

## ELEN40008 Wireless Communication

<b>Credit Points:</b>	12.50
<b>Level:</b>	4 (Undergraduate)
<b>Dates &amp; Locations:</b>	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: Twenty-four hours of lectures, 12 hours of tutorials and 12 hours of laboratory or project work Total Time Commitment: 120 hours
<b>Prerequisites:</b>	431-460 Digital Communications, 431-462 Communication Networks
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	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: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>
<b>Coordinator:</b>	Assoc Prof Michael Cantoni
<b>Contact:</b>	Melbourne School of Engineering Office Building 173, Grattan Street The University of Melbourne VIC 3010 Australia General telephone enquiries + 61 3 8344 6703 + 61 3 8344 6507 Facsimiles + 61 3 9349 2182 + 61 3 8344 7707 Email <a href="mailto:eng-info@unimelb.edu.au">eng-info@unimelb.edu.au</a> ( <a href="mailto:eng-info@unimelb.edu.au">mailto:eng-info@unimelb.edu.au</a> )
<b>Subject Overview:</b>	On completion students should have an understanding of the fundamental physical layer and network layer issues involved in the design of wireless networks.  Topics include cellular networks and frequency planning; Erlang blocking models, including handover analysis; large-scale propagation models; link budget and cell dimensioning; code division multiple access and capacity; multipath and time-varying channels and their characterisation; simulation of wireless channels; binary signalling in Rayleigh fading; equalisation techniques; diversity techniques (frequency, space, multi-user); and wireless data networks. Students will undertake a wireless project, such as network design, or analysis.
<b>Objectives:</b>	On completing this subject the student should be able to: <ul style="list-style-type: none"> <li># Explain aspects of the physical and network layers of wireless communication networks;</li> <li># Model aspects of wireless communication networks and assess their performance using such models;</li> <li># Use software tools to study the behaviour of wireless communication networks.</li> </ul>
<b>Assessment:</b>	Continuous assessment of written assignments, consisting of problem-solving exercises (10%); Laboratory work (20%), with reports not exceeding 6000 words; A mid-semester class test of

	one hour duration (10%); A final exam three hours (60%). In addition, students are required to pass the final exam to pass the subject as a whole.
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<ul style="list-style-type: none"> <li># Ability to apply knowledge of basic science and engineering fundamentals</li> <li># In-depth technical competence in at least one engineering discipline</li> <li># Ability to undertake problem identification, formulation and solution</li> <li># Ability to utilise a systems approach to design and operational performance</li> <li># Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member</li> <li># Expectation of the need to undertake lifelong learning, capacity to do so</li> <li># Capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># Intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity</li> <li># Openness to new ideas and unconventional critiques of received wisdom</li> <li># Profound respect for truth and intellectual integrity, and for the ethics of scholarship</li> </ul>
<b>Related Course(s):</b>	Bachelor of Engineering (Computer Engineering) Bachelor of Engineering (Electrical Engineering) Bachelor of Engineering (Electrical) and Bachelor of Arts Bachelor of Engineering (Electrical) and Bachelor of Commerce Bachelor of Engineering (Electrical) and Bachelor of Laws Bachelor of Engineering (Electrical) and Bachelor of Science Bachelor of Engineering (EngineeringManagement) Electrical Bachelor of Engineering (IT) Computer Engineering Bachelor of Engineering (IT) Electrical Engineering Bachelor of Engineering (Software Engineering)