Information technology in the classroom and beyond …

Judy M. Vance
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When I went to college…

• Prior to 1977
  - Slide rule

• 1977 – 1980
  - Programmable calculators
  - Mainframe computer (DEC/VAX)
  - One interactive computer by 1980

• 1980 – 1984
  - PCs in the workplace

• 1984 and later
  - Workstations
  - “Email”
  - Laptops, PDAs, Cell phones, etc.
Now…

- Virtual Reality
- Streaming video
- Tablet PCs
- Distance Education

… on and off campus
Bringing VR to the Classroom
3D immersive CAD models
Computational Fluid Dynamics
Spatial Mechanism Design
Finite Element Analysis
C6 – Virtual Reality Facility
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3 Million Dollars
Affordable VR
### One wall immersive stereo system

- Computer: $5000
- Graphics card: $1500
- 2 projectors: $5000
- Screen: $2000
- Mounting hardware: $1000
- Polarization filters: $300
- Misc: $200
One wall immersive stereo system

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**15,000 Dollars**
Streaming Video

Computer Graphics and Geometric Modeling
Professor Adrian Sannier

ME/IE/CprE557 Lecture 20
Camera Coordinate System

Default position: placed at origin, looking down the \(-z\) axis.
• Pitch
• Roll
• Yaw

Rotate about \( v \) axis
\( u - n \) plane

Rotate about \( u \) axis
\( v - n \) plane

Rotate about \( n \) axis
\( u - v \) plane
n: view plane normal

- n
- u
- v

n \times u
up \times n
eye - look
Computer Graphics and Geometric Modeling – Use of Technology

• Ties lectures to textbook assignments
• Simulations, sample code
• Captures not only written content but instructor presentation
• Means to provide continuity in course content/management from semester to semester (Web CT)

Allows for distance education offerings
Technology, Globalization and Culture

This course provides a cross-disciplinary examination of the present and future impact of globalization with a focus on preparing students for leadership roles in diverse professional, social, and cultural contexts. We will examine the threats and opportunities inherent in the globalization process as they are perceived by practicing professionals and articulated in debates on globalization. Students will be expected to contribute critical analyses and debate through threaded discussions and will work collaboratively on final projects.

The course will call for the students to read widely on the topic of globalization and to keep up with related current events. The course will meet twice weekly to interact with on- and off-campus experts concerning various facets of globalization.
Technology, Globalization and Culture

Textbooks:

*Globalization*, Malcolm Waters
*NoLogo*, Naomi Klein
*The Work of Nations*, Robert Reich
*The Lexus and the Olive Tree*, Thomas Friedman
*As the Future Catches You*, Juan Enriquez

and selections assigned by speakers.
Streaming Video

Technology, Globalization and Culture
Professor Jim Bernard
Professor Mark Rectanus

FLNG/ME 484/584x Lecture 13
Microstation PC

- wireless
- highly portable system
- designed to produce high quality distance education and corporate training content
- requires very little training
- very flexible
- can incorporate any existing instructional material
Microstation PC

1. Gateway or Acer 14" convertible tablet PC
2. USB powered audio interface
3. Wireless mic receiver
4. Wireless mic
5. Adjustable laptop stand
6. Wireless keyboard
7. TabletPC pen
8. Wireless mouse
9. Wireless mouse/keyboard receiver
10. Carrying case
Microstation PC

ME 335 Lecture 12

Fluid Flow
Professor Shankar Subramanian
Challenges
Challenges

Equipment cost
Software cost
Maintenance cost
Challenges

ME/IE/CprE557 Lecture 20
Challenges

Equipment cost
Software cost
Maintenance cost

Faculty professional development
Opportunities

• Enhanced learning if used properly
• Ability to share courses between institutions
Resources

Open Source VR software
www.vrjuggler.org

VE Suite
http://www.vrac.iastate.edu/~kmbryden/VE-Suite.htm

One wall VR system specifications
www.vrac.iastate.edu/~kmbryden/confroom

Technology, Globalization and Culture
www.me.iastate.edu/me484

Microstation
www.pangeaeducation.org