SINF90001 Database Systems & Information Modelling

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: Three contact hours per week, in the following general pattern: One lecture, of approximately 1 hour Immediately followed by one tutorial or lab of approximately 1 hour Immediately followed by one discussion/lecture of approximately 1 hour Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	

Subject	Study Period Commencement:	Credit Points:
INFO20003 Database Systems	Not offered 2013	12.50

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 Overview, Objectives, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and the Disability Liaison Unit: http://www.services.unimelb.edu.au/disability/
Contact:	Email: **sean.maynard@unimelb.edu.au (mailto:sean.maynard@unimelb.edu.au)**
Subject Overview:	The subject introduces key topics in modern information organization, particularly with regard to structured databases. The well-founded relational theory behind modern structured query language (SQL) engines, has given them as much a place behind the web site of an organization and on the desktop, as they traditionally enjoyed on corporate mainframes. Topics covered include: the managerial view of data, information and knowledge; entity relationship (ER) and extended entity relationship (EER) modelling; normalization and denormalization; database modelling in UML; the SQL language; data integrity; transaction processing and data warehousing. In addition to traditional database applications, alternative technologies such as XML, web services, data mining and organizational memory technologies such as groupware will be briefly surveyed.
Objectives:	Upon satisfactory completion of this subject, students should: # Have an understanding of the different technologies available to manage structured data, and the evolutionary process that led to them # Understand the differences between data, information and meta-data # Know the strengths and weaknesses of structured data and tagged data # Understand notions including: the enterprise data model (EDM), conceptual modelling, the entity relation (ER) model, the logical model, the physical model, information engineering (IE) and information systems architecture (ISA) # Be able to construct conceptual data models from real-world, natural language Requirements documents # Be able to apply conceptual modelling to application domains that are new to them, using several bottom-up analysis and design techniques, including Noun-Verb analysis # Be able to competently use a CASE tool (computer-aided software engineering)

	# Have the ability to define key-based and fully-attributed data models # Be able to apply Data Normalisation to their models # Be competent in basic SQL and familiar with the usage of advanced SQL commands # Understand the need and mechanism for transaction processing # Understand the so-called ACID properties of transactions and the 2-phase commit # Understand the relationship of database systems to data warehousing, OLAP, decision support systems (DSS) and data mining # Understand the differences between ER and Object-oriented (OO) modelling and appreciate how they have influenced each other # Recognise and understand different modelling notations with respect to databases, including both EER and UML Class diagrams # Understand what makes a good data model and learn effective modelling strategies to improve the quality of them # Be familiar with the current technologies and techniques for putting web browser-based interfaces in front of database systems (JavaScript, HTML V5, CSS, ASP and JSP) # Be familiar with the Web Services paradigm including notions and terms such as REST, JSON, SOAP and WSDL # Understand meta-data, meta-models and their usage # Be able to adapt and apply their learned modelling techniques, to client-side, end-user mashups of Internet-based services and database resources
Assessment:	The first assignment (10%) requires a conceptual database design, due around the fifth week of semester (three conceptual diagrams in ER and CASE notation and 1000 words in a data dictionary format) The second assignment (15%) requires answers to set questions against a known database with fixed data contents is due around the seventh week of semester The third assignment (25%), like the first, requires a conceptual database design for a real-world project done in teams of two students, and is due around the tenth week of semester (requires conceptual diagrams and 1000 words in a data dictionary format) A two-hour closed book examination in the examination period (50%). Satisfactory completion of the examination and assignment components is necessary to pass the subject
Prescribed Texts:	There are no prescribed texts for this subject. An extensive set of subject notes will be available from the University Bookshop.
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:	The student will acquire skills in Information Modelling - a generic skill that will serve the student well throughout a career in Information Systems. Scoping within analysis is also a valuable cross-discipline skill honed during this subject.
Related Course(s):	Graduate Certificate in Information Systems Master of Information Systems Master of Information Technology Master of Information Technology Master of Information Technology Master of Philosophy - Engineering Master of Science (Information Systems) Ph.D.- Engineering