ELEC 7009 PERSONAL COMMUNICATION SYSTEMS

Credit Points 10

Legacy Code 300196

Coordinator Ranjith Liyanapathirana (https://directory.westernsydney.edu.au/search/name/Ranjith Liyanapathirana/)

Description This unit covers the design fundamentals of cellular systems, including frequency reuse, channel assignments, radio wave propagation in mobile environments, modulation techniques, coding techniques, spread spectrum and multiple access. It includes topics from emerging wireless technologies, and third-generation mobile communication systems and standards.

School Eng, Design & Built Env

Discipline Communications Technologies

Student Contribution Band HECS Band 2 10cp

Level Postgraduate Coursework Level 7 subject

Restrictions

Students must be enrolled in a postgraduate program

Assumed Knowledge

Communications Systems. Digital Communications.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Demonstrate an understanding of current wireless communication systems including GSM, CDMA, PCS, and 3G systems.
2. Describe coding and modulation techniques used in wireless systems.
3. Demonstrate at an advanced level understanding of implementation issues such as bit error rates, receiver complexity, spectral occupancy and antenna diversity.

Subject Content

Evolution of mobile radio communication
The cellular system; design fundamentals
Frequency reuse, channel assignment strategies, handoff
Interference and System capacity
Mobile radio propagation; multipath fading, Rayleigh and Ricean distributions
Modulation techniques for mobile radio
Equalization, diversity and channel coding
Multiple access techniques
Wireless systems and standards

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Applied Project	Seminar (15 min) and Paper (7500 words)	20	N	Individual
Numerical Problem Solving	1 hour	20	N	Individual
End-of-session Exam	3 hours	60	N	Individual

Teaching Periods

Autumn

Parramatta City - Macquarie St

Day

Subject Contact Ranjith Liyanapathirana (https://directory.westernsydney.edu.au/search/name/Ranjith Liyanapathirana/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC7009_22-AUT_PC_D#subjects)