16th Annual Education Technology Conference

CAMPUS TECHNOLOGY 09

July 27 – 30, 2009 | Boston Convention & Exhibition Center

Lecture Capture in the Classroom and Beyond

Bill Reynolds, Joe Bonchi, and Keith Williams
Instructional Technology and Media Services
New Jersey Institute of Technology

July 28th, 2009

NJIT New Jersey's Science & Technology University

- Established as Newark Technical School in 1881.
- Became the Newark College of Engineering in 1932.
- Became New Jersey Institute of Technology in 1976 with the addition of the New Jersey School of Architecture.
  - 45 acre campus with 26 buildings.
  - Located in Newark, NJ - across the river from NYC
  - **Public Research University**
  - Comprised of six colleges
  - 659 faculty (full and part time).
  - 8,398 enrollments
    - 5576 Undergraduate
    - 2822 Graduate

NJIT's Background

- Computer-based distance learning (1979)
- Video based distance learning (1983-1995)
  - Tape based distribution
  - Broadcast, cable, public tv
  - Satellite
  - ITV

NJIT's Earlier Efforts

- Various digital recording efforts
- DVD, CD
- Computer capture
  - SMIL
  - Articulate, Impatica
  - Captivate
  - Camtasia Studio

NJIT's Goal

- Improve student retention
  - Enable students to view learning objects prior to class
  - Enable students to review lectures, after class
  - Empower instructors to reallocate class time for discussion and problem solving

NJIT's Needs

- Affordable
  - Pay per cart not appealing
  - Pay per user license cost prohibitive
  - Unable to budget for annual costs
  - Ability to use with preexisting classroom hardware

NJIT's Needs

- Easy to implement/scale
  - Most instructors don't use for every course
  - Ability to capture classes ***AND*** learning objects
  - Can be used by faculty, staff and students
  - Desire for "**Archival Master**"
    - Ability to re-encode as needed
    - Files that are not proprietary

Evaluating a Lecture Capture System (LCS)

- Systems Evaluated
  - Tegrity
  - Echo 360
  - Panopto
  - Apple Podcast Producer
  - Camtasia Relay

NJIT's Solution: Camtasia Relay

- Minimal hardware investment
- Flat license cost, no per user fee
- Friendly user interface
- Beta program offered unique opportunity for user input

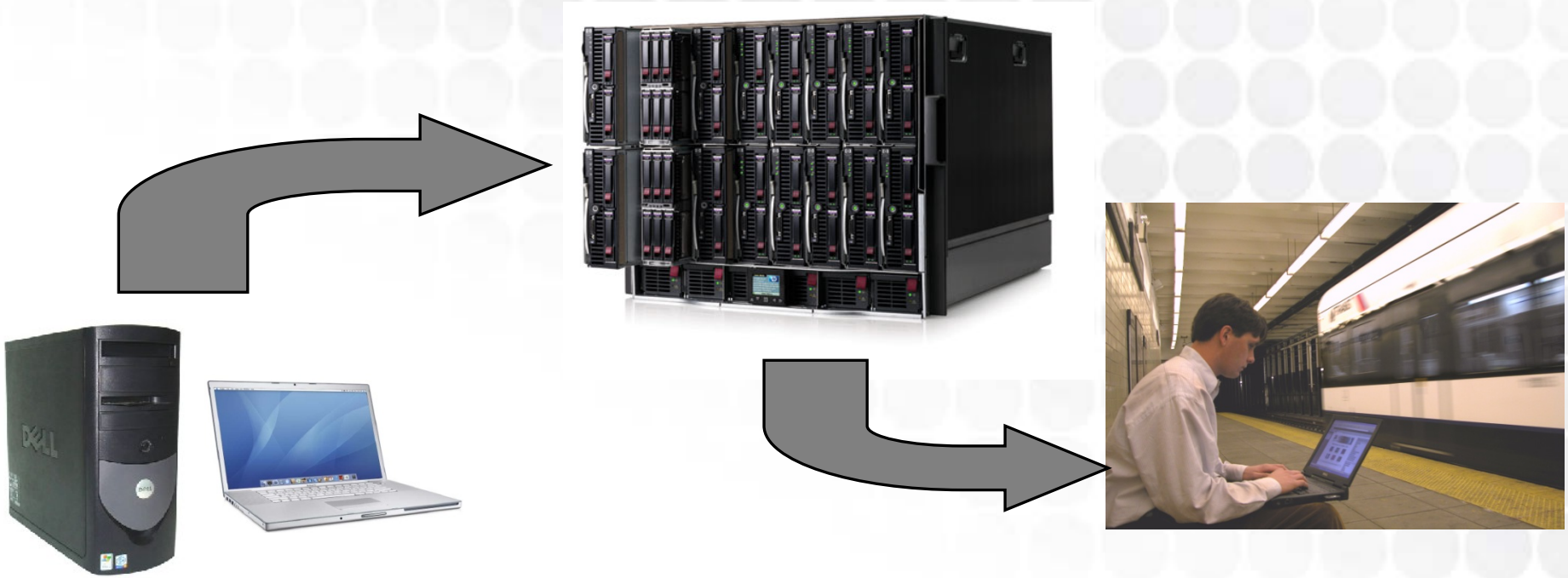
NJIT's Solution: Camtasia Relay

- Accepted as a beta tester winter 08
- Initial beta test spring 08
- Full launch fall 08

Currently:

- Over 70 instructors and staff members use Relay
- 4 courses have experimented with having students create presentations

How does it work???

