

ELEN90051 Advanced Communication Systems

Credit Points:	12.50						
Level:	9 (Graduate/Postgraduate)						
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.						
Time Commitment:	Contact Hours: 36 hours of lectures and up to 24 hours of workshops Total Time Commitment: 120 hours						
Prerequisites:	Prerequisite for this subject is : <table border="1" data-bbox="387 584 1485 732"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ELEN90057 Communication Systems</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>(prior to 2011, ELEN30003 Communication Systems) Master of Telecommunications Engineering(MTE) students may be eligible on the bases of subject(s) equivalent to ELEN90057, subject to approval.</p>	Subject	Study Period Commencement:	Credit Points:	ELEN90057 Communication Systems	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:					
ELEN90057 Communication Systems	Semester 2	12.50					
Corequisites:	None						
Recommended Background Knowledge:	None						
Non Allowed Subjects:	Anti-requisite for this subject is: <table border="1" data-bbox="387 1095 1485 1243"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ELEN40003 Digital Communications</td> <td>Not offered 2012</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ELEN40003 Digital Communications	Not offered 2012	12.50
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ELEN40003 Digital Communications	Not offered 2012	12.50					
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/						
Coordinator:	Assoc Prof Margreta Kuijper						
Contact:	Assoc Prof Margreta Kuijper Email: mkuijper@unimelb.edu.au (mailto:mkuijper@unimelb.edu.au)						
Subject Overview:	This subject provides an in-depth treatment of the main concepts and techniques used in the analysis and design of digital communication systems. In particular, students will study topics including: source coding; data compression; entropy; digital modulation and demodulation, with and without bandwidth constraints; signal constellations in signal vector space; M-ary signalling and probability of error calculations for AWGN channels; Nyquist's criterion, pulse shaping and equalisation; sequence detection; Viterbi's algorithm; mutual information and channel capacity; BSC and erasure channels; Shannon bounds; channel coding; erasure coding; block codes; convolutional / trellis codes; error-correction; and decoding methods. This material will be complemented by examples such as the compact disc, satellite communication systems, mobile communication networks, and both hardware and software based laboratories.						
Objectives:	On completing this subject the student should be able to: # Qualitatively and quantitatively analyse and evaluate digital communication systems;						

	# Use software tools to analyse, design and evaluate digital communication systems
Assessment:	One written examination, not exceeding three hours at the end of semester, worth 70%(must pass written exam to pass subject); Continuous assessment of submitted project work, not exceeding 30 pages over the semester, worth 30%.
Prescribed Texts:	TBA
Recommended Texts:	None
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:	<ul style="list-style-type: none"> # Ability to apply knowledge of basic science and engineering fundamentals # In-depth technical competence in at least one engineering discipline # Ability to undertake problem identification, formulation and solution # Ability to utilise a systems approach to design and operational performance # Capacity for independent critical thought, rational inquiry and self-directed learning # Ability to communicate effectively, with the engineering team and with the community at large
Notes:	Credit may not be obtained for both ELEN40003 (431-460) Digital Communication Systems and ELEN90051 Advanced Communication Systems
Related Course(s):	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 (EngineeringManagement) Electrical Master of Telecommunications Engineering Postgraduate Certificate in Engineering
Related Majors/Minors/Specialisations:	Master of Engineering (Electrical)