431-102 Digital Systems 1: Fundamentals

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Summer Term, - Taught on campus. Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: Twenty-four hours of lectures, 24 hours of tutorials and 12 hours of laboratory work Total Time Commitment: Not available
Prerequisites:	None
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 Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, 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 Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Subject Overview:	This course serves as an introduction to the fundamentals of digital system design and to the technical language used in this field. This includes Boolean algebra; number systems and digital arithmetic; the analysis and design of combinational logic systems with examples ranging from designs based on logic gates to designs involving decoders and multiplexers to achieve target functionality; the use of Karnaugh maps for combinational logic simplification; an introduction to bit storage units (latches and flip-flops); the analysis and design of synchronous (ie. clocked) sequential logic systems with examples ranging from registers and counters to generic finite state machine design; and a brief introduction to memory units, microprocessor systems and configurable logic devices (PLDs).
Assessment:	Formally supervised written examination 3 hours 65% (end of semester); Written class test 1 hour 10% (mid-semester); written assignments 10% (eight assignments throughout semester); laboratory reports 10% (four 3-hour laboratory classes throughout the semester); tutorial attendance 5% (ten 2-hour tutorials throughout the semester).
Prescribed Texts:	None
Recommended Texts:	Information Not Available
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:	# ability to apply knowledge of basic science and engineering fundamentals # ability to communicate effectively, not only with engineers but also with the community at large # ability to undertake problem identification, formulation and solution

	# ability to utilise a systems approach to design and operational performance # ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member # expectation of the need to undertake lifelong learning, capacity to do so # capacity for independent critical thought, rational inquiry and self-directed learning # intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity
Notes:	Students enrolled in the BSc (pre-2008 BSc), BASc or a combined BSc course will receive science credit for the completion of this subject if they also complete the subject 433-313 Computer Design. This subject is a prerequisite for the subject 433-313 Computer Design.
Related Course(s):	Bachelor of Computer Science Bachelor of Computer Science (Bioinformatics) Bachelor of Computer Science and Bachelor of Laws