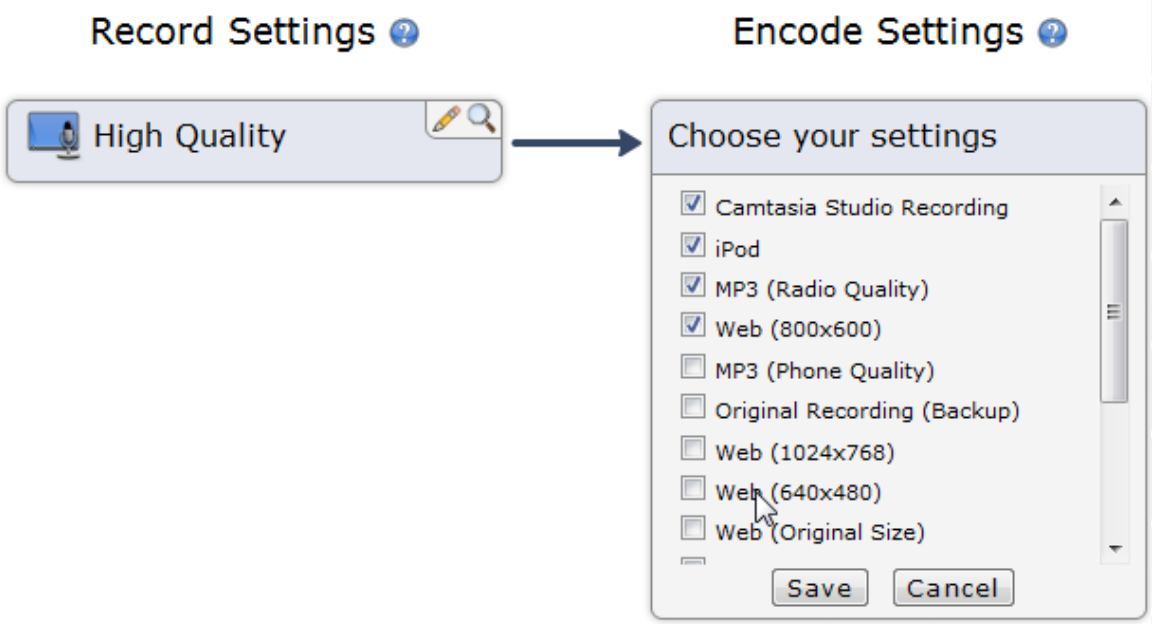


Client / Server-based lecture capture system

M4V, iTunes U, MP3, HTML

Step 1: User Profile

- Assigned to individual users
- Determines output format and settings
- Tells Relay where to send files

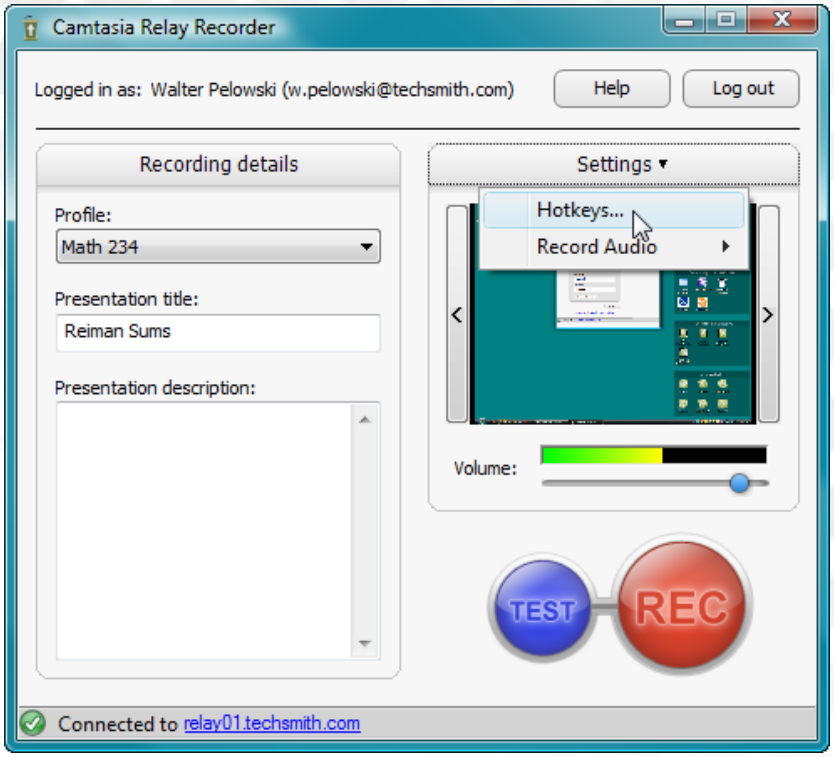


Step 2: Install/Launch Application

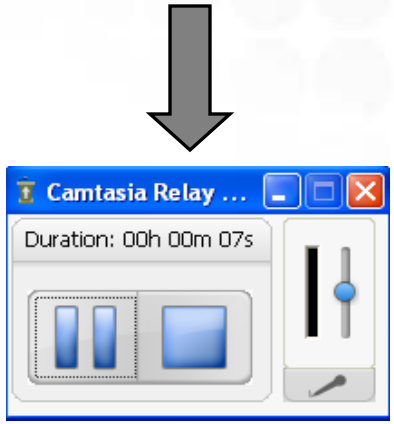
- Small Application
- Open to all faculty, staff and students
- Login/guest options available

Step 3: Start Recording:

