ELEN30013 Electronic System Implementation

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 2 one hour lectures and 1 three hour workshop per week Total Time Commitment: Not available
Prerequisites:	The prerequisite for this subject is

Subject	Study Period Commencement:	Credit Points:
ELEN20005 Foundations of Electrical Networks	January, Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	Knowledge of the following subjects is recommended

Subject	Study Period Commencement:	Credit Points:
PHYC10004 Physics 2: Physical Science & Technology	Semester 2	12.50
ELEN30009 Electrical Network Analysis and Design	Semester 1	12.50
ELEN30010 Digital System Design	Semester 1	12.50
COMP20005 Engineering Computation	Semester 1, Semester 2	12.50

Non Allowed Subjects:	ELEN30006(431-330) Design Laboratory
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/
Coordinator:	Assoc Prof Peter Farrell
Contact:	Assoc Prof Peter Farrell Email: **farrell@unimelb.edu.au (mailto:farrell@unimelb.edu.au)**
Subject Overview:	This subject works through the operation, assembly and testing of various simple electronic systems that interact with the real world. The aim is to expose students to various standard electrical and electronic devices and basic circuit construction and measurement techniques. This includes hands-on experience with: # Devices such as resistors, capacitors, inductors, switches, transducers, motors, diodes, transistors, op-amps, voltage regulators, comparators, oscillators, timers, A/D and D/A converters, microprocessors and controllers; # Circuit functions and techniques such as buffering, referencing, signal conditioning, filtering, bridges, detection, waveform generation, and pulse-width modulation; # Microprocessor programming, the role of assembly and high-level languages, assemblers, compilers and debuggers; # PCB layout, circuit assembly, and soldering techniques; # Measurement and test with multimeters and oscilloscopes;

	# Design issues such as performance limits, robustness, modularity, reuse, reconfiguration, scalability, manufacturability and tradeoffs. Students will complete projects in small groups and be required to prepare technical documentation and present project outcomes.
Objectives:	On completing this subject the student should be able to: # Apply practical knowledge of a range of standard electronic devices and circuit functions and techniques. # Identify choices in implementing a design for a given problem and make tradeoffs on the basis of the relative merits of different approaches. # Assemble, test and debug the hardware and software components of simple electronic systems.
Assessment:	One, written examination, not exceeding three hours, at the end of semester, worth 60% (must pass written exam to pass subject); Continuous assessment of project work, including submitted work, not exceeding 30 pages in total over the semester, worth 30%, A presentation at the end of semester, worth 10%.
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2012/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2012/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2012/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2012/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject students should have developed the following generic skills: # Ability to apply knowledge of basic science and engineering fundamentals # Ability to undertake problem identification, formulation and solution # Ability to utilise a systems approach to design and operational performance # Ability to communicate effectively, with the engineering team and with the community at large # Ability to conduct an engineering project # Ability to manage information and documentation # Capacity for independent critical thought, rational inquiry and self-directed learning # Expectation of the need to undertake lifelong learning, capacity to do so
Related Course(s):	Bachelor of Engineering
Related Majors/Minors/ Specialisations:	B-ENG Electrical Engineering stream Master of Engineering (Electrical) Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.