

I. CATALOG DESCRIPTION:

A. Department Information:

Division:	Humanities
Department:	Radio/Television/Film
Course ID:	RTVF 131
Course Title:	Introduction to Digital Video
Units:	3
Lecture:	1 Hour
Laboratory:	6 Hours
Prerequisite:	None

B. Catalog and Schedule Description: This course is an introductory study of digital television technology and its uses in the marketplace. This course identifies the differences between digital and analog video, explores digital video interfaces, digital video platforms, the digital VTR, non-linear video editing, and the digital video studio. The focus is on all forms of digital video, but students receive hands-on training with digital video recording and editing equipment.

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS:

Upon successful completion of this course, students will be able to:

- A. Explain the difference between analog and digital video, including A/D and D/A conversion.
- B. Identify and evaluate the various types of interconnects available for conventional component and composite digital video and for 16:9 aspect ratio signals.
- C. Define and evaluate digital video encoding standards (e.g., MPEG & MPEG2).
- D. Compare and contrast the various digital video platforms, and their uses.
- E. Describe the process of non-linear editing.
- F. Demonstrate basic digital video capturing, editing, and exporting techniques.

VI. COURSE CONTENT:

- A. Analog/digital video
- B. Digital video and analog formats
 1. Component
 2. Composite/NTSC
 3. Y/C
- C. DTV:
 1. HDTV
 2. SDTV
 - a) Resolution
 - b) Aspect Ratio
 - c) Scanning Method
 - d) Frame Rate
- D. Digital video recorders
 1. Tape
 2. Disc
- E. Interfaces between digital-to-digital, analog-to-digital, and digital-to-analog inputs/outputs.
- F. Linear and non-linear digital editing techniques.
- G. Computers – their role in digital video.
- H. Digital video uses:
 1. Broadcast
 2. Cable

3. Home
4. Internet
5. Satellite
6. Video Games
- I. Digital video capturing techniques:
 1. Analog (converters)
 2. Digital
 3. Firewire
- J. Digital to analog conversion
- K. Distribution
 1. Tape
 2. CD/DVD
 3. LANS/WANS
 4. Internet
- L. Basic digital editing programs and techniques
 1. Video editing programs (e.g., Premiere, Final Cut Pro, Avid)
 2. Special effects programs (e.g., After Effects)
 3. Basic editing (cuts)
 4. Transitions
 5. Adding graphics and effects

V. METHODS OF INSTRUCTION:

- A. Lecture is combined with discussion/debate on the relevant points in each subject area.
- B. Additional content may be provided through field trips, guest speakers, and multimedia presentations, including video- and audiotapes, and computer demonstrations may be used to enhance the classroom experience.
- C. Students are encouraged to study outside resources to bring current events into the discussions
- D. Every class consists of extensive hands-on instruction with digital and analog cameras, digital editing systems, and A/D and D/A conversion techniques. Students are required to shoot, convert, edit, and export a variety of short digital video productions.
- E. Explanations and sample handouts are given for all paperwork needed to complete projects.
- F. Demonstrations are given on equipment, and students are given extensive hands-on projects to complete within the class period.
- G. Students are expected to do research on current technologies.

VI. EVALUATION(S):

- A. Method: Instructors will select at least three of the following:
 1. Students will be asked to demonstrate their knowledge through written tests, quizzes, and examinations. Sample questions:
 - a) What is the difference between digital and analog video?
 - b) Name two current digital video formats, and discuss their advantages and disadvantages.
 - c) Name two current digital encoding schemes and discuss their advantages and disadvantages.
 - d) Draw and explain the two methods of scanning.
 - e) What are the two features that distinguish HDTV from SDTV?
 - f) What is the difference between linear and non-linear editing?
 - g) Diagram the analog to digital conversion from: voice to analog tape, the sampling, quantizing, and encoding process, and exporting to analog tape to sound.
 2. In-class discussions of video/computer demonstrations.
 3. Written evaluations of products, including evaluating technical information from

- advertisements for digital equipment and current articles on relevant topics.
4. Students may be asked to give a presentation on a topic related to digital video.
 5. Shoot an analog video segment, convert it to digital, edit a :30 digital video project. Convert the segment back to analog.
 6. Shoot a digital video segment, edit, and burn it to a CD or export it to an Internet website.
- B. Frequency
1. Written tests, quizzes, and examinations: at the discretion of the instructor, but at least once during the semester
 2. In-class discussions of video/computer demonstrations; at the discretion of the instructor
 3. Written evaluations of products, including evaluating technical information from advertisements for digital equipment and current articles on relevant topics: at the discretion of the instructor, but at least once during the semester.
 4. Students may be asked to give a presentation on a topic related to digital video at the discretion of the instructor.
 5. Students will be given laboratory projects that are evaluated upon completion.

VIII. TYPICAL TEXT(S):

Adobe Premiere 6.0, Adobe: ISBN: 0201710188. 2001.
Introduction to Digital Video: Interactive CD-ROM, D. M. Dusick, BOLD Educational Software, 2003.
The Avid Digital Editing Room Handbook, Tony Solomons 2nd edition. Silman-James Press ISBN: 1879505487, July 1999.

IX. OTHER SUPPLIES REQUIRED OF STUDENTS:

Students may be required to provide headsets and zip disks or CD-Rs for class projects.