- Screen capture
- Audio capture
- Does not capture video of presenter



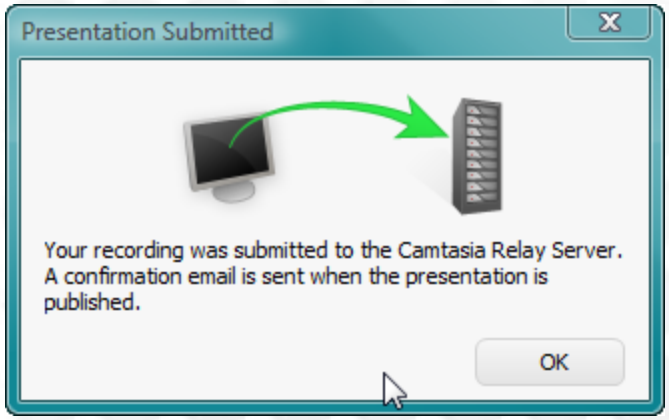
Step 4: Stop Recording



Step 5: Submit Recording

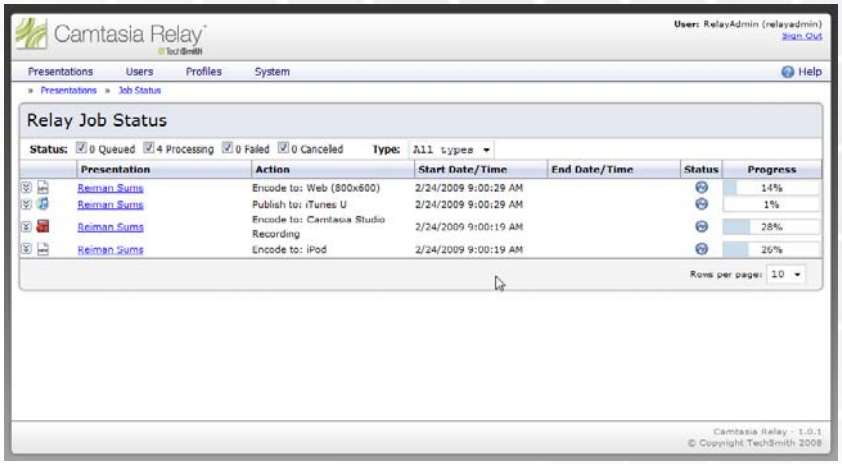
Step 6: Upload file to server

•Uncompressed file is uploaded to server for processing



Step 7: Server encodes video

•One recording to multiple formats
•Multiple destinations



Step 8: Final Product Published

•Lectures get automatically uploaded to NJIT on iTunesU, designated servers, websites.

Your presentation has been published.

View the presentation.

Presenter name: Blake Haggerty
Presenter email: blake.haggerty@njit.edu
Title: Test DIRECT to AFS
Description: Test
Created: 4/13/2009 9:21:21 AM
Presentation length: 01:25:58
Encoding: Web (1024x768)
Destination: Direct to AFS - MP4
File size: 274MB

View presentation link: http://podcast.njit.edu/relay/relay1/test/Test DIRECT to AFS - Web (1024x768) - 20090413 09.21.21AM.html

How do we use Relay???

Classroom Capture

ITMS maintains computers for sign-out/delivery

- Relay has been installed on all ITMS laptops/smart carts
- Select smart carts have microphones and visualizers

Classroom Capture:

USB Microphones installed in the ceiling of select rooms

- Can be used with laptops
- Carts are delivered to select classrooms
- Samson UB1 microphone (good)
- RevoLabs wireless microphones available for sign-out (better)

Total Costs for Rooms:

- $2,000 = 20 classrooms with microphones (**Samson UB1)**
- $20,000 = 20 new smart carts pc (**Dell Optiplex 775**)
  - (slated for upgrade previously)
- $5,500 = 6 Samsung visualizer (**SDP-850X**)
- $1300 = 13 sign out/test microphones (**Samson UB1)**
- $1,500 = 10 graphics tablets (**Adesso Cyber Pad**)

Server Information:

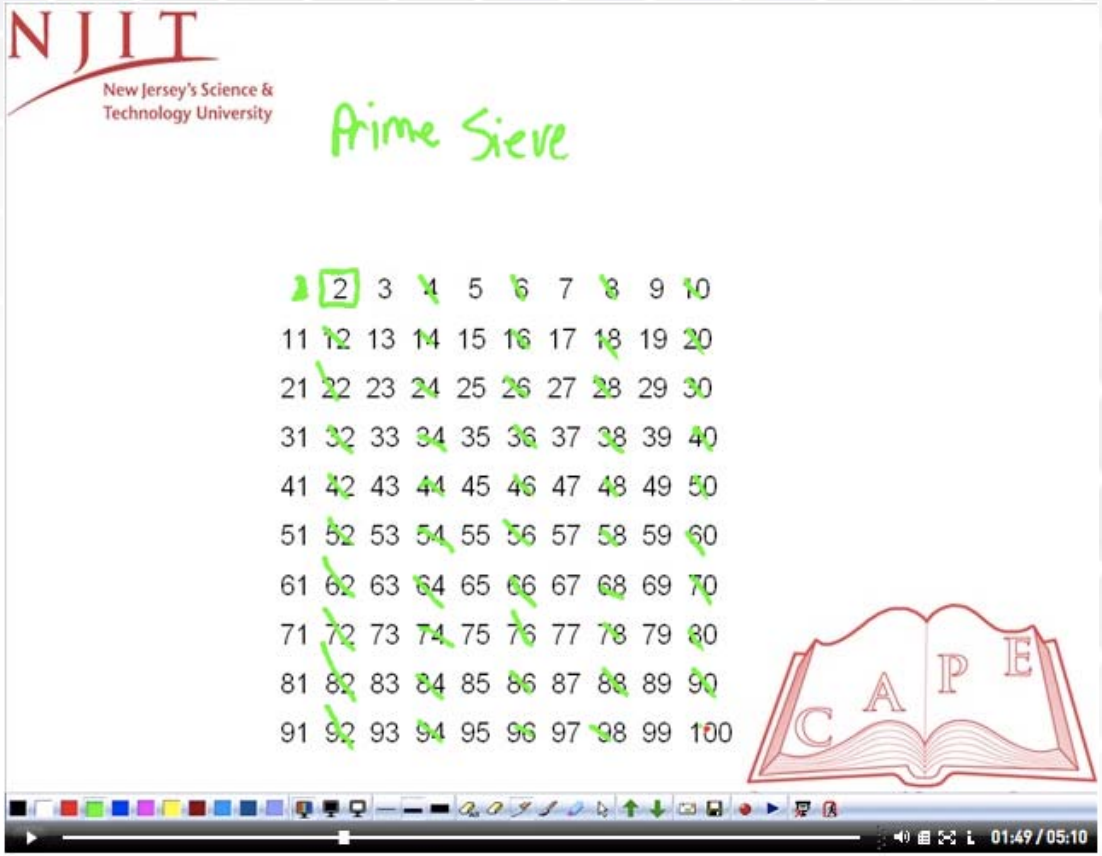
- Virtual server with four cores at 2.4GHZ max
- 150 GB of storage space
- Three simultaneous encodes

