

**MOVING IMAGE ARCHIVING & PRESERVATION PROGRAM
VIDEO RESTORATION LAB I, H72.3403**

Version #2: 8/15/10

Fall 2010

Wednesdays, 1:30 pm - 4:30 pm, 665 Broadway, Rm. 643. **Please note:** For pedagogical reasons, the class length has been set at eight 3-hour classes, with an additional four hours of supervised lab time per student between the last class and the end of the semester. However, please see time change on Class 5, October 20 and special instructions for Class 7, November 3. Additional details will follow.

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GOALS: This class is the first of two courses will give students direct experience with the process of re-formatting of analog video materials for preservation and access. Addressing in-house systems and work with vendors, the class will increase knowledge in areas of archival standards, prioritization and decision-making, source and destination formats, technical requirements and systems, preparation and workflow, documentation and metadata capture, quality assurance, and overall project management. Students will have hands-on experience with tape preparation and re-formatting using equipment in the MIAP Lab and will interact with experts from preservation vendors and other NYU departments.

EXPECTATIONS: Each student will do two assignments, as outlined below. Additional tasks will be required as we go through the course, for example those listed at the end of the Assignment section. Attendance at all classes is mandatory and the student must make arrangements ahead for classes missed, except in the case of illness and other unexpected absences, when the student must notify by email or phone the instructor before class time. Unexcused absences will substantially affect grades. Grades will be based on a combination of class attendance, preparedness and participation (40%) and assignments (60%).

MIAP Digital Archive: In addition to assignments submitted in print form, all course papers/projects will be submitted in electronic form by the beginning of the class period on the due date. (Please also bring a hard copy to class on the due date.) Go to the Blackboard site for this class found under the "Academics" tab on the NYU Home site. Click on the Communication tab and then on Discussion Forum. You should see a link to your own individual forums. This is where you should upload your assignments.

Please submit word-processed documents as Rich Text Format files (.rtf). Your papers will be made part of the MIAP Digital Archive in a private space for faculty use, and on the MIAP web site, where appropriate. Please inform me of any papers that cannot be published on the web due to confidentiality restrictions or other reasons, or if you have other concerns about your work being posted. In some cases, the title of a paper will be published, but access to the paper will be restricted to selected MIAP faculty and staff. When electronic files are submitted, the file names must conform to the standard format (please see end of syllabus for instructions on file naming.)

Texts:

Required text is How Video Works by Marcus Weise and Diana Weynard. Since this was a required text for a first year class, I assume all students have it. Additional readings will be provided as handouts or are available on the web. Some texts will be ones that you have read in previous classes – when they are assigned, please review those prior to class as a refresher. For texts on video from the 1970s and 1980s the following books are recommended (they are out of print):

Bensinger, Charles. The Video Guide. Santa Barbara, CA: Video-Info Publications. 1981.
Media Bus, Inc. The Spaghetti City Video Manual. New York and Washington: Praeger Publications. 1973.

Helpful resources:

- ☒ Bachman, Rebecca, et al. "Glossary" in Video Preservation Resources on the web site of the Bay Area Video Coalition. San Francisco: Bay Area Video Coalition. 2003. Retrieved 1/19/05 at <<http://www.bavc.org/preservation/dvd/resources/gloss.htm>>.
- ☒ ScreenSound Australia. "Technical Glossary of Common Audiovisual Terms" in Preservation on the ScreenSound Australia web site. Canberra, Australia: ScreenSound Australia. 2000-2003. Retrieved 1/19/05 at <<http://www.screensound.gov.au/glossary.nsf/Main/Glossary+Index?OpenDocument>>.
- ☒ Wheeler, Jim and Peter Brothers. "Video Preservation Fact Sheets." Los Angeles: Association of Moving Image Archivists. 2003. Retrieved 1/19/05 at <<http://www.amianet.org/publication/resources/guidelines/vidеоfacts/about.html>>.

Please note: The Video Guide (see cites below) is also available on the web at http://videopreservation.stanford.edu/vid_guide/index.html

Assignments:

Assignment #1

Researching System Components: Each student will be assigned a component part of the Video Lab system. Prepare a written description that explains the purpose of the component, its basic functions, salient features, its capabilities, etc. You may also need to explain terms, such as different inputs/outputs. Your audience should be other archivists and part of your motivation should be to de-mystify the technology. You may also find that you can make a recommendation as to whether it is an essential or non-essential item for a tape-to-tape or tape-to-digital re-mastering setup. Be prepared to summarize its functions and features in class. Minimum 2 pages – but make it as long as you need. Bring copies of your paper for classmates. Due September 22.

