

ELEN90008 Signalling and Network Management

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: 1 x 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 introduces students to the fundamental principles of modern telecommunication signalling systems (SIP and XMPP and WebRTC and PSTN/Mobile) and the Telecommunication Management Network (TMN) framework. It also introduces the network numbering and addressing schemes that underpin the signalling for, and management of, telecommunications services. The Signalling component will address topics of access and core network call/session control as well as personal and terminal mobility management functions. The Network Management part will address the operation of both circuit-switched networks and TCP/IP networks including the Internet.</p> <p>INDICATIVE CONTENT</p> <p>Signalling topics include:</p> <p>Principles of signalling, overview of network technologies, basic SIP signalling protocol, basic SDP usage, enhancements to SIP, basic XMPP-based JINGLE signalling protocol, introduction to WebRTC/rtcWeb features and signalling, traditional PSTN/ISDN and Mobile signalling, additional signalling services, interworking of different signalling protocols, different addressing schemes and transport of signalling in different network technologies.</p> <p>Network Management topics include:</p> <p>TMN Framework for Network Management: Fault, Configuration, Accounting, Performance, and Security; Measuring and Managing Quality and Network Management in the Internet.</p>
Learning Outcomes:	<p>INTENDED LEARNING OUTCOMES (ILO)</p> <p>Having completed this subject it is expected that the student be able to:</p> <ol style="list-style-type: none"> 1 Understand the principles of modern telecommunications signalling; 2 Demonstrate how modern telecommunication signalling protocols operate in networks to create real-time communication calls/sessions; 3 Demonstrate how addressing is used as an integral part of signalling and how address interworking is achieved 4 Understand the historical lessons, theoretical foundation, and likely future trends of Network Management

	<p>5 Analyse and design measurements that give insight into customer satisfaction and hence the profitability of telecommunications network services</p> <p>6 Understand the planning and management of networks for customer loyalty and service-provider profitability</p> <p>7 Undertake research in the developments in real-time communications</p> <p>8 Undertake research in the field of Network Management</p>
Assessment:	<p>One research-based Signalling Assignment of 2,000 words due late in the Semester, worth 35%</p> <p>One Network Management Assignment (team assignment of 2-3 students) of 500 words per student due late in the Semester, worth 15%</p> <p>Formally supervised, 3-hour written examination at end of semester, worth 50%. 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. ILOs 7 and 8 are assessed in the Signalling Assignment and the Network Management Assignment.</p>
Prescribed Texts:	None
Recommended Texts:	<p>Additional Reading:</p> <ul style="list-style-type: none"> • Gonzalo Camarillo "SIP Demystified" 2002, ISBN: 0071373403 McGraw-Hill • Henry Sinnreich and Alan B. Johnston, "Internet Communications using SIP", Wiley • Peter Saint-Andre, Kevin Smith & Remko Troncon. "XMPP – The Definitive Guide", O'Reilly • Travis Russell, "Signalling System 7" (Telecommunications), 2nd edition, McGraw Hill, ISBN 0070580324.
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 an aptitude for continued self-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 lectures and tutorials.</p> <p>INDICATIVE KEY LEARNING RESOURCES</p> <p>Students are provided with lecture slides, tutorial questions and worked solutions, reference lists and an abbreviation list.</p> <p>CAREERS / INDUSTRY LINKS</p> <p>Students 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