Learning Object Creation

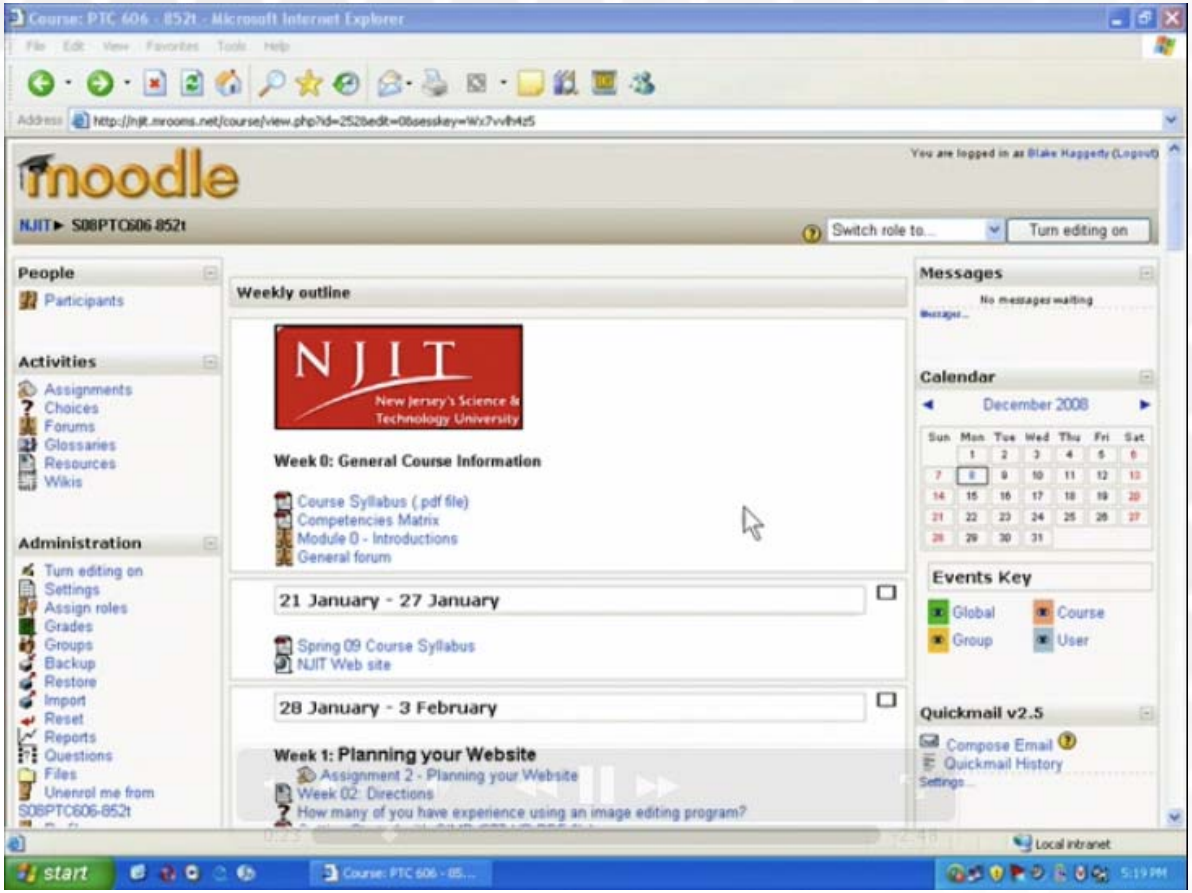
- Many instructors create learning objects outside of classroom
  - LOs are shorter than a lecture (15-20 minutes)
  - Used to introduce concepts before class
  - Allows for more in-class discussion

- Instructors prefer to not think about encoding options
- Like having lectures sent directly to iTunes
- Instructors can “borrow” equipment for long-term loan if they make videos available to the public through NJIT on iTunes U

