



King Saud University
College of Computer and Information Sciences
Department of Computer Engineering
2^{ed} Semester – 2019/2020

CEN 445: Network Protocols and Algorithms
Section: 12465
Instructor: Aasem Alyahya
Lectures: Sunday, Tuesday, and Thursday at 11:00 – 11:50 PM
Room B93, Building 31

Overview: This course provides the students with an understanding of the fundamental concepts of computer networking. It introduces the students to advanced networking concepts and prepares them for advanced courses in computer networking. The course also helps the students develop expertise in some areas of computer networks, and prepares them to start research work in this area.

Prerequisites: CEN 444

Credits: 3

Objectives: This course aims that students would be capable of the following:

- Describing the network-based congestion control approaches.
- Explaining the quality of service techniques.
- Recognizing the transport layer services and its protocols.
- Evaluating the Internet congestion control algorithms.
- Describing both client-server and peer-to-peer application architectures.
- Recognizing the principles of web and email applications and their protocols.
- Understanding the requirements and protocols of some Real-time applications.

Textbook:

- Andrew Tanenbaum and David Wetherall, “*Computer Networks*,” 5th Edition, Prentice Hall, 2011.

Reference:

- James Kurose and Keith Ross, “*Computer Networking: A Top-Down Approach*,” 6th Edition, Addison-Wasley, 2013.
- Larry Patterson and Bruce Davis, “*Computer Networks: A System Approach*,” 5th Edition, Morgan Kaufmann, 2013.
- William Stallings, “*Data and Computer Communications*,” 9th Edition, Prentice Hall, 2011.

Assessment Plan:

1 st Test	2 nd Test	Assignments and Quizzes	Project	Final Exam	Total
20%	20%	10%	10%	40%	100%

Course Policies:

- Cheating or plagiarism in any form will not be tolerated. A grade of zero will be registered for any infraction, and it may be reported to the dean;
- Attendance in the lecture is a must. Students failed to achieve more than 25% attendance will be reported to the concerned authority; excuse should be directly submitted to the professor; excuses of absence are accepted no later than one week of the absence;
- I am always open for comments, suggestions, and complaints;

Assignments:

- All homework assignments are due one week after the assignment date;
- Students will be permitted 3 grace days to use at their discretion over the semester. Late days are counted from the time an assignment is due, rounded up to the nearest whole day. For example, if an assignment is due on Thursday at 3:00 pm, and is submitted on Saturday at 5 am, 2 grace days will be used.
- Other than the 3 grace days, late assignments will not be accepted, and will receive zero marks. If you have extenuating medical circumstances, please discuss with the instructor.

Important Dates (Tentative):

1 st Midterm	Feb 26, 2020
2 nd Midterm	Apr 13, 2020
Project Presentation	Week 13
Final Exam	

Schedule (Tentative):

Network-based Congestion Control	1st Week
Quality of Service, Traffic Shaping, Scheduling	3rd Week
Transport Layer Services, UDP, and TCP	5th Week
TCP Congestion Control Algorithms	7th Week
Application Layer Architectures	9th Week
DNS, HTTP, and E-mail	9th Week
HTTP optimization, Caching, and Content Delivery Networks	10th Week
Socket API	11th Week
Real-time Applications	12th Week
Client/Server and P2P Architectures	14th Week
Review and Evaluation	15th Week

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