ECE 4973/ECE 5973
Multimedia Communications
Fall 1998

TIME: MW 4:30 – 5:45

PLACE: FH 303

INSTRUCTOR:

Dr. J. P. Havlicek
CEC 432
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TEXT:

F. Kuo, W. Effelsberg, and J.J. Garcia-Luna-Aceves, *Multimedia Communications: Protocols and Applications*, Prentice-Hall, Upper Saddle River, NJ, 1998.

COURSE WEB PAGE: `http://www.coe.ou.edu/~havlicek/ece5973/`

PREREQUISITE:

ECE 3793, Linear Systems Analysis. Elementary knowledge of the Fourier transform, the Fourier series, the discrete Fourier transform, and their use in linear system analysis is assumed.

TESTS & EXAM:

There will be two tests and a cumulative final exam. Each test will be announced in class at least one week in advance.

On the tests and exam, you will only be required to work a subset of the total number of problems. The requirements for how many problems must be completed will depend on whether you are registered in the course for graduate or undergraduate credit.

You may use calculators on tests and on the exam, but you may NOT use calculator programs. Also, you are NOT allowed to store alphanumeric data in your calculator prior to a test or exam, and then retrieve that data during the test or exam. The tests and the exam are closed book and closed notes. However, on Test One you are allowed to bring in ONE 8.5 $\times$ 11 inch note sheet. You may write ANYTHING that you want on the front and back of your note sheet. Everything on your note sheet must be written BY HAND and BY YOU (photocopying, reducing, and laser printing are not allowed). Looking at another person's note sheet during a test or exam is cheating. On Test Two, you are allowed to bring in TWO 8.5 $\times$ 11 inch note sheets. Each sheet must follow the same rules as your note sheet from Test One.

Makeup tests will not be given. If you miss a test and your absence is NOT officially excused, then you will receive a zero grade for that test. If you miss a test and your absence IS officially excused, then your final exam grade will be used in place of the missed test grade.

On the final exam, you are allowed to bring in THREE 8.5×11 inch note sheets. Each of these sheets must follow the same rules as your note sheets from Test One and Test Two.

HOMEWORK:

Homework will be assigned during class. There will be less than ten homework assignments, but each one will be substantial. Some homework assignments may require group work. In this case, all members of a group will receive the same grade. Some homework assignments will require computer use. You may use the ECN PCs, ECN workstations, computers in the Telecomputing lab, or any other computers to which you have access. Use of C, C++, and Matlab are recommended. Your lowest homework grade will be dropped.

PROJECT:

Students enrolled for graduate credit will be required to complete a project. The project will be a group effort. Each group will read technical articles and make a presentation to the class. Grading for the project will be on an individual basis.

GRADING:

A final numerical grade will be assigned to each student enrolled for graduate credit using the following table:

What	**Value**
Homework	20%
Project	15%
Test One	20%
Test Two	20%
Final Exam	25%

A final numerical grade will be assigned to each student enrolled for undergraduate credit using the table below:

What	**Value**
Homework	25%
Test One	25%
Test Two	25%
Final Exam	25%

Using the tables above, I will assign a final numerical grade to each student. Numerical grades will be converted into letter grades using two curves that I will determine. One curve will be applied to all students registered for undergraduate credit. The second curve will be applied to all students registered for graduate credit.

In addition, I will also use the following guaranteed grading system. If your final numerical grade is 90% or better, then you are guaranteed to receive a letter grade of A. If your final numerical grade is at least 80%, but less than 90%, then you are guaranteed to receive a letter grade of B *or better*. If your final numerical grade is at least 70%, but less than 80%, then you are guaranteed to receive a letter grade of C *or better*. Finally, if your final numerical grade is at least 60%, but less than 70%, then you are guaranteed to receive a letter grade of D *or better*.

REASONABLE ACCOMMODATION POLICY:

Any student in this course who has a disability that may prevent them from fully demonstrating their abilities should contact the instructor as soon as possible to discuss what accommodations are necessary to ensure their full participation in the course and facilitate their educational opportunities.

RELIGIOUS HOLIDAYS:

It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required classwork that may fall on religious holidays.

COURSE OUTLINE:

During the course of the semester, it may become necessary to revise the course outline given below. If this occurs, updated course outlines will be passed out in class.

1. Introduction to multimedia systems and applications.
2. Network requirements and performance issues.
3. Signal coding and compression.
   (a) JPEG.
   (b) PX64.
   (c) H.263.
   (d) MPEG.
   (e) MPEG audio encoding.
   (f) Motion compensation.
   (g) Fractal, wavelet, and subband techniques.
4. Network technologies and infrastructure.
5. Network protocols.
6. Synchronization, reliability, and QOS resource management.
7. Special considerations for wireless multimedia.
8. Applications.
   (a) The World Wide Web.
   (b) Teleconferencing.
   (c) Content-based indexing and retrieval.
   (d) HDTV and the digital television studio.

(e) On-demand video.
(f) Virtual reality and interactive multimedia.
(g) Processing in the compressed domain.