ELEN90014 Multimedia Content Delivery

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: One 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/
Contact:	Email: William Shieh **sheihw@unimelb.edu.au (mailto:sheihw@unimelb.edu.au)**
Subject Overview:	**AIMS** A study of underpinning requirements, technologies, standards, industry developments, trends and network architectures in the delivery of multimedia (including audio and video) telecommunications services. This is structured in three phases: 1 Human perception of multimedia (vision and hearing), which establishes a set of fundamental requirements for signal structure, sampling and fidelity. 2 Technologies common to the representation and delivery of multimedia are introduced, including media formats, data compression, data description, copyright protection, streaming, content delivery networks and error recovery. 3 The major categories of multimedia service (Internet streaming, broadcast television, videoconferencing, Video-on-demand, etc.) are analysed, recognising the role of the above technologies in these systems and introducing additional components necessary to satisfy customers or users of the services. **INDICATIVE CONTENT** Topics include: # Introduction to multimedia services and their requirements # Audio, video and image compression technologies for transmission and storage # Multiplexing and packaging techniques # Error detection, protection, recovery and concealment # Media streaming solutions # Media servers and storage techniques # Content delivery networks # Technical methods for protection of copyright and content distribution rights # Workflow in multimedia production and publishing systems # Key multimedia services and their delivery solutions (Internet streaming, IPTV, video-on-demand, digital TV and video calling). # Emerging technologies in multimedia distribution and content delivery

Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** Having completed this subject it is expected that the student be able to: 1 Understand the principles of human audio and visual perception and how it impacts on electronic reproduction; 2 Understand the working principles of relevant data compression methods, multimedia containers and multiplexing, content delivery systems, intellectural property rights protection, multimedia servers and storage, metadata and back-end systems necessary to deliver multimedia; 3 Understand the requirements and technical solutions which satisfy them, for the delivery of major classes of multimedia services (Video-on-demand, IPTV, Video calling, Internet streaming, etc.); 4 Understand the technical literature associated with this subject, carry out their own literature-based research project, synthesise their own view, report on the topic and communicate it effectively.
Assessment:	One mid-semester test of one hour duration, worth 20%. A project report of approximately 1500 words, on an (approved) topic of the student's choice in the general area of multimedia services, due at the end of the semester, worth 30%. One examination of three hours duration at the end of the semester, worth 50%. Hurdle requirement: Students must pass the end of semester examination to pass the subject. Intended Learning Outcomes (ILOs) 1 and 2 are assessed in the mid-semester test. ILOs 1-3 are assessed in the final exam and ILO 4 is assessed in the submitted project report.
Prescribed Texts:	"Video Processing and Communications", by Yao Wang, Jorn Ostermann, Ya-Qin Zhang, Publisher: Prentice Hall. (Suggested, not mandatory.)
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:	On completion of this subject, the students should have developed: • An advanced understanding of how a knowledge base evolves; • An ability to identify weaknesses and risks in technical solutions; • Analytical, critical and creative thinking, with an aptitude for continued self-directed learning; • A sense of intellectual curiosity; • An ability to interpret data and research results; • An ability to learn in a range of ways, including through information and communication technologies; • An ability to evaluate and synthesise the research and professional literature; • A capacity to manage competing demands on time, including self-directed project work.
Notes:	**LEARNING AND TEACHING METHODS** The coursework is delivered through lectures alone, with support via the University LMS. The student will also carry out their own research to support their written project report. **INDICATIVE KEY LEARNING RESOURCES** Students are provided with lecture slides, along with suggested additional reference lists for each topic covered (textbooks and web resources). Discussion of technical issues is via the University LMS. **CAREERS / INDUSTRY LINKS** Real world service examples are used to illustrate the application of technologies discussed and choice of parameters (bit rates, reproduction quality, latency, etc.).
Related Course(s):	Master of Telecommunications Engineering