ELEN90048 Passive Component Design & Simulation

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 1 two hour lecture per week Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	Basic knowledge and understanding of electronics
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/
Coordinator:	Prof Stan Skafidas
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Subject Overview:	Passive components are critical components for analogue and RF circuits. At high frequencies most of these components can be integrated completely on Chip. Low frequency models are not accurate and the usual synthesis techniques do not account for the thick metal thin operating regime that these components operate. This subject will introduce the student to the latest high frequency models of these devices operating in the multi-gigahertz range. Students will be able learn models, loss mechanisms and effects of the substrate in the design of high frequency analogue components. After completing this subject students will be able to design, layout, fabricate and test components compatible with small geometry foundry design rules.
Objectives:	Upon successful completion of this subject students should be able to: # Build and simulate inductors, capacitors, baluns and on chip transformers and filters; # Estimate passive component performance, losses due to conductive substrates and foundry design rule constraints on devices.
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%.
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
Related Course(s):	Master of Nanoelectronic Engineering