Assignment #2

Completing a Re-formatting Project: Each student will be responsible for managing the preservation of a tape, beginning with the visual inspection and cataloging of the tape through the creation of a high quality preservation file. The project will be a test run for a preservation projects that they will undertake in the Spring semester. Each student will successfully complete a tape transfer through delivery of a preservation master file and a written plan detailing the decisions made in such areas as destination format, file naming, plans for creation of derivatives, and documentation of preservation actions. Due no later than December 15th. You will be assigned lab time for the actual transfer, and will work in groups of 2 or 3 to facilitate sharing of techniques and strategies.

Please note: Students will also be evaluated on their preparation for and participation in an "Activist Archiving" event held at the Scribe Media Center on Wed. November 3rd. You will be matched with a volunteer to sort and catalog a video collection from a grass roots producing group that does not have a professional archivist. From the session, tapes will be chosen for re-mastering in the spring semester. In addition at AMIA, students will be assigned a vendor or resource person to informally interview, and will be evaluated on the depth of content they are able to collect (See November 10.)

Class 1: September 8, 1:30 – 4:30 pm

These are follow-up readings for this class:

- Martin, Jeff. "The Dawn of Tape: Transmission Device as Preservation Medium." *The Moving Image*. Spring 2005. p. 35-66.
- Suyaga, Hiroshi. "The Past Quarter-century and the Next Decade of Videotape Recording." *SMPTE Journal*. No. 101: 10-13. January 1992.
- "The VTR" in Bensinger, Charles. The Video Guide, 2nd ed. 1981. Santa Barbara, CA: Video Info Publications. p. 60-70.
- Read: Hocking, Sherry Miller. "Principles of Electronic Image Processing: Signals". Owego, NY: Experimental Television Center. n.d. Retrieved 1/16/05 at <http://www.experimentaltvcenter.org/history/tools/tools_texts.php3>
- "Electronic Photography"; "Scanning"; and "The Transmitted Signal" in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 5-38.
- "Color Video" in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 53-67.
- "Magnetic Media" in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 161-173.
- For the DVDs that we viewed in class see <http://prestospace.org/training/index.en.html>
- Recommended:
 - "VTR Interchangeability" in Bensinger, Charles. The Video Guide, 2nd ed. 1981. Santa Barbara, CA: Video Info Publications. p. 101-114.
 - Excerpt from Bensinger, Charles. The Video Guide, 2nd ed. 1981. Santa Barbara, CA: Video Info Publications. p. 236-238.
 - "Overview of Operations" in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 207-221.
 - Research Technology International. The Videotape Cassette Care Handbook. 1999. Lincolnwood, IL: Research Technology International. p. 3-9. (handout)

Topics/activities:

- Introductions, syllabus review (20 min.)
- Roles and contributions of players in the video preservation workflow; relationships with standard-setting bodies and initiatives. (40 min.)
- Review of major historical changes in videotape technology (media and hardware) impacting the playback and re-formatting process. How videotape has been recorded, played back and transmitted, details on the characteristics of video signals and related devices. (100 min.)
- Discussion of Assignment #1 (10 min.)

Class 2: September 22, 1:30 – 4:30 pm

Read/due this class:

- Assignment #1 Researching System Components.
- Federal Agencies Audio-Visual Working Group. "Digitization Activities: Project Planning and Management Outline" in Federal Agencies Digitization Guidelines Initiative. 2009. Accessed 8/31/10 at <http://www.digitizationguidelines.gov/stillimages/documents/DigActivities-FADGI-v1-20091104.pdf>
- Lacinak, Chris. "Reformatting: Terminology, Intent and Practices". MIC Website, 2004. Retrieved 10/10/07 at http://mic.loc.gov/preservationists_portal/presv_reformtg
- "Audio for Video" in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 193-205.
- Recommended:

- “Timecode” in Weise, Marcus and Diana Weyland. How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 183-191.
- “TV Technology” on the web site The Pamela Nash Experience. Retrieved 1/25/06 at <http://archive.whoniversity.co.uk/tech/index.html> (for quad)
- Sencore. "Sencore Tech Tips: Comparison of VCR Formats". South Dakota: Sencore. Retrieved 09/04/07 at <http://catalogs.infocommiq.com/AVCAT/images/documents/pdfs/TT189%20-%204611.pdf>

Topics/activities:

- Principles of an archival transfer; review of stages of preservation workflow and decision-making (40 min.)
- Brainstorm of the needs and opportunities for capturing metadata throughout the workflow. (40 min.)
- Discussion of concept of signal flow in a re-mastering workflow through work with the lab equipment. Using the research done by each student, students will gain an understanding of the role of various components in workflows. Where are the critical points for monitoring to ensure safety of the materials and integrity of the transfer? Where are key points where failures can occur in systems, operations and/or media? (90 min.)

