

ELEN90034 Optical Networking and Design

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: 1X 3 hour lecture per week; Total Time Commitment: 200 hours.
Prerequisites:	4-year Electrical Engineering degree or equivalent
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
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/
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Subject Overview:	<p>AIMS</p> <p>This subject covers the basic areas of optical networks.</p> <p>INDICATIVE CONTENT</p> <p>In particular, it includes the following topics:</p> <ul style="list-style-type: none"> # Optical network elements; # Optical transport network architecture and design; # Optical circuit switching, optical burst switching, and optical packet switching; # Optical network control and management; # Optical network survivability; # Traffic grooming in optical networks; # IP over WDM networks. # Optical access network architectures and technologies (e..Active Ethernet, EPON, GPON, WDM PON); # Design and analysis of optical access networks; # Free space optical networks.
Learning Outcomes:	<p>INTENDED LEARNING OUTCOMES (ILO)</p> <p>On completion of this subject, the students will develop skills and knowledge required to understand the fundamentals of optical networks and to be able to solve technical problems in the following areas:</p> <ol style="list-style-type: none"> 1 Fundamental optical network elements; 2 Optical network architectures ranging from optical access networks to backbone optical transport networks; 3 Approaches and methodologies of optical network design optimisation; 4 Techniques of optical network survivability; 5 Problem solving skills and critical thinking in the discipline of optical networks;

	6 The subject will also help students develop an enthusiasm towards research and development in the field of optical networks.
Assessment:	Formally supervised written examination not exceeding three hours at the end of semester, 50%; A one-hour mid-semester test 20%; A written report on project (2000 word per student) at the end of semester, 30%. Hurdle requirement: Students must pass the written exam to pass the subject. Intended Learning Outcomes (ILOs) 1-6 are assessed in the final written examination, the mid-semester test, and the submitted project report or assignments. ILOs 3, 5 and 6 are also assessed in the submitted project report or assignments.
Prescribed Texts:	"Optical Networks: A Practical Perspective" by Rajiv Ramaswami and Kumar N. Sivarajan.
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 , the students should have developed:</p> <ul style="list-style-type: none"> # Problem solving and analytical skills; # Critical and creative thinking, with and aptitude for continued sel-directed learning; # Sense of intellectual curiosity; # Ability to interpret data and research results; # Ability to learn in a range of ways, including through information and communication technologies; # Capacity to confront unfamiliar problems; # Ability to evaluate and synthesise the research and professional literature; # Ability to develop models of practical applications and evaluate their performance by rigorous analytical means.
Notes:	<p>LEARNING AND TEACHING METHODS</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>INDICATIVE KEY LEARNING RESOURCES</p> <p>Students are provided with lecture slides and tutorial problems. Extensive reference material is uploaded or linked on the subject website.</p> <p>CAREERS / INDUSTRY LINKS</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>
Related Course(s):	Master of Telecommunications Engineering