programs:

1. Multimedia Communications Certificate
2. Multimedia Communications A.A.S. Degree
3. Web Developer Certificate
4. Web Developer A.S. Degree
6. Game Development A.A.S Degree
7. Digital Media/Film Studies, Associate of Science
8. Digital Video Production, Certificate

C. This course is a specialization elective in Communication Studies A.A. Degree
D. This course serves as a CIS Elective on the Computer Science (CISY) Elective List

E. 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 their individual websites.

V. Outline of Course Content

1. Understanding the multimedia authoring production environment.
    a. Types of digital multimedia applications.
    b. Types of digital multimedia roles and skills.
    c. Types of digital multimedia production tasks.
    d. Inventory of mainstream digital media production and authoring tools.

    e. Introduction of the course's authoring tool including its role in the field.
    f. Lab assignment requiring the research of a multimedia application and preparing a presentation on what resources might be involved with its production and maintenance.
2. Basics of preparing, integrating and delivery of digital display typography.
    a. Understanding font terminology including font family.
    b. Embedded fonts versus device fonts
    c. Font optimization and delivery metrics (byte size).
    d. Font readability issues.
    e. Font attributes such as color, size and weight.
    f. Typography issues between print and display.
    g. Demonstration of on how to use the course's authoring tool to create and display text.
    h. Lab assignment using the class authoring tool where student creates text content to demonstrate a clear understanding of choice of fonts, font attributes, embedding decisions and optimization. Recommend the content be based on a typography topic in course material including one topic not presented in class. Deliverable is a single static display screen.
3. Basics of preparing, integrating and delivery of digital graphics.
    a. Understanding digital graphic media terminology.
    b. Understanding the process of digital graphic media preparation from point of origins to final delivery formats.
    c. The two display graphic technologies bitmap and vector.
    d. Actual graphic design and creation is not a part of this course, however students will learn common tasks often required for integration of content typically supplied.
4. Understanding bitmap graphics
    a. The metrics including color depth and byte size.
    b. Compression issues of bitmap graphics including performance and quality.
    c. The process from acquisition to delivery.
    d. Delivery of bitmap graphic content in authoring applications: embedded, external, memory and cached.
    e. Thorough understanding of converting graphic files formats to JPEF, GIF and PNG.
    f. Understanding image resampling and resizing issues.
    g. Class demonstration of basic bitmap graphic final preparation.
        i. Importing of graphic files to graphic editing software.
        ii. Using layers to combine
        iii. Cropping
        iv. Embedding text into graphic.
        v. Exporting to various formats.
        vi. Importing to authoring tool, adding text and setting authoring tool delivery parameters.
    h. Lab assignment to acquire bitmap graphics, combine and layer in graphics tool, export to compressed formats, import to authoring tool for a single page display. Content could be screen shots of course material saved in

native system format. This is a single page display. Final item will include bitmaps with text embedded in graphics tool and text added in authoring tool such as a page title. In addition to the published authoring piece student provide an inventory of the content including any file names and their metrics including final delivery metrics.

5. Understanding vector graphics
    a. The metrics of vector graphics.
    b. Understand how vector graphics are rendered by media players.
        i. Conversion to bitmap
        ii. Runtime rendering on client player.
        iii. How rendering choices impact performance issues for playback and internet bandwidths.
    c. Class demonstration of creating vectors. C Can be combined with previous media formats. Simple shapes such as for framing other content.
6. The role of animation in digital media production.
    a. Concept of persistence of vision and the impact of the human mind and experience on animation.
    b. Animation terminology including frame, key frame and tweening.
    c. How software assists animation creation.
    d. Metrics of animation including frames per second, speed and duration.
    e. How animation impacts the UI design. In other words a button or a menu is an application of animation.
    f. Class demonstration of tweening using text and images covered so far in course. Basic templates for movement, resize and alpha change tweens. Multiple layer tweening including tweening starting and ending at different time points. How static (not animated) content works with animated content.
    g. Lab assignment to use text, bitmap graphics and vector graphics to create various tween. Tweens include different start and stop points, overlapping tween and static content such as backgrounds. In addition to the published authoring piece student provide an inventory of the content including any file names and their metrics including final delivery metrics.
7. Digital video for multimedia integration.
    a. Understanding terminology.
    b. Types of digital video formats.
    c. The process from acquisition to delivery.
    d. Distinctions between embedded, progressive download and streaming delivery.
    e. Encoding for delivery and issues of size, performance and quality.
    f. Class demonstration of encoding a raw digital video file such as avi format into a delivery format, use of pre-built player components in authoring tool to play video.
    g. Lab assignment to take a digital video file and encode into authoring format. Then use the authoring tool built-in playback component to play video. Also include other static and or tweened content. This is a single page display. In addition to the published authoring piece student provide

an inventory of the content including any file names and their metrics including final delivery metrics.

