COMP 5390, 3G and 4G Wireless

**Credit hours:** 3 lecture  
**Contact hours:** 3 lecture

**Catalog Description:** Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

**Prerequisites:** COMP 5360 or ELEC 5110  
**Corequisites:** COMP 5360 or ELEC 5110

**Selected Elective Course** (CSCI, SWEN, WIRS)

**Instructor or Course Coordinator:** Dr. Saad Biaz

**Required Textbook**  

**Reference Materials**  

**Course Outcomes**  
The student will be able to
- understand technical issues related to 3G/4G wireless systems.
- understand business, and regulatory issues related to 3G/4G wireless systems.
- develop and implement software components on these systems.
- apply concepts and techniques from telecommunications systems.

**Topics Covered**
- Overview (1 hour)
- Review of 1G, 2G (AMPS, TDMA, GSM, CDMA) systems (3 hours).
- Principles of Code Division Multiple Access (CDMA) (3 hours)
- Wideband CDMA Physical Layer (5 hours)
- Modulation Techniques and Spread Spectrum (3 hours)
- Spreading Codes (2 hours)
- Channel Coding (2 hours)
- Wideband CDMA Protocol Stack (3 hours)
- Network (2 hours)
- Network Planning (4 hours)
- Network Management (3 hours)
- 3G Services (3 hours)
- 3G Applications (3 hours)
• The future: 4G (4 hours)
• Case Study Project Presentations (4 hours)

Course Requirements
• Homework assignments (25%)
• Presentation (15%)
• Exams (60%)

Syllabus prepared: Spring 2016