ESE/CSE 346 Syllabus
Spring 2019

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Course Objective: To give students a broad background in computer networking technology and an introduction to performance evaluation and networking algorithms.

Texts: Note – Prof. Robertazzi has written a number of books with somewhat similar sounding titles, please get the two specified below.

(A) Networks and Grids: Technology and Theory, 2007, 1st ed. by Thomas Robertazzi, 2007. Publisher: Springer (www.springer.com).

(B) Introduction to Computer Networking, 2017, 1st ed by Thomas Robertazzi, 2017. Publisher: Springer (www.springer.com).

The following schedule is approximate:

Week 1: Probability Review and Transmission Media **Hwk 1 due Feb. 4th.**

Week 2: Performance Evaluation **Hwk 2 due Feb. 11th.**

Week 3: Algorithms (Error Codes, Line Codes, Network Coding, Routing and Quantum Key Distribution). **Hwk 3 due Feb. 18th.**

Week 4: Algorithms (continued) **Hwk 4 due Feb. 25th.**

Week 5: IEEE Local Area and Wireless Network Standards (Ethernet, 802.11 Wireless LAN, 802.15 Bluetooth, LTE)

Week 6: IEEE Local Area and Wireless Network Standards (continued) **Midterm (March 4th date is approximate).**

Week 7: IEEE Local Area and Wireless Network Standards (continued) **Project 1 due March 11th.**

Week 8: Infiniband, MPLS and Fiber Optic Networking (including SONET and WDM). **Essay 1 due March 25th.**

Week 9: Software Defined Networks. Networks on Chips. **Project 2 due April 1st.**

Week 10: Space Networks **Essay 2 due April 8h.**

Week 11: Grids, Clouds and Data Centers. **Essay 3 due April 15th.**

Week 12: AES and Quantum Cryptography. **Essay 4 due April 22nd.**

Week 13: Queueing Theory. **Self-final due May 3rd.**

Week 14: Scheduling and Parallel Processing.

Grading:
Midterm: 20%,
Homework (four assignments 4% each): 16%,
Projects (two at 10% each): 20%,
Attendance: 10% (10 classes approx.. week 8 thru week 12).
Essays (four at 4% each): 16%,
Self Final Exam (see below): 20%.

Total is 102 points. A is 90 or better. A- is 85-89. B-,B and B+ is 70 to 84.

Essays: For some chapters in the Introduction to Computer Networking text you will write 500 words on some aspect of the chapter coverage that you find interesting. Essays can be based on the book chapter or a related paper. Relevant papers can be found on IEEE/IET and Science Direct databases on the library website.

Self Final Exam: Students create their own exam based on the qualitative networking material of Introduction to Computer Networking. Create five questions and answers. Grading is based on choice of questions and reasonableness of answers. Questions should make one think a bit. For instance, a good question might be "What would be more appropriate to give connectivity to an airport lounge, WiFi or Bluetrooth. Why?" A poor question would be "What is the second largest SONET data rate". The first question requires some thought, the second is a too simple look-up.

Note: If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, I would urge you to contact the staff in the Student Accessibility Support Center (SASC) at 631-632-6748. SASC will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation of disability are confidential.