UNSW Course Outline

ELEC9703 Microsystems Design and Technology - 2024

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General Course Information

Course Code : ELEC9703
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Electrical Engineering & Telecommunications
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The entire field of research in microsensors and microactuators has evolved at an exceedingly rapid pace over the past 35 years. It is often referred to as MEMS (Microelectromechanical Systems) or Microsystems Technology. Signals from the physical world around us are always in

analog form. Yet, much of the signal processing is done in digital form by microelectronic circuits. Microsensors and microactuators are the interfaces between the digital electronic domain and the physical world. Sensors and actuators in various forms have been around for centuries but significant miniaturization was not possible until the last few decades due to the significant technological advances in microfabrication techniques. In many cases, these new devices bring along new advantages over the traditional components like several orders of magnitude in size reduction, new functionality, and possibly integration of on-chip signal processing circuit (smart sensors/actuators). Many of the micro-fabrication techniques originate from the wealth of processes developed for the fabrication of integrated circuits. Yet, the MEMS business cannot be simply compared to the IC(Integrated Circuits) business. ICs deal with electrical signals whereas MEMS devices are interfaces to the physical world, to and from the electrical domain. As such, one would expect a more diverse, a more complicated overall environment, interacting effectively and accurately between the electronic domain and the outside world. The natural outcome of this is the vast and diverse range of MEMS devices. In fact, if one word were to be used to characterize the field of MEMS or Microsystems, it would be its multidisciplinary nature.

MEMS is truly an enabling technology which has penetrated into and begun to change the way major discipline do things, including biotechnology, storage technology, instrumentation, telecommunications, optical communications, MEMS device packaging, etc. MEMS research, engineering development and manufacture must require close integration and collaborative interaction of experts from many disciplines. MEMS researchers and engineers must be willing to cross interdisciplinary boundaries and acquire knowledge outside their discipline of expertise. Examples of MEMS devices include, pressure sensors, accelerometers, micro-valves, micro-pumps, projection display chips, biosensors, inkjet nozzle arrays, optical cross-switches, RF switches, Lab-on-chip etc.

This course will cover a wide range of topics related to MEMS fabrication technology and expand on to some of the design issues, bearing in mind the technology constraints. Can it be manufactured? Furthermore, a course is not complete if we do not know what the current market drivers are for MEMS products and where the future holds for this exciting and fast-expanding technology. Many people do not realize that the numerous savvy features we have in our mobile smart devices stem from advances in MEMS technology. The subject will enable students to have a broad grasp of the multi-disciplinary nature of MEMS technology, bringing together the know-how of physicists, chemists, electrical and mechanical engineers, and mathematicians. It will provide fundamental knowledge for students, who want to enter the MEMS industry. It is an

exciting field of research, and we should count ourselves fortunate to be witnessing and participating in this era of unparalleled technological advancement.

The topics that would be covered in the course are: Introduction to Microsystems: an overview and trends; Lithography and Thin Film Processes; Bulk micromachining; Surface micromachining; Bonding Processes; High Aspect Ratio Micromachining (HARM); Mechanics: Properties of materials, structures, energy methods; Actuation mechanisms: Electrostatic, Electromagnetic, Electrothermal, and Piezo-electric ; Lumped modelling with circuit elements and system dynamics; Introduction to ANSYS Simulation: Electro-thermal, Piezoelectric and Electrostatic; Optical MEMS, Microfluidic basics and Bio-MEMS;

Course Aims

The course aims to expose students to Microsystems technology (or MEMS technology as is also known) and design approaches highlighting the multidisciplinary nature of the course and its impact on design issues. It enables them to appreciate the many advances in the technology that has become the "enabling technology" for many other disciplines.

