

[EL 6373 – Local and Metropolitan Area Networks](#)

[Instructor:](#)

Prof. Shivendra Panwar
Office: LC 215
Phone: 718-260-3740

[Teaching assistant:](#)

Shunyan Ye
Office: LC233
Phone: 718-260-3420
Office Hour: Thursday 1:30~2:30

If you have any question related to the course, please direct your inquiry to the teaching assistant at sye02@students.poly.edu.

[Course description:](#)

The purpose of this course is to introduce students to the fundamental design issues in wireless and wired local and metropolitan area networks, explain the state-of-the-art solutions proposed and deployed in the field by using latest standards and protocols as examples, and discuss the trends in the wireless/wired LAN/MAN arena.

[Grading policy:](#)

Overall assessment for this course is based on homework and two exams.

Homework	10%
Midterm	45%
Final	45%

The suggested projects are intended to let the students further understand the topics and will not be counted in the grades.

[Textbook:](#)

Since most of the materials covered in this course are state-of-the-art protocols and standards in the corresponding area, there is no single textbook which can span the whole scope of this course. Thus, no specific textbook is mandated in this course. Instead, pertinent papers and articles will be listed in the "reference" section at the end of each lecture notes.

[Homework:](#)

The primary purpose of assigning homework is to get students familiar with the course materials and prepare for the exam. Therefore, please complete the homework independently and your solution could be different or even better than the one provided on the website. **Homework is due the second week after the lecture (for example, for week one, the homework is due before week 3).** Please use the dropbox to submit your homework. Homework send via email will not be counted.

[Pedagogy:](#)

Please finish the course slides on a per week basis. If you have any questions, please contact TA for clarification.

[Tentative Schedule:](#)

Week 1 (Sep 7 ~ Sep 10): Introduction and Review

Part I: Wireless Networks

Week 2: (Sep 13 ~ Sep 17) Wireless local area networks (WLAN)

IEEE 802.11, Protocol stack, Network architecture, Basic medium access control protocol (e.g., DCF and PCF)

Week 3: (Sep 20 ~ Sep 24) Wireless local area networks (WLAN)

High throughput WLAN (IEEE 802.11n), Quality of service support (IEEE 802.11e), Security enhancements (IEEE 802.11i)

Week 4: (Sep 27 ~ Oct 1) Wireless local area networks (WLAN)

Seamless roaming (IEEE 802.11r), Voice over IP over WiFi (VoFi)

Week 5: (Oct 4 ~ Oct 8) Ad hoc networking

IEEE 802.11 ad hoc mode, Ad hoc routing protocols

Week 6: (Oct 11 ~ Oct 15) Wireless personal area networks (WPAN)

Bluetooth (IEEE 802.15.1), Ultra-wide band (IEEE 802.15.3), Wireless sensor networks (IEEE 802.15.4, and ZigBee)

Week 7: (Oct 18 ~ Oct 22) Review

Week 8: (Oct 25 ~ Oct 29) **Midterm**

Time: Oct 28, Thursday, 4:00pm - 6:00 pm

Location: LC 009

Open books, open notes

If you can not come to poly during the above time for test, you should fill the proctor requesting form to arrange your exam on a different date or location.

http://www.poly.edu/epoly_old/schedule/

The materials taught up to Week 6 will be covered in the midterm.

Week 9: (Nov 1 ~ Nov 5) Wireless metropolitan area networks (WMAN)

IEEE 802.16 (WiMax)

Week 10: (Nov 8 ~ Nov 12) Third generation cellular network (3G)

Part II: Wireline Network

Week 11: (Nov 15 ~ Nov 19) Local area networks (Ethernet)

Week 12: (Nov 22 ~ Nov 26)

Ethernet basics, Virtual LAN (VLAN), Fast Ethernet, Gigabit Ethernet

Week 13: (Nov 29 ~ Dec 3) Emerging Ethernet technologies

Residential Ethernet, Power over Ethernet, etc

Week 14: (Dec 6 ~ Dec 10) **Final**

Time: Dec 9, Thursday, 4:00pm - 6:00pm

Location: LC 009

Open books, open notes

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The final will be cumulative and it includes everything.