433-641 System Modelling and Analysis

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Time Commitment:	Contact Hours: Twenty-four hours of lectures, 12 hours of workshops Total Time Commitment: Not available
Prerequisites:	433-255 Logic and Computation and 433-341 Software Engineering Process and Practice
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:	Topics covered will be selected from: model-oriented specifications, the Z specification language; modelling and analysis of concurrent systems, automata, process algebra, Petri nets, axiomatic specifications languages and modelling tools.
Objectives:	On completion of this subject students should be able to understand the use of mathematical modelling in the analysis of discrete systems; to be familiar with the form, content and uses of mathematical models in the analysis of discrete systems; to be familiar with a range of standards, techniques and languages developed to support mathematical modelling and analysis of discrete systems; and to be able to contribute to the production of high quality software.
Assessment:	Between 3 and 5 modelling and analysis problems submitted during semester time (the exact number of submitted assessment pieces is chosen by the students), totalling no more than 25 pages including figures, and tables (40%); and a 2-hour end-of-semester written examination (60%). To pass the subject, students must obtain at least 50% overall, 20/40 in modelling problems, and 30/60 in the written examination.
Prescribed Texts:	None
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 students should: # be able to create and verify formal models of sequential and concurrent computing systems; # be able to determine critical properties of systems and demonstarate in a rigorous fashion whether or not models exhibit those properties; # be able to think abstractly about problems in the design and analysis of discrete systems; # be able to apply problem solving skills to a variety of problems in discrete systems analysis; # be able to undertake problem identification, formulation and solution; # have a capacity for independent critical thought, rational inquiry and self-directed learning; and # have a profound respect for truth and intellectual integrity, and for the ethics of scholarship.