The course complements integrated circuit technology and design courses and broadens students' knowledge and understanding of the microelectronics field.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain a range of technologies used for micro/nano fabrication of Microsystems
CLO2 : Explain the principle of operations of microsensors and micro-actuators
CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors
CLO4 : Design fabrication process flow for realizing MEMS devices.
CLO5 : Apply muti-physics simulation software such as ANSYS in designing micro-sensors and actuators

Course Learning Outcomes	Assessment Item
CLO1 : Explain a range of technologies used for micro/nano fabrication of Microsystems	• Final Examination • Mid-term exam • Assignment 1
CLO2 : Explain the principle of operations of microsensors and micro-actuators	• Assignment 2 • Final Examination • Mid-term exam • Assignment 1
CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors	• Assignment 2 • Final Examination • Mid-term exam • Assignment 1
CLO4 : Design fabrication process flow for realizing MEMS devices.	• Assignment 2 • Final Examination • Mid-term exam • Assignment 1
CLO5 : Apply muti-physics simulation software such as ANSYS in designing micro-sensors and actuators	• Assignment 2

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

Delivery Mode

The teaching in this course aims at establishing a good fundamental understanding of the areas

covered using:

- Formal in-person lectures, which provide you with a focus on the core analytical material in thecourse, together with qualitative, alternative explanations to aid your understanding;
- There are no separate tutorials but done lectures from time to time. Some self-paced exerciseswill be given out in class during the course.
- Lectures will be recorded and made available on Microsoft Stream after lecture. However, it is important to note that watching recording videos alone **is not a substitute** for missed lectures but they are recorded to help students with **revision**.

Learning in this course

You are expected to attend all online lectures, and attempt assignments in order to maximise learning. In addition to the lecture notes/video, you should read relevant sections of the recommended reference text. Reading additional texts will further enhance your learning experience. Group learning is also encouraged. UNSW assumes that self-directed study of this kind is undertaken in addition to attending online classes throughout the course.

Tutorial classes

There are no separate tutorial classes. But, they may be organised from time to time outside the normal lecture time to help students with assignments and final exam.

Laboratory program

There are no formal laboratory classes. However, a two-hour computer simulation laboratory session as an introduction to ANSYS will run in week 7 from 7-9pm during normal lecture time.

Other Professional Outcomes

Engineers Australia (EA), Professional Engineer Stage 1 Competencies

The Course Learning Outcomes (CLOs) contribute to your development of the following EA competencies:

PE1: Knowledge and Skill Base:
PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals: CLO 1, 2, 3
PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing: CLO 1, 2, 3, 4
PE1.3 In-depth understanding of specialist bodies of knowledge: CLO 1, 2, 3, 4, 5
PE1.4 Discernment of knowledge development and research directions: CLO 3

PE1.5 Knowledge of engineering design practice: CLO 3, 4, 5
PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice: n/a

PE2: Engineering Application Ability:
PE2.1 Application of established engineering methods to complex problem solving: CLO 3, 4, 5
PE2.2 Fluent application of engineering techniques, tools and resources: CLO 3, 4, 5
PE2.3 Application of systematic engineering synthesis and design processes:n/a
PE2.4 Application of systematic approaches to the conduct and management of engineering projects: n/a

PE3: Professional and Personal Attributes:
PE3.1 Ethical conduct and professional accountability: n/a
PE3.2 Effective oral and written communication (professional and lay domains): CLO 3,4,5
PE3.3 Creative, innovative and pro-active demeanour: CLO 3,4,5
PE3.4 Professional use and management of information: CLO 3,4,5
PE3.5 Orderly management of self, and professional conduct: n/a
PE3.6 Effective team membership and team leadership: n/a

Additional Course Information

Credits

This is a 6 UoC course and the expected workload is 15 hours per week throughout the 10 weeks session.

Relationship to Other Courses

This is a postgraduate course offered to students in the Master of Engineering Science (8338) and Master of Engineering Coursework (8621) in the Faculty of Engineering at the University of New South Wales.

Pre-requisites and Assumed Knowledge

There is no specific pre-requisite for the course. However, it will be beneficial for students who are familiar with semiconductor technology which is covered in ELEC9704. It is further assumed that the students are familiar with some basic chemistry, physics, mechanics, electrical engineering etc. The course is very multidisciplinary in nature and students are challenged to do this course with an open mind to learn, be creative and innovate.

