431-481 Electronic Circuit Design 3

Credit Points:	12.50
Level:	4 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: Twenty-four hours of lectures, 6 hours of tutorials, 18 hours of assignments/ project work Total Time Commitment: Not available
Prerequisites:	431-331 Electronic Circuit Design 2
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
Coordinator:	Assoc Prof Graeme John Pendock
Subject Overview:	This course will build on 431-331 Electronic Circuit Design 2. Students completing it will gain skill for designing practical electronic circuits and exposure to some of the techniques and tools involved in the design, manufacture and assembly of real-world electronic circuits. Topics covered: circuit fundamentals (eg. noise in electronic circuits and Âsystems, high frequency design), sub-systems (eg. crystal oscillators phase-locked loops and frequency synthesisers), trade-offs in electronic design (eg. illustrating topics such as analyog vs digital approaches, component precision vs robust design), component technologies (leaded vs SMD, parasitics, real behaviour of passives and their choice), PCB design techniques (CAD, multilayer boards, layout and routing for EMI, power distribution, high speed and mixed signal), electronic manufacturing (PCBs, component loading and soldering techniques).
Objectives:	On completing this subject the student should be able to: 1. Apply practical knowledge of a range of common electrical and electronic devices and circuit techniques; 2. Identify choices in implementing a design for a given problem and make tradeoffs on the basis of the relative merits of different approaches; 3. Prototype hardware, debug hardware and software, conduct measurements and tests.
Assessment:	One 3-hour end-of-semester written examination (60%); 1-hour mid-semester examination (10%); and laboratory/assignment reports due throughout the semester (30%).
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:	# understandering the need for trade-offs in design # appreciation of the practical limitations in real-world components # appreciation of issues in manufacturing # appreciation of importance on robustness in design and the impact it has on manufacturability
Related Course(s):	Bachelor of Engineering (Computer Engineering) Bachelor of Engineering (Electrical Engineering) Bachelor of Engineering (Software Engineering)