

431-626 Mobile and Wireless Communications

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. On campus
Time Commitment:	Contact Hours: Thirty-six hours. 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:	<p><p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability</p></p>
Coordinator:	Mr John Cullen Campbell
Subject Overview:	<p>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.</p> <p>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.</p>
Objectives:	<p>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.</p> <p>Specifically, they should have a solid understanding of:</p> <ul style="list-style-type: none"> • 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:	<p>On completion of this subject, students should have developed the following basic skills:</p> <ul style="list-style-type: none">• 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