Syllabus

Introduction to Microsystems: an overview and trends ; Lithography and Thin Film Processes ; Surface micromachining ; Bonding Processes; High Aspect Ratio Micromachining (HARM); Mechanics: Properties of materials, structures, energy methods ; Actuation mechanisms: Electrostatic, Electromagnetic, Electrothermal, and Piezo-electric ; Lumped modelling with circuit elements and system dynamics ; Introduction to ANSYS Simulation: Electro-thermal, Piezoelectric and Electrostatic ; Optical MEMS, Microfluidic basics and Bio-MEMS..

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final Examination Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: Not Applicable
Mid-term exam Assessment Format: Individual	25%	Start Date: Not Applicable Due Date: Not Applicable
Assignment 2 Assessment Format: Individual	13%	Start Date: Week 7 Due Date: Week 11
Assignment 1 Assessment Format: Individual	12%	Start Date: Week 3 Due Date: Week 7

Assessment Details

Final Examination

Assessment Overview

Final exam will be held during formal examination period. It will be a 2-hour open book exam. Marks will be assigned according to the correct fraction of response.

Course Learning Outcomes

- CLO1 : Explain a range of technologies used for micro/nano fabrication of Microsystems
- CLO2 : Explain the principle of operations of microsensors and micro-actuators
- CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors
- CLO4 : Design fabrication process flow for realizing MEMS devices.

Detailed Assessment Description

Final exam will be held as per scheduled during UNSW term 1 exam period and is open-book written examination. The examination tests analytical and critical thinking and generl understanding of the course material in a controlled fashion. Students MUST PASS the final

exam to pass the course. Questions may be drawn from any aspect of the course that are covered during the term, unless specifically indicated otherwise by the lecturer. Further details will be given during the lectures.

Assignment submission Turnitin type

Not Applicable

Mid-term exam

Assessment Overview

Mid-term exam is a 1.5 hour long open-book exam and marks will be given according to the fraction of correct response. The marked mid-term exam with the solution will be returned to the students and individual feedback will be provided.

Course Learning Outcomes

- CLO1 : Explain a range of technologies used for micro/nano fabrication of Microsystems
- CLO2 : Explain the principle of operations of microsensors and micro-actuators
- CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors
- CLO4 : Design fabrication process flow for realizing MEMS devices.

Detailed Assessment Description

Mid-session exam has two parts: (a) weekly quizzes (5%); (b) mid-term exam (20%). The mid-term exam will be held in week 7. The weekly quizzes are online quizzes that run before every class and start in week 2. The weekly quiz will be opened from 5:30pm before every class and closed 6:10pm on the same day. The quiz will be drawn from the lecture covered in the previous week. It is multiple choice and should be completed in less than 10mins.

The mid-term exam in this course is open-book written examination and will be held online. The examination tests analytical and critical thinking and general understanding of the course material. Questions may be drawn from any aspect of the course that are covered in the first six weeks, unless specifically indicated otherwise by the lecturer. Further details will be given during the lectures.

Assessment Length

No limitation

Submission notes

The assignment is submitted online on Moodle using "Submit Midterm exam"

Assessment information

A mid-term exam will be conducted on Monday of week 7 starting at 4:30- 6:00pm. The exam will be conducted online outside of the normal class lecture times of 6-9pm. Submission should be made online as a single pdf file. Students are strongly advised to take the mid-session exam seriously as it contributes 20% to the overall marks of the course.

Assignment submission Turnitin type

Not Applicable

Assignment 2

Assessment Overview

This is a written assignment covering the second half of the course. Rubric will be used for marking and individual feedback will be provided.

Course Learning Outcomes

- CLO2 : Explain the principle of operations of microsensors and micro-actuators
- CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors
- CLO4 : Design fabrication process flow for realizing MEMS devices.
- CLO5 : Apply muti-physics simulation software such as ANSYS in designing micro-sensors and actuators

Detailed Assessment Description

This is a compulsory written assignment in this course, which will be released on the course Moodle in Week 7. The assignment will consist of two to three design problems with optional simulation tasks. If students opt to complete the optional simulation tasks, they will be given bonus marks. The problems are related to the topics covered from week 6 to week 10. The assignment will be worth 12.5% of the overall mark in total for the course. It is expected that students complete assignment on their own. Plagiarism will not be tolerated. Assignment submission date is set on Monday in week 11.

