ELEN90007 Mobile and Wireless Communications

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: one 3- hours lecture per week Total Time Commitment: Estimated total time of commitment of 120 hours.
Prerequisites:	4-year Electrical Engineering degree or equivalent.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
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Subject Overview:	This subject covers mobile wireless systems with focus on the physical and media access control (MAC) layers of the radio-interface, wireless system modelling and analysis, and assessment of system performance. It includes: Overview of mobile wireless systems, principles of cellular networks, wireless link basics, lowpass equivalent representation of bandpass signals and systems, wireless channel modelling techniques, modelling of mobile wireless channels, link budgets, modulation, multiple access, duplexing, channel coding, interleaving, diversity, equalisation, multiple antenna systems including MIMO, OFDM, and overview of the GSM / GPRS / EDGE system.
Objectives:	On completion of this subject, the students should have developed the skills and knowledge to understand the technologies used in mobile wireless systems and the ability to undertake analysis and assessment of mobile wireless networks. Specifically, they should have a solid understanding of: # Cellular design principles # Modelling of mobile wireless networks, including mobile wireless channels # Signal processing techniques used in the physical and media access control layers of the radio interface which include; modulation, multiple access, duplexing, channel coding, interleaving, diversity, equalisation, and multiple antenna systems

	# Performance analysis of mobile wireless technologies and networks # GSM / GPRS / EDGE system
Assessment:	Formally supervised 3 hour written examination - end of semester (70%). A student must pass the exam to pass the subject. Three homework assignments throughout the semester (30%)
Prescribed Texts:	References (suggested, not mandatory) • F. Molisch, Wireless Communications, John Wiley & Sons, 2005 • T. S. Rappaport, Wireless Communications, Principles & Practice, Prentice-Hall
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject, students should have developed the following basic skills: # Problem-solving and analytical skills # Capacity to confront problems requiring judgements # Improved ability to articulate knowledge and understanding in written presentations # Improved capacity to critically evaluate the professional literature
Related Course(s):	Master of Telecommunications Engineering Master of Telecommunications Engineering Postgraduate Certificate in Engineering