8. Digital sound for multimedia integration.
    a. Understanding terminology.
    b. Types of digital sound formats.
    c. The process from acquisition to delivery.
    d. Distinctions between embedded, progressive download and streaming delivery.
    e. Encoding for delivery and issues of size, performance and quality.
    f. Class demonstration of encoding a raw digital video file such as wav format into a delivery format such as mp3, use of pre-built player components in authoring tool to play video.
    g. Lab assignment to take a sound video file and encode into authoring format. Then use the authoring tool built-in playback component to play video. Also include other static and or tweened content. This is a single page display. In addition to the published authoring piece student provide an inventory of the content including any file names and their metrics including final delivery metrics.
9. User interaction interface.
    a. User interface constructs: menus, buttons, hypertext and hyper-graphics.
    b. User interaction to navigation: mouse click, mouse rollover and keystroke.
    c. Class demonstration of creating UI components such as a button, hypertext using the class authoring tool.
    d. Lab assignment to create buttons that look like buttons, menu choices, tabs and text.
10. User navigations for page view applications.
    a. Storyboard design and development is crucial for navigation design and the overall concept of the design.
    b. The types of navigation plans: linear and hierarchical.
    c. Demonstration of linear and hierarchical navigation templates using the course's authoring tool. Show the integration of content to various display screens.
    d. Concept of view templates in design and development.
11. Course major projects. Part of the measurement for these projects is their portfolio suitability:
    a. Slide show linear navigation project. Students are required to select a topic, develop a content inventory and work in teams to develop their individual project goals. This needs to start as early as possible in the course and requires a sign-off by the instructor before work commences. The number of template slides should range from 5 to 10. Should demonstrate some of the template slides repeated with different content. The students need to include text, vector graphics, bitmap graphics, digital video, sound related to content and 2D animation. Then each student completed the slide show using the course's authoring tool for grading. A class is set aside for class presentation and review to learn from each student's work. This is due two weeks after mid term.

b. Hierarchical navigation project. This project requires students to develop a project that includes navigation to three levels and also includes a linear navigation element, which could include the slide show project. This project can start before delivery of the first and is delivered at the end of the course.

VI. Educational Goals and Learning Outcomes

A. General Education Learning Outcomes

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

1. Use multimedia authoring software and multimedia project management best practices to produce digital multimedia (GE NJ 4)
2. Search for existing media online and apply the usage restrictions imposed by copyright or creative commons (GE NJ IL, ER)

B. Course Learning Outcomes

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

1. Create and optimize bitmap graphics for appearance and file size using industry standard techniques
2. Create a vector based illustration
3. Create a concept sheet of different visual treatments for UI design elements
4. Create and optimize audio files for ambient sound, background music and UI feedback
5. Create and utilize animation in UI and content development
6. Optimize video files for appearance, file size and bandwidth profiles using industry standard techniques
7. Deconstruct existing digital multimedia applications to identify common UI/UX patterns in design
8. Utilize the terminology used by multimedia professionals.
9. Produce a project plan detailing the development of a multimedia project.
10. Design, manipulate and integrate digital multimedia exhibiting industry best practices in UX/UI for various forms of digital delivery.

VII. Modes of Teaching and Learning

A. Lecture/Discussion - Lecture with demonstration of software, problem solving techniques, and present computer literacy concepts.
B. Laboratory – Lab time to analyze, design, develop, write, and present computer projects.

C. student collaboration
D. student oral presentations

VIII. Papers, Examinations, and other Assessment Instruments

A. Computer Projects – In-class and out of class assignments and projects
B. Exam – Hands on software exams
C. Presentations
D. Other – Homework
E. Final Exam

IX. Grade Determinants

A. Projects
B. Homework
C. Presentations
D. Hands on Software Exams
E. Final Exam

X. Suggested Materials

Suggested Textbooks:

Macromedia Flash Professional 8 Hands-On Training (Paperback) by James Gonzalez
Publisher: Peachpit Press; Bk&CD-Rom edition (December 22, 2005)
ISBN-10: 0321293886
ISBN-13: 978-0321293886

Designing Interactive Digital Media (Paperback)
by Nicholas V. Iuppa, Nick Iuppa
Publisher: Butterworth-Heinemann; Bk&CD-Rom edition (January 1998)
ISBN-10: 024080287X
ISBN-13: 978-0240802879

(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.)

XI. Resources

A. Computer access, Multimedia server

B. Web browsers: Safari, FireFox Mozilla and Microsoft Internet Explorer. Students are required to know the issues with deployment on all these.
C. Authoring software: Flash 8 Professional or latest professional level version.
D. Sound preparation software: SoundForge or Audacity (Freeware), Windows sound recorder.
E. Digital video encoding software: Flash 8 Video Encoder that comes with Flash 8 Professional, Video Lan http://www.videolan.org/ (Freeware), Quicktime Professional (Version compatible with Flash 8 Professional Video Encoder).
F. Digital Video editing software: Windows MovieMaker (Free), Adobe Premier optional.
G. Graphics preparation software: Adobe Photoshop CS or ImageReady. Fireworks can be an alternative.
H. Video streaming server: Flash Media Server. The developer version is free with limited connections and as such should installed on each workstation. Alternatively one running on instructor's station and one each multimedia lab. Flash Media Server does not need web server software running but does need to allow for server requests via TCP/IP.

These products may change from semester to semester.