ELEN90044 Electromagnetic Compatibility

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: 1 two hour lecture per week Total Time Commitment: 200 hours
Prerequisites:	Prerequisites for this subject are:

Subject	Study Period Commencement:	Credit Points:
ELEN90043 Device Models	Semester 1	12.50
ELEN90048 Passive Component Design & Simulation	Semester 1	12.50

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 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/
Contact:	Prof Stan Skafidas Email: **skaf@unimelb.edu.au (mailto:skaf@unimelb.edu.au)**
Subject Overview:	**AIMS** A critical component of system design is to suppress undesirable signals from being emitted through the radiated and conducted coupling path-electromagnetic compatibility. This subject will enable the students to calculate the radiation from of unintentional antennas, apply interference reduction techniques and determine means of identifying sources of unwanted emissions in electronic systems. **INDICATIVE CONTENT** Topics include: Electromagnetic field theory, Short dipole and magnetic Loop antennas, Nonideal behaviour of components, PCB design for EMC, Grounding and shielding techniques, Filtering, Signal spectra, Radiated emissions and susceptibility, Conducted emissions and susceptibility, Electromagnetic coupling, EMC tests and standards. This material is complemented by the use of software tools (e.g. MATLAB, CST-Field solver) for computation and simulation.
Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** Having completed this subject it is expected that the student be able to: 1 Explain the issues in electromagnetic compatibility, interference, antennas and radiation and regulatory standards governing these systems and devices; 2 Describe system and regulatory issues associated with the design and implementation of nano-electronic systems. 3 Use computer simulations to optimise the design.

Assessment:	One written examination (not exceeding three hours) at the end of semester, worth 70%; Continuous assessment of submitted project work (not exceeding 30 pages in total over the semester), worth 30%. Intended Learning Outcomes (ILOs) 1 and 2 are assessed in the final exam and submitted project work. ILO 3 is assessed in the submitted project work.
Prescribed Texts:	TBA
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 science and engineering fundamentals # Ability to undertake problem identification, formulation, and solution # Ability to utilise a systems approach to complex problems and to design andoperationalperformance # Ability to build and test real world systems that meet industry specialisation and manufacturing standards # Capacity for lifelong learning and professional development
Notes:	**LEARNING AND TEACHING METHODS** The subject is delivered through lectures and workshop classes for hands-on laboratory activities. **INDICATIVE KEY LEARNING RESOURCES** Students are provided with lecture slides, tutorials and worked solutions, laboratory sheets, and reference text lists. **CAREERS / INDUSTRY LINKS** Exposure to engineering design context through research lab
Related Course(s):	Master of Nanoelectronic Engineering