Class 3: September 29, 1:30 – 4:30 pm

Read/Due this class:

- Analog Waveform Monitors”, Analog Vectorscopes”, and “The Encoded Signal” in How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 75-102.
- Tektronix. Waveform Monitor Techniques, Vectorscope Techniques, and Setting up a Genlocked Studio in "Video Measurement: The Basics", Retrieved 9/6/07 at http://www.tek.com/Masurement/App_Notes/NTSC_Video_Msmt/25W_7247_1.pdf
- Martin, Jeff. “Curriculum Module: ¾” Umatic Videotape.” 2007. (This module, created for MIAP, will be on the Blackboard site.)
- Recommended (for audio):
 - McKnight, John. "Tape Reproducer Response Measurements With a Reproducer Test Tape". Journal of the Audio Engineering Society. Retrieved 9/6/07 at http://home.flash.net/%7Emrltapes/mcknight_tape-reproducer-response.pdf
 - Obtaining an Accurate Transfer (pp. 8-10) and Configuring, Calibrating Playback Equipment (pp. 21-23), and Configuring and Calibrating Playback Equipment (pp. 28-30) in "Capturing Analog Sound for Digital Preservation: Report of a Roundtable Discussion of Best Practices for Transferring Analog Discs and Tapes". 2006. Washington, D.C., Council on Library and Information Resources and Library of Congress. Retrieved 9/6/07 at <http://www.clir.org/pubs/reports/pub137/pub137.pdf>

Topics/activities:

- Practice reading signal flow diagrams and creating various signal flows for creating preservation masters and access copies. (90 min.)
- Concepts and practice with setup of video and audio equipment and video re-formatting systems, including alignment, calibration, setting levels, and the role of reference signals. Function and use of time base correctors, audio gain stage devices and other equipment for signal monitoring and adjustments during the workflow. Practice interpreting analog signal characteristics with the use of monitoring equipment. Preservation vs. restoration v. enhancement in practice – how is a “flat transfer” achieved for dynamic media? (80 min.)

Class 4: October 6, 1:30 – 4:30 pm

Read/Due this class:

- ☒ Federal Agencies Audio-Visual Working Group. "Video Digitization Activities, Guidelines and Format Specifications" in Federal Agencies Digitization Guidelines Initiative. 2008. Accessed 8/31/10 at http://www.digitizationguidelines.gov/audio-visual/documents/Resource_Video_080812.pdf
- ☒ Lacinak, Chris. A Primer for Codecs for Moving Image and Sound Archives: Ten Recommendations for Codec Selection. 2010. New York: AudioVisual Preservation Solutions. Accessed 8/31/10 at http://www.avpreserve.com/wp-content/uploads/2010/04/AVPS_Codec_Primer.pdf
- ☒ "Digital Theory"; "Digital Television Standards"; and "High Definition Video" in How Video Works: From Analog to High Definition. 2004. Burlington, MA and Oxford: Focal Press. p. 95-137.
- ☒ Graft, Donald. "Data Rates and File Sizes" Retrieved 10/10/07 at <http://neuron2.net/LVG/ratesandsizes.html>
- ☒ Review:
 - Vitale, Tim and Paul Messier. "Video Migration in the Preservation Laboratory: Video Capture Card and External Analog to Digital Converters (ADC." In Video Preservation Website: Digital Migration Tools and Techniques. 2007. Accessed 8/31/10 at http://videopreservation.conservation-us.org/dig_mig/index.html
 - AJA Data Rate Calculators:
 - ☒ For Mac OSX: http://www.aja.com/ajashare/AJA_Data_Rate_Calculator_v2.app.tar
 - ☒ For Windows: http://www.aja.com/ajashare/AJA_dataratecalculator_win_10-5.zip

Topics/activities:

- ☒ Analog to digital conversion: encoding, file formats, wrappers and destination formats. Sustainable practices that ensure integrity of the analog original throughout the conversion process. (90 min.)
- ☒ Setting up and routing the signal to the digitizers and computers for capture. (60 min.)
- ☒ Introduction of Activist Archiving event. (20 min.)

