

# ELEN90016 Broadband Access Networking and Design

<b>Credit Points:</b>	12.5
<b>Level:</b>	9 (Graduate/Postgraduate)
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: 1 x 3 hour lecture per week Total Time Commitment: 200 hours
<b>Prerequisites:</b>	4-year Electrical Engineering degree or equivalent.
<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>	Prof William Shieh
<b>Contact:</b>	Email: William Shieh <a href="mailto:shiehw@unimelb.edu.au">shiehw@unimelb.edu.au</a> ( <a href="mailto:shiehw@unimelb.edu.au">mailto:shiehw@unimelb.edu.au</a> )
<b>Subject Overview:</b>	<p><b>AIMS</b></p> <p>This subject develops the professional value of students through building knowledge, skill, and confidence in the area of Broadband Access Networking and Design. Students will develop their skills of analysing and documenting customer requirements, evaluating a range of technologies, and developing an integrated solution.</p> <p><b>INDICATIVE CONTENT</b></p> <p>Topics include:</p> <ul style="list-style-type: none"> <li># Basic principles of the design of an access solution, including the application of basic economic optimization principles</li> <li># Overview of Internet protocols and services</li> <li># Quality of Service, managed solutions, and Virtual Private Networking</li> <li># Management issues in access networks, especially performance and security</li> <li># Technological, economic and regulatory aspects of the use of twisted-pair technology</li> <li># Optical access network technologies</li> <li># Wireless technologies including terrestrial radio and satellite (as used for access)</li> <li># Case study of practical access network design</li> </ul>
<b>Learning Outcomes:</b>	<p><b>INTENDED LEARNING OUTCOMES (ILOs)</b></p> <p>Having completed this subject it is expected that the student be able to:</p> <ol style="list-style-type: none"> <li>1 Analyse and document customer requirements</li> <li>2 Evaluate technologies relative to customer requirements</li> <li>3 Apply professional knowledge and skills to solve problems</li> <li>4 Develop, in outline, an engineering solution that delivers value to customers</li> </ol>

<b>Assessment:</b>	Assessment will be based on Project (group work, 2-3 students) and a Final Examination. A 10 minute Group Seminar on Project (approximately 5-7 hours of work per student), worth 5% (group mark); Written Report on Project. Maximum 1500 words per student (approximately 30-35 hours of work per student), in week 10 of semester, worth 25% (group mark); Formally Supervised 3-hour written examination, worth 70%. Hurdle requirement: Students must pass the exam to pass the subject. Intended Learning Outcomes (ILOs) 1, 2 and 3 are assessed in the final written examination. ILOs 1-4 are assessed in the submitted team report.
<b>Prescribed Texts:</b>	Because of the breadth of topics in this subject, there are no prescribed texts. References to additional material will be given on the subject website.
<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>	<p>On completion of this subject, the student will have developed:</p> <ul style="list-style-type: none"> <li># Problem solving and analytical skills</li> <li># Critical and creative thinking, with an aptitude for continued self-directed learning</li> <li># Sense of intellectual curiosity</li> <li># Ability to interpret data and research results</li> <li># Ability to learn in a range of ways, including through information and communication technologies</li> <li># Capacity to confront unfamiliar problems</li> <li># Ability to evaluate and synthesise the research and professional literature</li> <li># Ability to develop models of practical applications and evaluate their performance by rigorous analytical means.</li> </ul>
<b>Notes:</b>	<p><b>LEARNING AND TEACHING METHODS</b></p> <p>The subject is delivered through sessions that combine lecture presentation, discussion, and mini-tutorials. Private study is also required, in addition to the weekly sessions. Learning is also enhanced by active participation in the online Discussion Board.</p> <p><b>INDICATIVE KEY LEARNING RESOURCES</b></p> <p>Students are provided with lecture slides and tutorial problems. Extensive reference material is uploaded or linked on the subject website.</p> <p><b>CAREERS / INDUSTRY LINKS</b></p> <p>Student teams are encouraged to interact with industry professionals as part of their assignment. Specific industry interactions may be organised according to interest and opportunities.</p>
<b>Related Course(s):</b>	Master of Telecommunications Engineering