UNSW Course Outline

ELEC3115 Electromagnetic Engineering - 2024

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General Course Information

Course Code : ELEC3115
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, Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Electromagnetism has fundamental importance to several engineering fields and its theories are indispensable in understanding electro-mechanical energy conversion, transmission, electric power, communication systems, RF/microwave devices, optical fibre systems, antennas, remote

sensing, radio astronomy, and electromagnetic compatibility. This course will consider electromagnetic theory as a general theory that includes the standard electro and magneto-statics. The relationship between electric and magnetic fields, and their links expressed through the Maxwell equations which then lead to wave propagation with associated wave behaviours. The course covers several aspects of electromagnetic applications such as capacitance and inductance formation, electromagnetic induction, forces and power losses in electromagnetic systems (at low frequencies) and transmission lines, impendence matching circuits, waveguides, and antennas (at high frequencies). This course aims to give students the necessary background for the design and analysis of both low frequency electrical devices and high-frequency electronic components. Assumed knowledge for this course includes undergraduate physics (PHYS1231), vector calculus (MATH2069), and basic circuit theory techniques.

Course Aims

The goal of ELEC3115 is to introduce and establish the fundamentals of electromagnetic devices in engineering applications such as energy systems, telecommunications, computing, and other technologies. Students will become familiar with capacitance, inductance formation, cable design, methods to solve electromagnetic problems, electromagnetic induction, force, power loss, transmission lines, Smith charts, impedance matching circuits, waveguides, and antennas. Many of these concepts are used in the designs and implementations of electrical power systems and modern wireless communications systems.

Relationship to Other Courses

The course provides the background for those who will design and build equipment and systems for application in electrical power or communication systems. Generally, this course is offered to students of undergraduate engineering program at UNSW, more specifically to the third year students of electrical, telecommunications, photonics and quantum engineering.

Pre-requisites and Assumed Knowledge

Students taking the course ELEC3115 will have successfully completed the Stage 1 course PHYS1231 - Higher Physics 1B and the mathematics course MATH2069 Mathematics 2A (Vector Calculus) or their equivalent. It is also assumed that students have good computer literacy and are able to use basic instruments such as an oscilloscope.

Following Courses

This course provides essential basic understanding which is pre-requisite for ELEC3105 - Electrical Energy Systems a core course for subsequent specialisation in Power Engineering. It also provides essential background to ELEC4604 RF Electronics, TELE4652 Mobile and Satellite Communications, and PHTN4661 Optical Circuits & Fibres.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.
CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies
CLO3 : Solve simple boundary value problems, using the method of images, Poisson's and Laplace's Equations
CLO4 : Identify the conditions that make the lumped-element models of electrical circuits break down at high frequency (HF), and replace them with distributed element models
CLO5 : Calculate the effect of reflections in transmission lines at HF, and apply analytical and graphical methods to design reflection-free transmission lines
CLO6 : Describe and apply the fundamental properties of propagation modes in waveguides

Course Learning Outcomes	Assessment Item
CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.	• Quizzes and Assignment • Laboratory • Mid-Term Test • Final Exam
CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies	• Quizzes and Assignment • Laboratory • Mid-Term Test • Final Exam
CLO3 : Solve simple boundary value problems, using the method of images, Poisson's and Laplace's Equations	• