

# ELEN90061 Communication Networks

<b>Credit Points:</b>	12.50									
<b>Level:</b>	9 (Graduate/Postgraduate)									
<b>Dates &amp; Locations:</b>	2011, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.									
<b>Time Commitment:</b>	Contact Hours: 36 hours of lectures and up to 24 hours of workshops Total Time Commitment: Not available									
<b>Prerequisites:</b>	Prerequisites for this subject are: <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ELEN90054 Probability and Random Models</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>ELEN30010 Digital System Design</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ELEN90054 Probability and Random Models	Semester 1	12.50	ELEN30010 Digital System Design	Semester 1	12.50
Subject	Study Period Commencement:	Credit Points:								
ELEN90054 Probability and Random Models	Semester 1	12.50								
ELEN30010 Digital System Design	Semester 1	12.50								
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	None									
<b>Non Allowed Subjects:</b>	Anti-requisites for this subject is : <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ELEN40005 Communication Networks</td> <td>Not offered 2011</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ELEN40005 Communication Networks	Not offered 2011	12.50			
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ELEN40005 Communication Networks	Not offered 2011	12.50								
<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>Contact:</b>	Email: <a href="mailto:elen-subjectenquiry@unimelb.edu.au">elen-subjectenquiry@unimelb.edu.au</a> (mailto: <a href="mailto:elen-subjectenquiry@unimelb.edu.au">elen-subjectenquiry@unimelb.edu.au</a> )									
<b>Subject Overview:</b>	<p>This subject provides an introduction to the basic principles of communication network design, the layered network architecture, and network protocols. Students will gain exposure the role of optimisation and random process modelling and undertake a network design project. Topics to be covered include:</p> <ul style="list-style-type: none"> <li># Network topologies for core and access networks;</li> <li># Voice and circuit-switched networks, packet switching and multiplexing gain;</li> <li># The layered network architecture with a focus on physical-layer multiple access (TDM, WDM), link layer protocols and medium access control (MAC), network layer topologies, routing algorithms and protocols (IP), transport layer protocols (TCP), flow control, ARQ error control and analysis of utilisation;</li> <li># Random process models for analysing delay, optimisation methods or network design and network reliability and quality of service issues;</li> <li># LAN protocols, ATM, MPLS, protection and restoration.</li> </ul> <p>All concepts are to be illustrated by examples from wire-line, wireless and optical telecommunication networks.</p>									
<b>Objectives:</b>	<p>On completing this subject the student should be able to:</p> <ul style="list-style-type: none"> <li># Explain the basic principles of communication network design, the layered architecture and network protocols;</li> </ul>									

	<ul style="list-style-type: none"> <li># Quantitatively analyse the performance of simple communication networks;</li> <li># Design simple communication networks to achieve performance objectives.</li> </ul>
<b>Assessment:</b>	One written examination, not exceeding three hours at the end of semester, worth 70%; Continuous assessment of submitted project work, not exceeding 30 pages over the semester, worth 30%.
<b>Prescribed Texts:</b>	TBA
<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># Capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># Ability to communicate effectively, with the engineering team and with the community at large</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 (EngineeringManagement) Electrical Postgraduate Certificate in Engineering
<b>Related Majors/Minors/ Specialisations:</b>	B-ENG Electrical Engineering stream Master of Engineering (Electrical) Master of Engineering (Mechatronics)