Examples

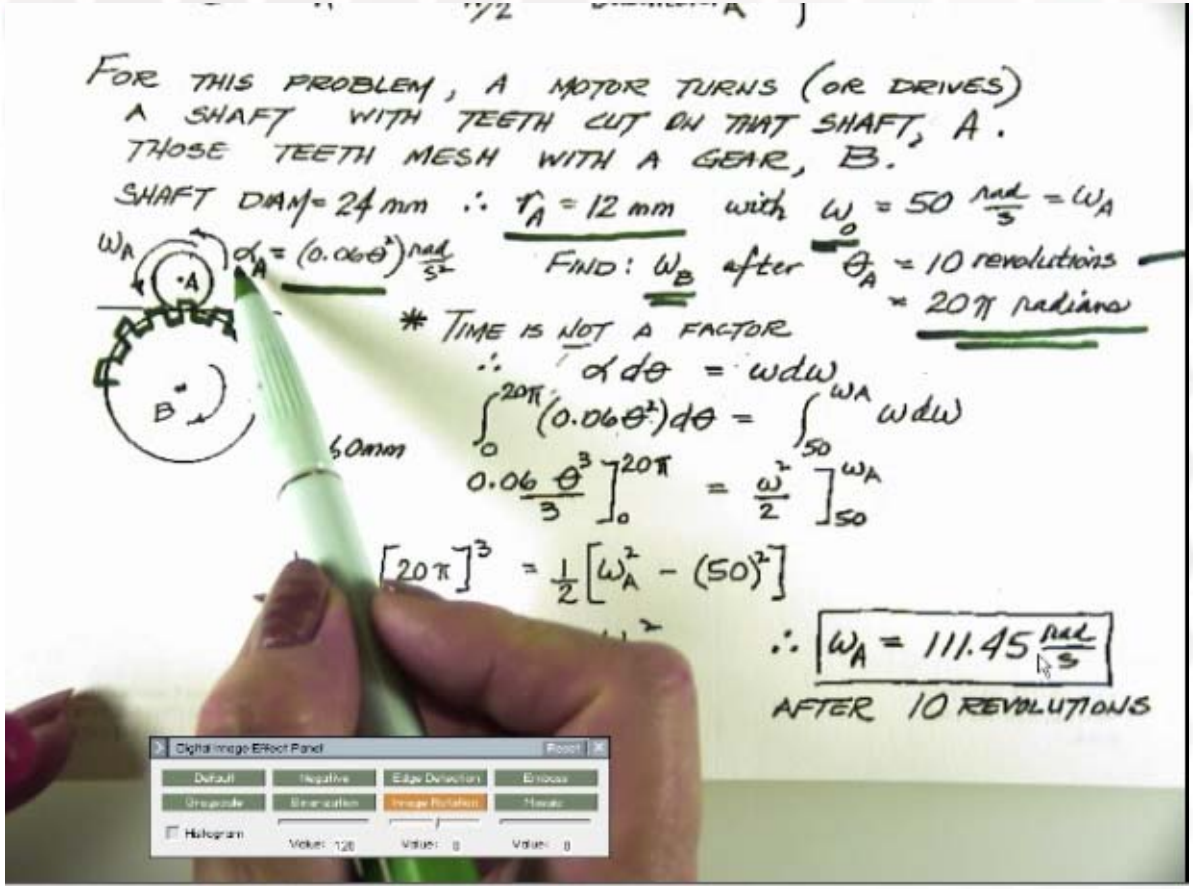


Graphics tablet with Adesso CyberPad
Tutoring Center



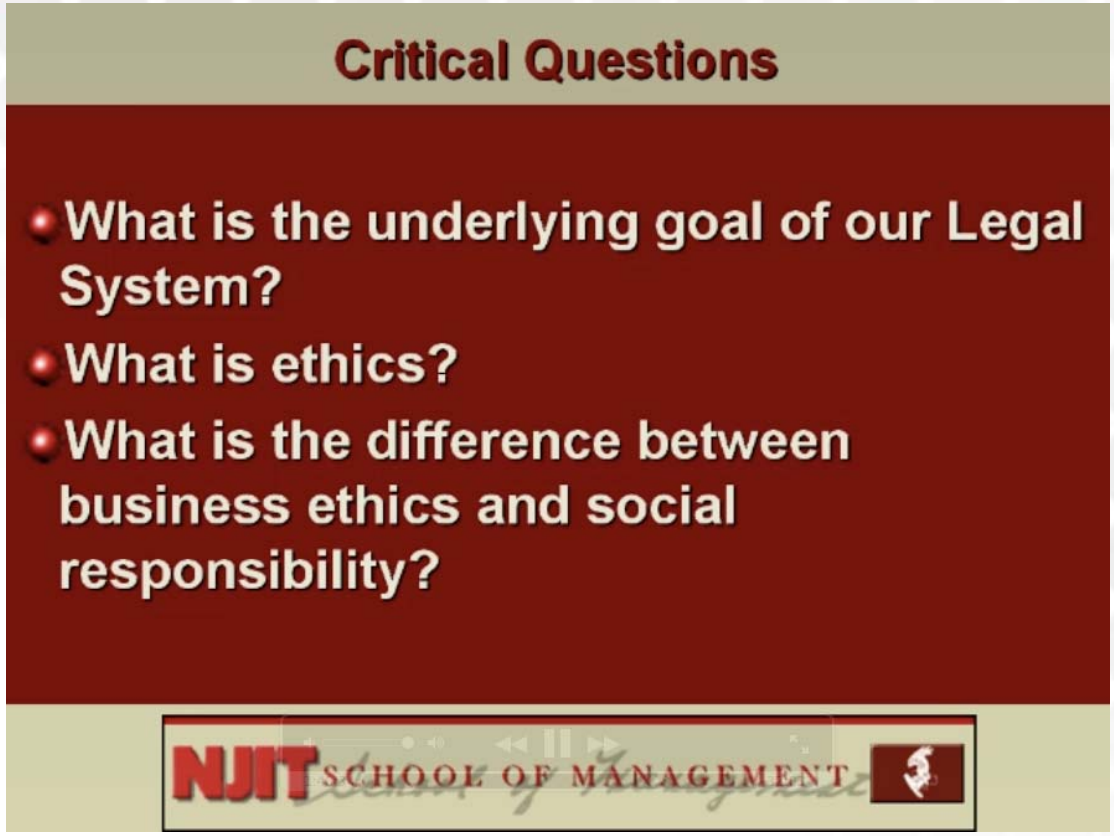
Video tutorials:

http://www.youtube.com/user/njit

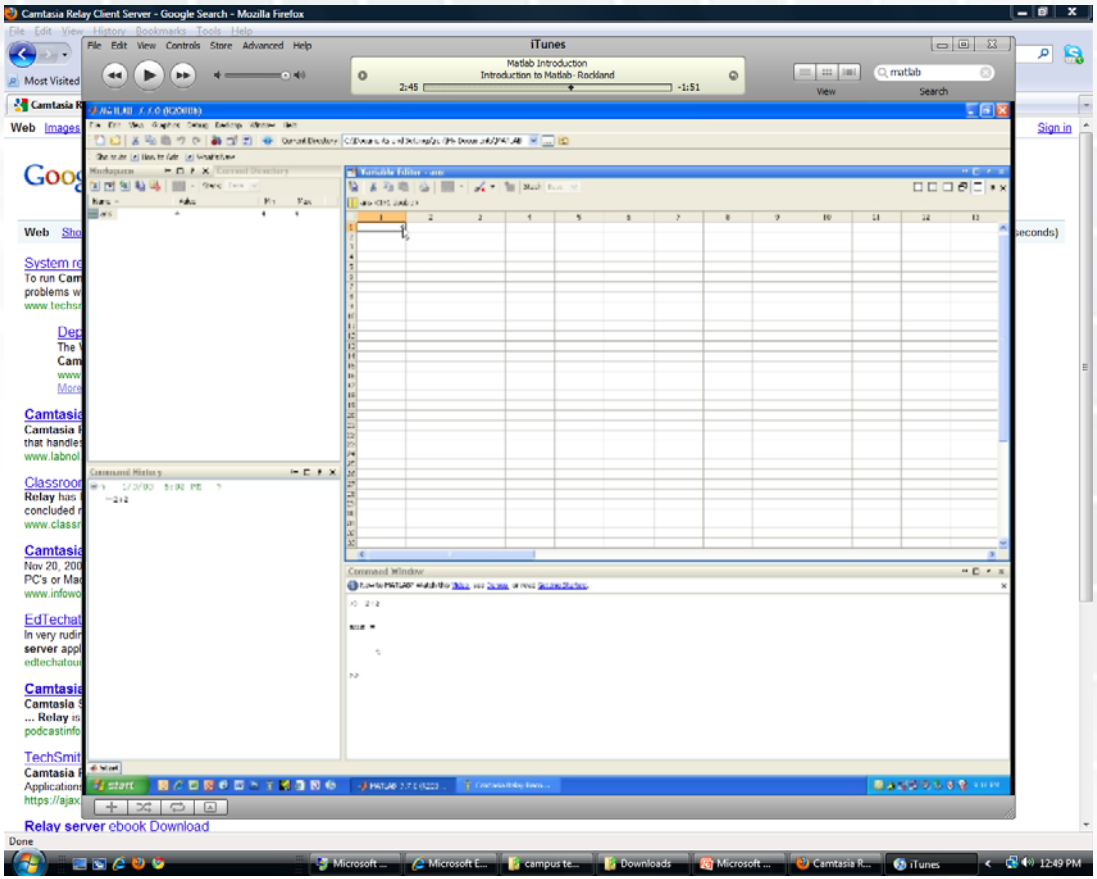


MECH 236 Dynamics:

Smart cart and visualizer

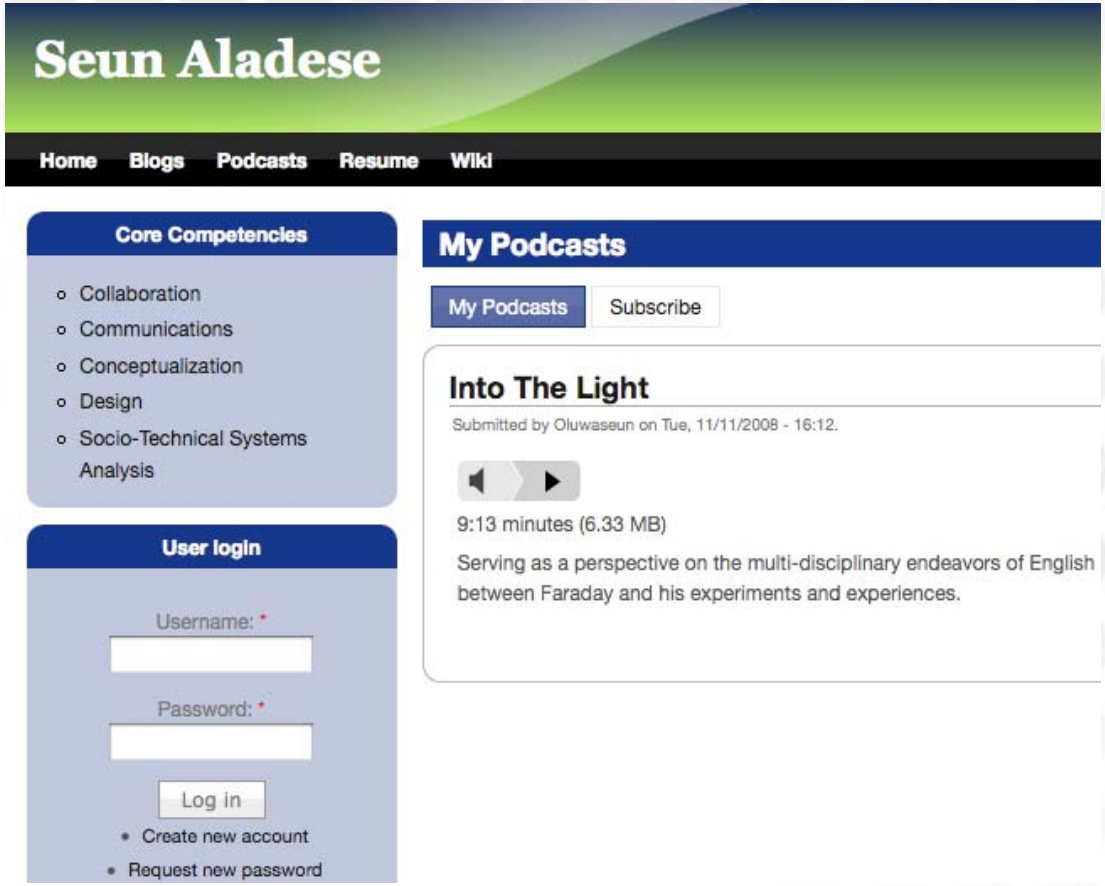


Legal Ethical Issues:
Smart cart and microphone



Matlab Instructions:

Recorded Outside Classroom

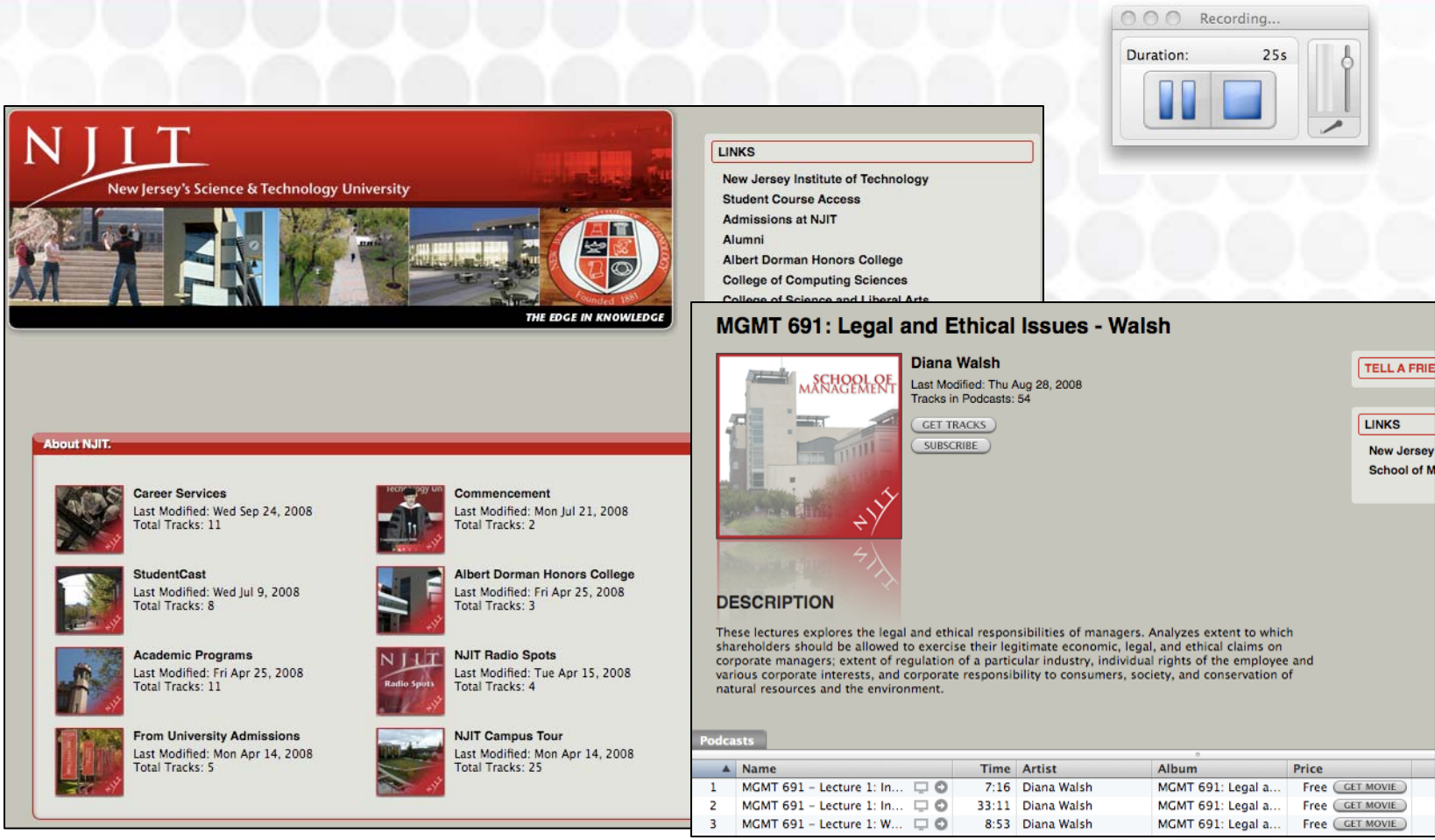


STS 304 Writing about Science, Technology and Society:

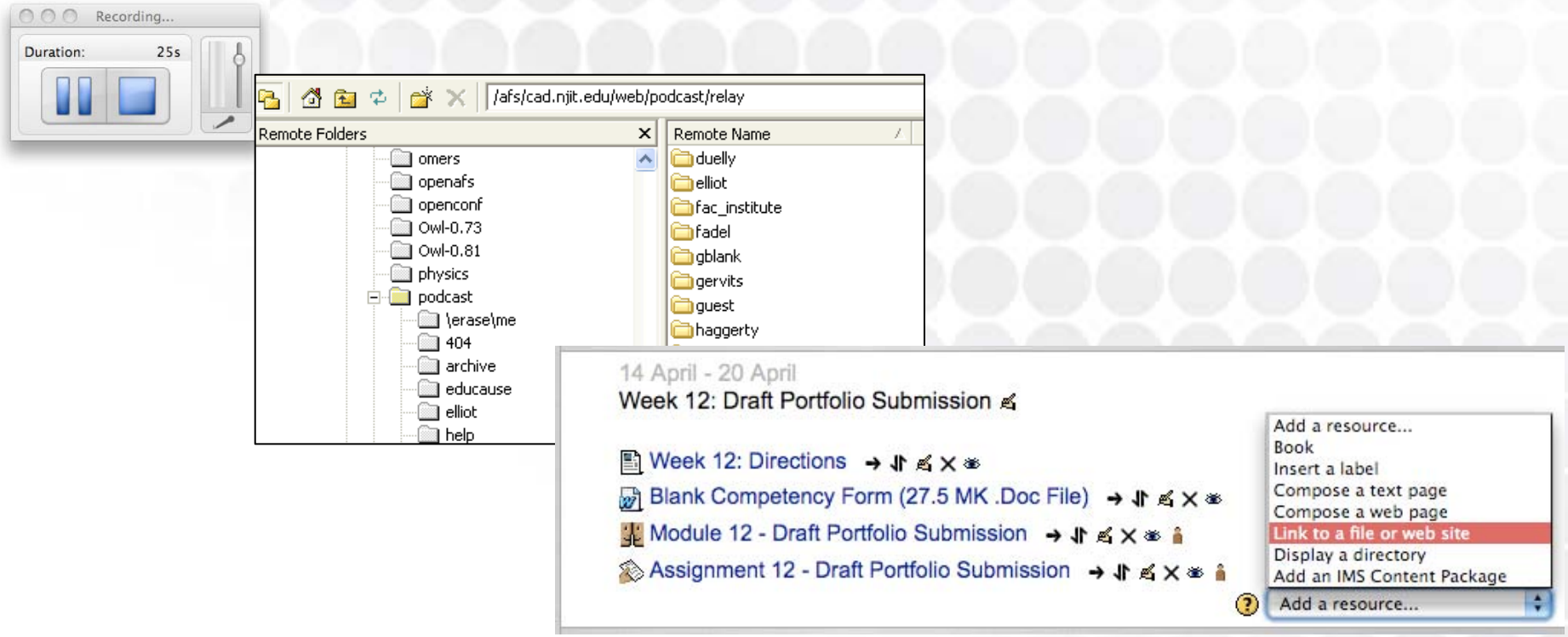
Students record podcasts

Medical Informatics: Incorporation video
Recorded at home or in office

Distribution



Option 1: Relay uploads to NJIT on iTunes U



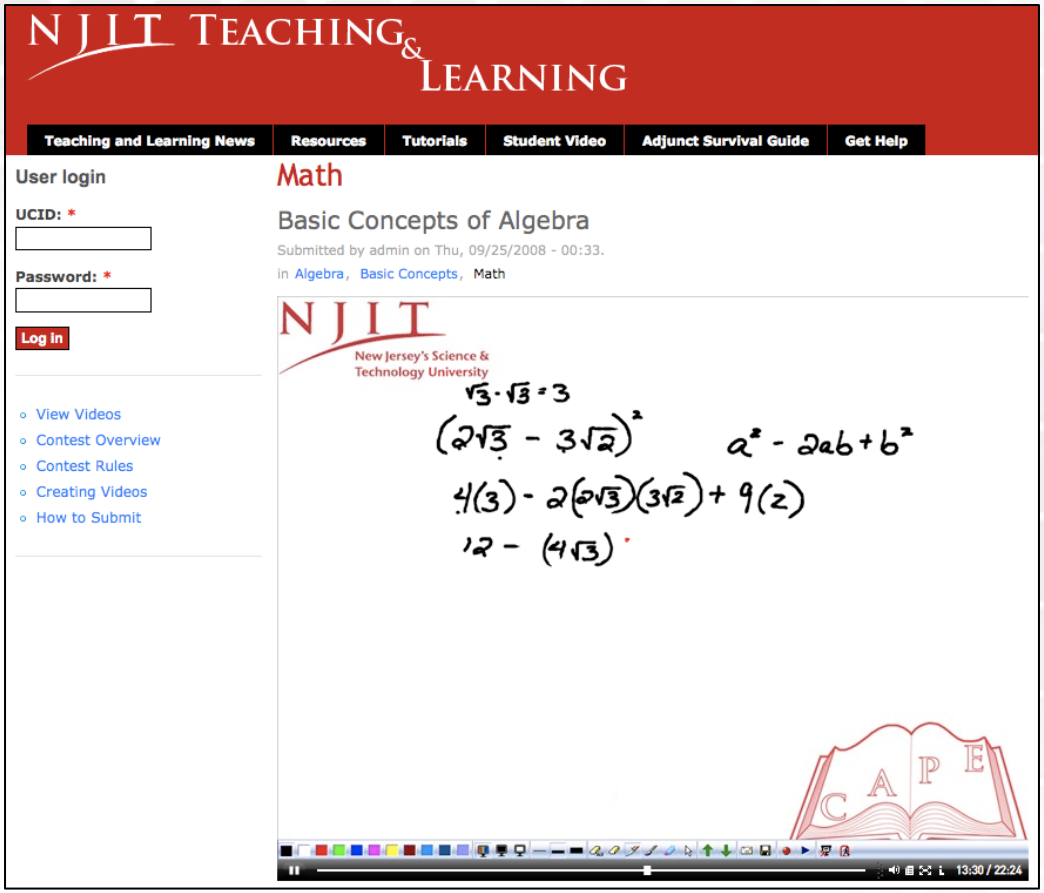
[Instructor adds a Link to LMS (Moodle)]

Option 2: Relay uploads to website

Homegrown Drupal Solution:

1) Relay publishes to Drupal
2) Drupal crates a page (think YouTube)
3) Videos are tagged with person's name and info automatically
4) Collections of videos can be created by users, comments, ratings, etc… The module is fully integrated with Drupal, so if you know what that can do, then you know what this module faciliates.
5) Search / Browse function available through faceted search
6) Email sent to users when new videos are added
7) Podcast feed can go to iTunes (or other tools)
8) When/where/who/ info is available through custom data views that are easily created

Developed by Keith Williams: keith.a.williams@njit.edu



Drupal Option

https://carbon.njit.edu/video/

Feedback:

- Initial student feedback has been positive
- Instructors like the program and find it easy to use
- We have not done any formal analysis – in works for fall 09

What did we learn?

- Distribution, organization, and storage are a challenge
- Capturing equations / non-PowerPoint can be a challenge

Questions ???