October 13 – NO CLASS

Class 5: October 20, 12:30 – 3:30 pm (NOTE TIME CHANGE)

Read/Due this class:

- ☒ Bigourdan, Jean-Louis, Jame M. Reilly, Karen Santoro and Gene Salesin. The Preservation of Magnetic Tape Collections: A Perspective. Rochester, NY: Image Permanence Institute. 2006. Accessed 9/8/08 at http://64.233.169.104/search?q=cache:jCwVQCMGSu0J:www.imagepermanenceinstitute.org/shtml_sub/NEHTapeFinalReport.pdf+The+Preservation+of+Magnetic+Tape+Collections:+A+Perspective+ipi&hl=en&ct=clnk&cd=1&gl=us&client=firefox-a
- ☒ "All About Videotape" in Bensinger, Charles. The Video Guide, 2nd ed. 1981. Santa Barbara, CA: Video Info Publications. p. 71-75.
- ☒ Spec Bros. "White Paper: Basic Inspection Techniques to Sample the Condition of Magnetic Tape" on the web site of Spec Bros. Lodi, NJ: Spec Bros. 2002. Retrieved 1/25/06 at <http://www.specsbros.com/whitepaper.html>.
- ☒ Excerpt of "Chapter 4" in White, Gordon. Video Techniques. 1982. London, Sydney, Toronto, Wellington, Durban and Boston: Butterworth and Co. p. 103-116. (handout)
- ☒ Van Maaslen, Kara. "Bobst Video Preservation Lab RTI VT-3100 3/4" U-Matic Cleaning Machine: Tips and Guidelines" in the Student Papers section of the web site of the Moving

Image Archiving and Preservation Program. 2006. Accessed 2/3/07 at http://www.nyu.edu/tisch/preservation/program/student_work/index.shtml

Topics/activities:

- Metadata through the workflow. Approaches to handling metadata about the source format, the destination format and about preservation decisions and actions such as treatments and signal adjustments. (60 min.)
- Part 1 of Tape Problems (to be continued in the Spring semester): Introduction to tape problems revealed from inspection/initial playback, and overview of current treatment methods, including use of a dehydrator, desiccants and “cleaning machines.” Introduction to the RTI cleaning machine and to the SAMMA tape cleaner in the Bobst lab. (60 min.)
- Overview of Bobst re-mastering lab in contrast to the MIAP Video Lab. (20 min.)
- Applying today’s learning to the Activist Archiving session. (30 min.)

Class 6: October 27, 1:30 – 4:30 pm

Topics/activities:

- Preparation for the Activist Archiving session: Methodology for a collection ‘triage’, including sorting and identification, visual inspection, obtaining complete information from the source tape and container, and working with existing data. Utilizing the cataloging template of Independent Media Arts Preservation, we will prepare a template for capturing the data and will develop strategies for working with volunteers. (90 min.)
- Brainstorming of information needed from potential vendors and resource people at AMIA, and purpose of the exercise. (30 min.)
- Introduction of Assignment #2 Completing a Re-formatting Project and review of practice/ review of concepts and technical specifications. (50 min.)

Class 7: November 3, at Scribe Video in West Philadelphia . You will be traveling early to Philly to undertake an Activist Archiving event before the AMIA conference begins that evening. Tentative schedule is 11:00 – 4:00.

Class 8: November 10, 1:30 – 4:30 pm

Topics/activities:

- De-briefing from AMIA: 1) Activist Archiving as a strategy and 2) reports from conversations with vendors. (90 min.)
- Check-in on Assignment #2. Students will receive source tapes, will capture metadata and visually inspect the tapes, and will develop a plan for their lab time. (80 min.)

Lab time: November 17, December 1, December 8, 12:30 – 4:30 pm. Student time to work in groups of 2-3 on Assignment #2 Completing a Re-formatting Project, due December 15.

File submission format for assignments:

year semester_class number_author’s last name_assignment number.extension

Example: 05s_1800_Smith_a1.doc

For multiple authors, the two initials of each author will be used, separated from each other by underscores. An underscore and the assignment number will follow this. Assignment numbers are determined by the order in which the assignments are given. They begin with an ‘a,’ followed by a number between one and ten. For assignments with multiple files, a letter can be added after the

number. Thus, one could have 'a1b,' meaning that this is the second of multiple files from one student for one particular assignment. If a student decides to withhold her work from being freely available online, she may alert the professor, as well as by adding “_x “ after the assignment number in file name:

Example: 05s_1800_smith_a1_x.doc

Otherwise, permission shall be implicitly granted for the student’s work to be posted on the digital archive website.