Assessment Length

No limitation

Submission notes

The assignment is submitted online on Moodle using "Submit Assignment 2" workshop tool in pdf format.

Assessment information

The assignment submission should be made in a single pdf format. Students can handwrite their solutions, scan and save it as pdf file. Alternatively, they can type their solutions and save them as pdf file.

Assignment submission Turnitin type

Not Applicable

Assignment 1

Assessment Overview

This is a written assignment covering the first half of the course. Rubric will be used for marking and individual feedback will be provided.

Course Learning Outcomes

- CLO1 : Explain a range of technologies used for micro/nano fabrication of Microsystems
- CLO2 : Explain the principle of operations of microsensors and micro-actuators
- CLO3 : Analyse and design a range of micro-sensors and micro-actuators including accelerometer, gyroscopes, electrostatic actuators, piezoelectric, and piezoresistive sensors
- CLO4 : Design fabrication process flow for realizing MEMS devices.

Detailed Assessment Description

This is a compulsory written assignment in this course, which will be released on the course Moodle in Week 3. The assignment will consist of two to three problems. The problems are related to the topics covered from week 1 to week 5. The assignment will worth 12.5% of the overall mark in total for the course. It is expected that students complete assignment on their own. Plagiarism will not be tolerated. Assignment submission date is set on Monday in week 7.

Assessment Length

No limit

Submission notes

The assignment is submitted online on Moodle using "Submit Assignment 1" workshop tool in pdf format.

Assessment information

The assignment submission should be made in a single pdf format. Students can handwrite their solutions, scan and save it as pdf file. Alternatively, they can type their solutions and save them as pdf file.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Both midterm and final examinations in this course are open-book written assessments. University approved calculators are allowed. The examinations test analytical and critical thinking and general understanding of the course material in a controlled fashion. Questions may be drawn from any aspect of the course, unless specifically indicated otherwise by the lecturer. Further details will be given during the lectures. Marks will be assigned according to the correctness of the answers and not the volume of written material in the answer scripts.

Grading Basis

Standard

Requirements to pass course

Students must pass the final exam to pass the course.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Introduction to Microsystems: an overview and technology trends. Lithography
Week 2 : 19 February - 25 February	Lecture	Thin film processes
Week 3 : 26 February - 3 March	Lecture	Bulk silicon Micromachining
	Assessment	Assignment 1 will be released on Moodle.
Week 4 : 4 March - 10 March	Lecture	Surface Micromachining High Aspect Ratio Micromachining (HARM)
Week 5 : 11 March - 17 March	Lecture	Mechanics: Properties of materials, structures, and energy methods
Week 6 : 18 March - 24 March	Lecture	Bonding techniques
Week 7 : 25 March - 31 March	Lecture	Lumped modelling with circuit elements and system dynamics
	Assessment	Assigmen 1 due date. Students are expected to submit their assignment using the "Submit Assignment 1" workshop tool in a single pdf format.
	Workshop	ANSYS workshop
	Assessment	Mid-term exam will be held on Monday from 4:30pm-6pm on Moodle.
	Assessment	Assignment 2 will be released on Moodle.
Week 8 : 1 April - 7 April	Lecture	Actuation mechanisms: electrostatic, electromagnetic, electrothermal and Piezoelectric. Case studies
Week 9 : 8 April - 14 April	Lecture	Inertial sensors: Accelerometer and Gyroscopes
	Tutorial	Online tutorial will be organised to help students with completion of assignment II. This will be organised outside the lecture time and the session will be recorded.
Week 10 : 15 April - 21 April	Lecture	Pressure transducers, Optical MEMS and BioMEMS
Week 11 : 22 April - 28 April	Assessment	Submit assignment 2 solutions on Moodle using "Submit Assignment 2" workshop tool as a single pdf file on Monday.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Resources

