Purpose
Multimedia is concerned with the digital representation, manipulation and communication of various types of data – text, images, graphics, audio and video. One motivating factor in incorporating multimedia data in modern-day information services is the overall improvement in the quality of the information delivered to the user. However, the storage, transport, retrieval, integration and presentation requirements of multimedia data differ significantly from those of traditional data types. The difference is primarily due to the spatio-temporal constraints imposed by multimedia data, the need for simultaneous consideration of different media types, and the subjective nature of multimedia data.

This course will provide an introduction to the general problems posed by the use, manipulation and transport of multimedia data in traditional computing and communication platforms. At the end of the course, it is expected that students would have understood the special requirements needed in a multimedia computing environment and the various methodologies that have been used in an effort to meet these requirements.

Contents:
♦ Requirements and QoS: requirements in multimedia systems, QoS management
♦ Multimedia data storage: multimedia object storage techniques, multimedia object decomposition
♦ Multimedia communications and transport: multimedia transport, multimedia multicast, networked multimedia presentation and synchronization, error resilience in multimedia transmission,
♦ Multimedia information systems: indexing, retrieval, and searching; multimedia databases, digital watermarking
♦ Image and video processing for multimedia: image/video analysis and techniques for multimedia systems
♦ Multimedia data compression and standards: audio, image, and video compression techniques, compression standards

References:
Recommended texts:

Others:
2. Papers and other reference materials to be provided on need basis

Assessment
Two Assignments: 20% (each 10%)
Student Project: 30%
Student Seminar: 20% (presentation 10% ; report 10%)
Final Test: 30%

Important Dates (Estimates)
Assignment -1 : September 23, 2002 (due 2 weeks after)
Assignment -2 : October 17 (due 2 weeks after)
Student Project: October 17 (reports due Dec. 2, 2002)
Student Seminar: From Nov. 5, 2002
Final Test: December 5, 2002

Grade Assignment
A: ≥ 85; B: 75 – 84; C: 65 – 74; D: 50 – 64; F < 50
Others

Academic Honesty
Students are encouraged to discuss class topics and analyze problems among themselves. However, copying assignment solutions or written reports (or parts of) is strictly forbidden. Also, while the Internet could be used as a research tool, copying materials verbatim from the Internet is plagiarism, and will not be tolerated in this class. Please, be aware that your submitted materials may be compared with each other, or with materials from the Internet during the evaluation.

Social Justice Statement
West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Disability Services (293-6700).
LANE DEPARTMENT OF COMPUTER SCIENCE AND ELECTRICAL ENGINEERING  
CS 591K Multimedia Systems  
Fall Semester 2002

Instructor: Don Adjeroh  
Room ESB 937  
Tel: 293-0405 ext. 2567  
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Weekly Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Starting</th>
<th>Topic</th>
<th>Notes</th>
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| 1    | August 19    | Introduction
Requirements in multimedia systems                                   |                                            |
| 2    | August 26    | QoS
Multimedia object storage – storage devices                             |                                            |
| 3    | September 2  | Multimedia object storage – storage servers                           |                                            |
| 4    | September 16 | Multimedia communications – introduction                               |                                            |
| 5    | September 23 | Multimedia communications– multimedia traffic characterization         | Assignment-1: September 23 (due 2 weeks after) |
| 6    | September 30 | Multimedia communications – Multimedia multicasting                     |                                            |
| 7    | October 7    | Image processing                                                       |                                            |
| 8    | October 14   | Introduction to multimedia data compression
Image compression                                                      | Assignment -2 : October 17 (due 2 weeks after)
Project topics: October 17 (due Dec. 2, 2002)                             |
| 9    | October 21   | Video compression                                                      |                                            |
| 10   | October 28   | Multimedia information systems                                          |                                            |
| 11   | November 4   | Multimedia information systems
Student seminar and presentations                                        |                                            |
| 12   | November 11  | Student seminar and presentations                                       |                                            |
| 13   | November 18  | Student seminar and presentations                                       |                                            |
| 14   | November 25  | Recess – Thanksgiving break                                             |                                            |
| 15   | December 2   | Final test (December 5, 2002)                                           | Project reports due                        |

Note that the above represents only an estimate of the weekly schedule. The actual date/week that a particular topic is discussed, and the specific topic sequence could vary during the semester.