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

Version #1.0 2012_09_03
Fall 2012
Mondays, 6:00 pm - 9:00 pm, 665 Broadway, Rm. 643.

INSTRUCTORS:
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OFFICE HOURS: We will not hold regular office hours but are available anytime to meet. Please feel free to contact us by email or telephone with any questions, concerns or to set-up an appointment to meet. Email would be the best way to get in touch.

GOALS: This class is the first of two courses will give students direct experience with the process of re-formatting of magnetic media for preservation and access and a comprehensive understanding of digital file formats for video and audio. While the title says “Video Preservation”, we are going to cover both audio and video as both are complimentary and you will typically encounter both. Addressing in-house, 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. 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%), periodic quizzes (10%) and assignments (50%).

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 .pdfs of weblinks. 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. NOTE: Reading will change as the semester progresses. Ample time will be given to allow for changes and you will be notified via email when new readings are assigned.

Recommended texts:
These texts are not required but are useful resources to have handy. Some readings will be excerpts from the following.
Bensinger, Charles. The Video Guide. Santa Barbara, CA: Video-Info Publications. 1981. (out of print)
Media Bus, Inc. The Spaghetti City Video Manual. New York and Washington: Praeger Publications. 1973. (out of print)
Milner, Greg. Perfecting Sound Forever. New York, NY: Faber and Faber Inc. 2009.
Sterne, Jonathan. MP3: The Meaning of a Format. Duke University Press. 2012.
Luther, Arch. Video Engineering. Third Edition. McGraw-Hill. 1999.

Other 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/videofacts/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 Production History. Each student will be assigned a type of media production from a particular time-period. Using primary and secondary resources, each student will trace the history of the production process and detail what elements were created and identify the preservation priorities. On October 29, everyone will give a short presentation on their production process and submit a written report (5 page minimum) about the history of both the technology used in the production method and the media generated. Students will prioritization elements generated in the production and defend their reasoning behind these decisions. Due via email October 29.

Types of Productions:

- Multi-track audio studio recording: 1960s/1970s (e.g. Beatles, Kraftwerk), 1980s (e.g. Neil Young's experiments in digital multitrack recording, Independent recordings), 1990s (e.g. Radiohead, Wu-Tang clan), 2000s (e.g. LCD Soundsystem)
- Broadcast News (CBS, CNN, Local News): 1960s, 1970s, 1980s, 1990s, 2000s
- Local Access Television (e.g. BCAT, MNN): 1980s, 2000s
- Video Production (Documentaries, Feature Films, television): 1980s, 1990s, 2000s
- 2" Quad studio recording (e.g. Tonight Show with Johnny Carson, Honeymooners, Twilight Zone)
- Radiobroadcast 1930s
- Tapeless motion picture production

Assignment #2

Completing a Re-formatting Project: Each student will be assigned a format to perform an in-house digital migration. Choosing one of your previous internships as a model, the transfer will be performed in accordance to that institutions specifications/workflow. Metadata capture, archival master, mezzanine and access formats will be decided by the student for what best meets the institution's resources and mission. Each student will be assigned a 1 hour window in which to perform the transfer during the lab times scheduled in November. Students will submit the 3 formats, along with a populated metadata schema and any ancillary material deemed relevant along with a written report of their findings (minimum 5 pages) via email and dropbox on December 10. During the last class everyone will give a short presentation "defending" their migration, detailing their workflow, metadata capture, digital master and surrogate files generated.

Class 1: September 10, 6:00 – 9:00 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.
- 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>
- "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)
- Sterne, Jonathan. "Format Theory". *MP3: The Meaning of A Format*. p. 1 – 31. (PDF on dropbox)

Topics/activities:

- Introductions
- Syllabus Review
- Discussion of Assignment #1
- Aesthetic History of Magnetic Media
  - The Signal
  - Characteristics and the transmission of the signal
  - Capture of the signal
- History of tape and reproducer technology
- Discussion of preservation/restoration/enhancement

Class 2: September 24, 6:00 – 9:00 pm

Read/due this class:

- "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.
- "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.
- "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:

- "The VTR" in Bensinger, Charles. The Video Guide, 2nd ed. 1981. Santa Barbara, CA: Video Info Publications. p. 60-70.
- "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.
- "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.

Topics/activities:

- Overview of equipment mechanics
- Hands on analysis of U-matic VTR in comparison to open-reel reproducer.
- Discussion of calibrated reproduction vs. faithful reproduction.

Class 3: October 1, 6:00 – 9:00 pm

Read/Due this class:

Review examples of wiring diagrams and cable cut lists to be provided via dropbox.

Topics/activities:

- Role of equipment in signal integrity.
- Signal reformatting/Signal path.
  - Role of different signal input/outputs in relation to reproduction.
  - Wiring diagram explanation and discussion.

Class 4: October 8, 6:00 – 9:00 pm

Read/Due this class:

Video

- 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/Measurement/App_Notes/NTSC_Video_Msmt/25W_7247_1.pdf

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:

- Quiz #1
- Explanation and discussion of audio and video setup for playback – topics covered include: alignment (azimuth, skew, tracking, etc.), level setting, calibration, and the role of reference signals.
- Explanation and discussion of the role of the TBC, Proc Amp and FrameSynchronizer in video and EQ curves in audio.
- Explanation and discussion of the role of audio meters, waveform monitors, vectorscopes, and audio and video monitors.
- Explanation of Monitor calibration.

Class 5: October 29, 6:00 – 9:00 pm

Read/Due this class:

- Research Technology International. The Videotape Cassette Care Handbook. 1999. Lincolnwood, IL: Research Technology International. p. 3-9. (handout)
- 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) "Introduction", "Open Reel Tape", "Analog Audio Cassettes", "DAT" Casey, Mike. FACET: Format Characteristics and Preservation Problems Version 1.0 2007. Indiana University. pp. 1-54. Available at: http://www.dlib.indiana.edu/projects/sounddirections/facet/facet_formats.pdf

Topics/activities:

- Presentations of first assignment

Class 6: November 5, 6:00 – 9:00 pm

- 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:

- Quiz #2
- Explanation and discussion of analog to digital migration process.
- Discussion on A/D capture hardware and software.
- Explanation and discussion of digital video and audio characteristics, streams, codec’s and wrappers.
- Discussion of transcoding.
- Discussion on QC process and workflow.
- Discussion of metadata capture.

Lab Time: November 12, 6:00 - 9:00 pm

Lab Time: November 19, 6:00 – 9:00 pm

Lab Time: November 26, 6:00 - 9:00 pm

Final Class: December 10, 6:00 - 9:00

- Final project presentation.
- Class wrap-up.

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.