Course Outline

ZEIT2209 Principles of Electrical Engineering – S2 2018

Never Stand Still | School of Engineering and Information Technology

Course Staff

Course Coordinator

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We are usually available for consultation, via email appointment, during normal working hours.

Introduction/Context

This 6 UOC course will focus on the understanding of principles of electrical engineering. The laboratory component of the course will enable students to design and implement an electrical engineering project using a broad range of electrical engineering fundamentals and tools.

Students will develop sound design principles through participation in a small-group, project-based learning activity. This project is electrical in nature and students will be exposed to the broad principles of electrical design and engineering report writing. The lectures will deliver relevant material for the successful completion of the project.

This course will also enable students to study practical electrical circuits and control systems and understand how fundamental concepts in electrical engineering are linked with mathematical tools. The analysis aspects of the course will be relevant to almost every other course in electrical engineering.

Course Learning Outcomes

At the successful completion of this course students will, at minimum, have:

1. Apply electrical engineering foundational knowledge, techniques, tools and know-how to produce solutions to meet a specific requirement.
2. Select relevant design methodologies and technologies in developing engineering solutions.
3. Design and deliver an electrical system to meet a user need.
4. Work effectively in a team environment and also individually to achieve the project's goals.
5. Communicate verbally and through documents appropriate design information using words, mathematics and drawings and the language of the discipline.
6. An understanding of the theory and technologies underpinning current and future electrical systems.

Alignment with Program Learning Outcomes

By achieving these learning outcomes you will have worked towards the following Program Learning Outcomes as specified by Engineers Australia and UNSW:

1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline; (CLO 1,6)

1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline; (CLO 1,5)

2.2 Fluent application of engineering techniques, tools and resources; (CLO 2,3)

3.2 Effective oral and written communication in professional and lay domains. (CLO 4,5)

Assistance with Moodle

Moodle is the online learning platform used throughout UNSW.

Log in to Moodle *here.* For Moodle instruction guides click *here*.

For assistance with enrolment and login issues please contact:
IT Service Centre
Email: *itservicecentre@unsw.edu.au*
Phone: (02) 9385-1333
International: +61 2 9385 1333

For ALL other Moodle issues please contact:
External TELT Support
Email: *externalteltsupport@unsw.edu.au*
Phone: (02) 9385-3331
International: +61 2 9385 3331
Opening hours:
Monday – Friday 8:00am – 10:00 pm
Saturday & Sunday 9:00 am – 5:00pm

Assessment Requirements

All marks obtained for assessment items during the session are provisional. The final mark as published by the university following the assessment review group meeting is the only official mark.

In order to satisfactorily complete this course students must achieve an overall mark of 50% or greater in the overall course assessment. The assessment for this course will be as follows:

Tutorial Questions (10%)

A set of tutorial questions will be handed out each week.

Group Project (40%)

The assessment will consist of a sequence of presentation-based reviews and written reports.

Exams (50%)

The class test (10%) will be a 1 hour closed book exam and the final exam (40%) will be a 1.5 hours closed book exam.

The assessment due dates are as follows:

Assessment	Weight	Due Date
Tutorial Questions	10%	weekly
Planning Review and Report (G)	5%	13th Aug
Sub-System Requirements Spec	5%	13th Aug
Class Test	10%	3rd Sep
Sub-System Verification Report	10%	17th Sep
System Verification (G)	10%	15th Oct
Project Final Report (G)	5%	26th Oct
Sub-System Design Description	5%	26th Oct
Exam	40%	TBA

(G) group submission

Academic Honesty and Plagiarism

Plagiarism can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. Plagiarism is a serious student misconduct and the record (especially for Level 2 and Level 3 cases) can be reported to external agencies if requested following your graduation. This can have a strong negative impact on your career development. For more information, please refer to the UNSW Student Conduct website (https://student.unsw.edu.au/conduct).

Late Submission of Assessment

The penalty for late submission will be 10% per calendar day, or part thereof, unless prior special consideration has been granted. Assessment items submitted more than 5 calendar days late will not be assessed and will receive a grade of zero.

All requests for special consideration must be formally submitted via MyUNSW prior to the assessment due date.

Supplementary Assessment

Supplementary assessment in the event of failure of the course is generally not available, and should not be expected. Exceptions may be made for students in the final year of their program where there is a single failure preventing graduation.

Outcomes-Assessment Matrix

Assessment item	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5	CLO 6
Class Test	x	x				x
Exam	x	x				x
Tutorial Questions	x	x				x
Group Project (%)	30	30	10	10	10	10

Referencing

In this course, students are required to reference using in-text citations and a reference list, following the APA referencing style. Information about this referencing style is available on the Course Moodle site.

Teaching Strategies

This is a course that supplements a significant laboratory component with enabling lectures. The tasks being assessed are guided by tutorials and involve the design and development of complex systems.

The understanding and skills you develop will feed further endeavours outside this course e.g. in the research project in the final year of your degree.

Resources for Students

Materials for this course can be found on the Moodle site under this course heading.

The documents will be in PDF format, and you may download them and print them at your leisure. These notes and all included documents and resources on the web page are for the use of enrolled students only.

Please use the discussion forum, and monitor it to find current information and to clarify your understanding. I and your classmates will do the same, so hopefully your questions and suggestions will be answered between us.

Course Evaluation and Development

The course will be evaluated both through formal (myExperience) and informal process (such as class evaluation and individual feedback). Your feedback is important for developing and reshaping this course effectively.

Course Specific Information

All students are required to wear appropriate footwear while in laboratories. This means covered shoes in all laboratories. Students who do not have appropriate footwear will be asked to leave the laboratory space.

Class Attendance and Absence

Students are expected to attend all classes in the course in which they are enrolled. All requests for exemption from attendance or absence should be addressed to the Course Authority and where applicable, be accompanied by a medical certificate.

See University Rules at:
https://student.unsw.edu.au/attendance

All Defence and Defence-funded students must also seek approval from relevant Defence authority for exemption from attendance or absence.

Further Information

Information about the following appear on the Course Moodle site:

Referencing principles and practice

Academic Honesty and Plagiarism

UNSW Graduate Capabilities

UNSW Assessment Policy

UNSW Canberra Assessment Procedures

Course Schedule

This course is divided into a mix of lectures, tutorials and laboratory sessions. The following schedule provides a guide to the topics which will be covered in each week of the course:

Week	Lecture	Assessment Due
1	Introduction	
	Linear Systems	
	Convolution	
2	Complex Exponentials	
	Real Functions from CEs	
	Linear Transforms	
3	The Discrete Fourier Transform	
4	Properties of the DFT	**Planning Review and Report (13/8)**
	Sampling and Aliasing	**Sub-System Requirements Spec (13/8)**
5	Electric Motors	
6	Communications Systems	
7	**Class Test (3rd Sep)**	
8	Intro to Control Systems	
9	Transfer Functions and	**Sub-System Verification Report (17/9)**
	Laplace Transforms	
10	Circuit Implementations of	
	Transfer Functions	
11	PID Controllers	
12	Applications of Vector Calculus	**System Verification (15/10)**
13		**Project Final Report (26/10)**
		Sub-System Design Description (26/10)