Wireless Communication Theory

ECE 7003

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Theory and analysis of wireless communication systems. Topics include: multipath fading channels; modulation, equalization, and coding for fading channels; MIMO systems; capacity calculations.

Prerequisites and Co-requisites:
Prereq: 6001 (804).

Course Goals / Objectives:
- Develop mathematical theory and engineering practice of digital communications over fading channels
- Learn channel modeling techniques for fading channels
- Learn modulation and equalization techniques for mobile radios
- Learn analysis and design of multi-channel techniques for communication over fading channels
- Learn methods and interpretation of capacity calculations

Course Topics:
- Wireless communication systems
- Wireless channel modeling
- Capacity and fundamental limits
- Modulation, equalization and coding techniques for wireless communications
- Multi-access, broadcast, and interference management
- MIMO Systems
Designation:
Elective