Course Description: This course covers wireless Internet access technologies, pervasive mobile device architecture, and information appliances in Internet and cloud applications. Important topics include smart phones and tablet computers, sensors, RFID and GPS technologies, 3G/4G cellular radio networks, WiFi meshes, Zigbee, mobile OS (Android and iOS), software tools for resource discovery, location-sensitive applications, the Internet of things, big-data analytics, security and privacy control, and mobile cloud computing, etc.

Prerequisite: EE 450 (Computer Networks) or equivalent course or background approved by instructor.

Course Syllabus: (10 lectures, each 2 hours and 45 minutes, with 5 minute break at 11 am)

1. Internet Evolution and Wireless Overview (Lecture 1 on July 2, 2014)
2. 2G/3G/4G cellular mobile networks (GSM, CDMA, WCDMA, LTE) (Lecture 2 on July 7)
3. WiFi, Bluetooth, Zigbee and Sensor Networks (Lecture 3 on July 9)
4. Introducing 10 topics to select from in doing the Term Project (Lecture 4 on July 14)
5. The Internet of Things (IoT) and GPS (Lecture 5 on August 16) (Chap.9 of Text and handout paper)
6. Cloud Models and Services (Lecture 6 on July 21) (Chaps. 1 and 4 of Textbook)
7. Mid-Term Exam on July 23 covering Lectures 1 ~ 6. (9:30 am ~ 12:00 noon in class room)
8. Cloud-based Radio Access Network (C-RAN for 5G) (Lecture 7 on July 28) (Handout paper)
9. Smart phones and Tablet Computers (Lecture 8 on July 30)
10. Mobile OS (Android, iOS) and Apps. (Lecture 9 and Term Project Report due August 4)
11. Bid-Data Analytics on Clouds (Lecture 10 on August 6) (Handout papers)
12. Final Exam on August 11, covering Lectures 3 ~ 10. (9:30 am ~ 12:00 pm in class room)

Required Textbook: (Chapters 1, 4, and 9 covered plus several handout reference papers or reports)
Kai Hwang, G. Fox and J. Dongarra, Distributed and Cloud Computing, Kaufmann, 2012

Grading Policy and Class Procedures:

1. This is an Intensive DEN course for 7 weeks in second half of the Summer 2014. Visit the DEN Blackboard frequently for announcement, and handout material. All exams are close-book and close-notes. Prof. Hwang is available at his posted office hours or contact him by Email.

2. A list of 10 topics will be handed out at second Lecture for you to select from to do a Term Project. The term project is essentially a month-long survey study on a focused topic. The Final Project Report (10 ~ 15 pages) is due August 4. (Late report will not be accepted).

3. Grading Policy and Important Dates: (No makeup exam will be given, if you miss any)