Course Description: This course covers wireless Internet access technologies, pervasive mobile device architecture, Internet of Things (IoT), big data and mobile cloud applications. Important topics include smart phones, tablet computers, sensors, RFID and GPS technologies, 3G/4G/5G cellular radio networks, WiFi meshes, Zigbee, mobile OS (Android and iOS), software tools for mobile and location-sensitive applications, IoT supported smart cities, healthcare, big-data analytics, and mobile cloud computing, etc.

Prerequisite: EE 450 or equivalent course or background approved by the instructor.

Course Syllabus: (26 lectures with 3 HW sets plus 2 quizzes, mid-term and final exam)
1. Internet Evolution and Wireless Technologies (Lectures 1 and 2 on Jan. 9, 11, 2017)
2. The Internet of Things, RFID, GPS (Lectures 3, 4, 5 on Jan. 18, 23, 25) (Jan. 16 a holiday)
3. 2G/3G/4G mobile networks (Lectures 6, 7, 8 on Jan. 30, Feb. 1, 6)
4. WiFi, Bluetooth, and ZigBee (Lectures 9, 10, 11 on Feb. 8, 13, 15) HW#1 due Feb. 8
5. Smart Phones and MIMO Antennas (Lectures 12, 13 on Feb. 20, 22)
6. Mobile OS (Android, iOS) (Lectures 14, 15 on Feb. 27, March 1) HW# 2 due March 8)
7. Tablet Computer Architecture (Lectures 16, 17 March 6, 8), (Spring Break: March 12 ~ 19)
8. Review for Mid-Term Exam and HW Solutions (Lecture 18, March 20)
9. Mid-Term Exam: March 22, 2017, in class (covering Lectures 1~`18, HW #1 and 2)
10. Cloud Models and Mobile Services (Lectures 19, 20 on March 27, 29, April 3)
11. Cloud-based Radio Access Network (C-RAN for 5G) (Lecture 21 on April 5)
12. Big Data Analytics and AI Machines (Lectures 22, 23 on April 10, 12)
13. Cognitive and Health-Care IoT Support (Lectures 24, 25 on April 17, 19), HW#3 due April 19
14. IoT for Smart City Development (Lectures 26 on April 24)
15. Final Exam: 2 – 4 pm, April 26, 2017, (room TBA), covering all 26 lectures and all 3 HWs

Recommended Textbooks: (Additional Reference Papers will be handed out)

Grading Policy and Class Procedures:
1. Three Homework Sets for 15%, no late homework will be accepted after due day. Two Pop Quizzes on unannounced dates in Feb. and April, weighted 10 %.
2. The Mid-term Exam (March 22) is weighted 30% and Final exam (April 26) 45 %. No makeup exam will be given, if you miss any of the pop quizzes or scheduled exams.