

# ECE 742/842 – Computer Communication Network

Spring Semester 2011

## COURSE OUTLINE

<b>Instructor:</b>	Manish Wadhwa
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<b>Lectures:</b>	Tuesday and Thursday 3:00 – 4:15 pm (ED-0157)
<b>Office Hours:</b>	MWF, 9:50 am – 11:15 pm or by appointment
<b>Prerequisites:</b>	ECE 642
<b>Textbook:</b>	“Computer Networking: A Top-Down Approach,” J.F.Kurose, K.W.Ross, Fifth Edition.
<b>Class webpage:</b>	<a href="http://www.blackboard.odu.edu">www.blackboard.odu.edu</a>
<b>My Webpage:</b>	<a href="http://www.odu.edu/engr/networking/manish/">http://www.odu.edu/engr/networking/manish/</a>

**COURSE GOALS:** To introduce students with technical backgrounds to the major concepts, evolution trend, architecture, standards, technologies, design, and performance evaluation of telecommunication and computer networks. Also, to open the students up to the new areas of research that are burgeoning rapidly.

**COURSE OBJECTIVES:** When a student completes this course, s/he should:

- Understand a broad range of telecommunication and computer network terminologies and technologies
- Understand the meaning and power of a layered architectural model.
- Understand different networking technologies that are going to create a new world of research, e.g. Cognitive Radios and Networks.
- Understand the issues related to multimedia.
- Understand the methods and procedures involved in performing independent research.
- Learn the usage of network simulation tools such as NS-2, OPNET etc.

## **Grading**

The grading will be based on two written exams (one midterm, one final), several homework problem sets, lab one Wireshark assignment, presentations and term paper reports and overall participation. The final grade will be determined by weighing each component as follows:

- 1 Term Paper: 40 %
- 5 Presentations 10 %
- Homework 15 %
- 1 Midterm exam: 15 %
- 1 Final exam: 20 %

## **Make-up Tests and Late Assignments**

Late homework and papers and make-up exams will not normally be permitted. I will give appropriate consideration to documented emergencies, but such arrangements must be made *prior to the due date* in any situations where the conflict is foreseeable.

## **Honor Code**

All students are expected to abide by the ODU Honor Code. This means that all exams and assignments are to be the exclusive work of the student. An honor pledge will be required on all work, which is to be graded. For more details on the ODU honor code, refer to the Honor pledge posted on the course web page.

## **Homework**

There will be several assignments during the semester. You will have one week to work on each of the assignments. While the students are encouraged to discuss the problems, each individual should prepare their own answers. Any violation of this rule will be considered as cheating and will be dealt with accordingly..

## **Presentations and Report**

Since we are going to adhere to Objectives as given above, students will be asked to present relevant topics in the form of term paper. More information will be provided in class.

## **Class Participation**

As a student enrolled in this class, you are expected to take an active role in the class. It does not necessarily mean that you ask questions frequently just to make your presence felt. However, when you do have a genuine question, or would like to share your networking experience in a related topic being discussed in the class, consider sharing your thoughts. Whenever I feel that a question being asked is irrelevant to the topic or if it will be answered in future, I shall postpone answering it to a later date. I will be monitoring your individual participation (in class and out of class) throughout the semester and allocate points at the end.

## **Term Paper Schedule and Important Dates:**

### **Week 1: Jan 11 and 13**

- ECE 642: A Revision: *A Revision of Important Topics studied in ECE 642.*
- Term Papers are Assigned (Individual Work)

### **Week 2: Jan 18 and 20**                      *(Jan 17 – Martin Luther King, Jr. Holiday)*

- **Jan 18: Presentation of your term paper plan**
- **Jan 20: 2 Page term paper plans are due**

### **Week 3: Jan 25 and 27**

- **Jan 27: Submit 15 references that will be studied.**

### **Week 4: Feb 1 and 3 (PRESENTATIONS-1)**

- Presentation of your term paper progress.

### **Week 7: Feb 22 and 24 (PRESENTATIONS-2)**

- Presentation of your term paper progress

### **Week 8: Mar 1 and 3**

- **Mid-term exam: Mar 3**

### **Week 9: Mar 8 and 10**

- No Class due to Spring Holidays

### **Week 10: Mar 15 and 17 (PRESENTATIONS-3)**

- Presentation of your term paper progress

### **Week 12: Mar 29 and 31 (PRESENTATIONS-4)**

- Presentation of your term paper progress

### **Week 14: Apr 12 and 14 (PRESENTATIONS-5)**

- Presentation of your term paper progress
- **April 16 – Term Paper due (email submission before midnight)**

### **Week 16: Apr 25**

*(Last day of classes)*

**April 28**

- **Final Exam (3:45-6:45 PM)**

**List of Topics to be covered**

(Note: Following is a tentative list of topics and is subject to changes.)

- A. The Application Layer
  - 1. Electronic Mail, Reading Assignment: Chapter 2.4
  - 2. Peer-to-peer Applications, Reading Assignment: Chapter 2.6
- B. The Transport Layer
  - 3. Principles of Congestion Control, Reading Assignment: Chapter 3.6
- C. The Network Layer
  - 4. What's Inside a Router, Reading Assignment: Chapter 4.3
- D. The Link Layer
  - 5. Link Layer Addressing, Reading Assignment: Chapter 5.4
  - 6. A day in the life of a webpage request, Reading Assignment: Chapter 5.9
- E. Introduction to Cognitive Radio Networks, Reading Assignment: Handouts.
- F. Multimedia Networking, Reading Assignment: Chapter 7