Prescribed Resources

Textbooks:

There is no textbook set for this course but a good reference book to buy is by JD Plummer or S Sze. The following are the recommended reference books. In the view of the wide range of disciplines in this course, there is no single textbook that appropriately covers all the course material. Hence, it does not have prescribed textbook. However, the following reference books and articles are recommended:

1. MJ Madou, “Fundamentals of Microfabrication”, CRC Press (good text to buy)

2. GTA Kovacs, “Micromachined Transducers sourcebook,” McGraw Hill, 1988.

3. S D Senturia, “Microsystems Design”, KAP, 2001.

4. L. Ristic, “Sensor Tchnonology and Devices”, AH, 1994.

5. P. Rai-Choudhury, “Microlithography, Micromachining, and Microfabrication”, Vo..2, SPIE Press, 1997.

6. M Elwenspoek and HV Jansen, “Silicon Micromachining,” CUP 1998.

7. SA Campbell, “The Science and Engineering of Microelectronics Fabrication”

8. S. SZE, “VLSI Technology”, McGrawHill

9. Gere & Timoshenko, “Mechanics of Materials”

10. Roark, “Roark’s Formula for Stress and Strain,” McGrawHill, 6th Ed, 1989.

11. M Lambrechts &W Sansen, “Biosensor- Micorelectromechanical devices”, IOP, 1992.

12. JW Gardner, “Microsensors”, Wiley, 1994.

13. IEEE Journal of Micro-Electro-Mechanical Systems

14. Sensors and Actuators A: Physical

15. Journal of Micromechanics and Microengineering

16. Proceedings from Transducers conferences

17. Proceedings from IEEE MEMS conferences

18. Proceedings from EUROSENSOR conferences

19. Procedia Engineering

Recommended Resources

Moodle

The website for this course is on UNSW Moodle. It contains lecture notes, reading materials, tutorials, workshop resources and some past exam papers, as well as other relevant information and announcements about the course: https://moodle.telt.unsw.edu.au/login/index.php. All information about this course is available from this link which is regularly updated.

Mailing list

Announcements concerning course information will be given on Moodle and/or via email (which will be sent to your student email address).

Course Evaluation and Development

This course is under constant revision in order to improve the learning outcomes for all students. Please forward any feedback (positive or negative) on the course to the course convener or via the online student survey myExperience. You can also provide feedback to ELSOC who will raise your concerns at student focus group meetings. As a result of previous feedback obtained for this course and in our efforts to provide a rich and meaningful learning experience, we have continued to evaluate and modify our delivery and assessment methods.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Aron Michael		G17, 124	93855663	Thursday 5-6pm	Yes	Yes

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable

Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures

can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

General Conduct and Behaviour

Consideration and respect for the needs of your fellow students and teaching staff is an expectation. Conduct which unduly disrupts or interferes with a class is not acceptable and students may be asked to leave the class.

Use of AI for assessments

Your work must be your own. If you use AI in the writing of your assessment, you must acknowledge this and your submission must be substantially your own work. More information can be found on this website.

Workplace Health & Safety (WHS)

WHS for students and staff is of utmost priority. Most courses involve laboratory work. You must follow the rules about conduct in the laboratory. About COVID-19, advice can be found on this website.

School Contact Information

Consultations: Lecturer consultation times will be advised during the first lecture. You are welcome to email the tutor or laboratory demonstrator, who can answer your questions on this course and can also provide you with consultation times. ALL email enquiries should be made from your student email address with ELEC/TELExxxx in the subject line; otherwise they will not be answered.

Keeping Informed: Announcements may be made during classes, via email (to your student email address) and/or via online learning and teaching platforms – in this course, we will use Moodle https://moodle.telt.unsw.edu.au/login/index.php. Please note that you will be deemed to have received this information, so you should take careful note of all announcements.

Student Support Enquiries

For enrolment and progression enquiries please contact Student Services

Web

Electrical Engineering Homepage