ECE 477 – Multimedia Systems

Catalog Description: Design of multimedia systems for Information Technology covering the hardware, software, applications, and networks. Components covered include multimedia representation, coding and compression techniques, wireless networks, networking for multimedia, and embedded system for multimedia.

Credits: 4 **Terms Offered:** Spring

Prerequisites: ECE 375

Courses that require this as a prerequisite: None

Structure: Two 100-minute lectures per week

Instructors: B. Lee

Course Content:
- Introduction to multimedia systems
- Audio/image/Vvdeo representation
- Compression basics
- Image compression (JPEG)
- Video compression (MPEG)
- Audio compression (MP3)
- Multimedia networking
- Multimedia embedded systems

Measurable Student Learning Outcomes:
At the completion of the course, students will be able to…
1. **Analyze** data compression algorithms (ABET Outcomes: A, m, n)
2. **Analyze** various components of image, video, audio compression (ABET Outcomes: A, C, m, n, o, p)
3. **Analyze** various packet recovery, adaptive playout, and congestion avoidance strategies (ABET outcome a, c, e, j, k, m, n)
4. **Explain** the operation of media access control (MAC) network protocol layer for WLANs (ABET outcome a, j, k)
5. **Explain** the design of an embedded system with functional requirements for hardware and software components including processor, networking components, and sensors (ABET outcome a, b, c, d, e)
6. **Work as a team** to survey and/or implement contemporary issues in multimedia systems (ABET outcome a, b, c, D, e, G, i, j, K, m, n)

Graudate students will also have to demonstrate the ability to analyze more advanced topics in audio/video compression and multimedia networking. This will be demonstrated by having an extra (more challenging) problem for each exam, and the final project must be an implementation type rather than just a survey

Learning Resources:

- *Fundamentals of Multimedia*, by Li and Drew, Prentice Hall, 2004 (required)
- Materials from conference, journal, and magazine papers (required)
- *Computer Networking: A Top-Down Approach Featuring the Internet*, 3rd Edition, by Kurose and Ross, 2005, Addison Wesley (optional)

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through SSD should contact SSD immediately at 737-4098.

Link to Statement of Expectations for Student Conduct:

http://oregonstate.edu/admin/stucon/achon.htm

Revised: 5/25/07
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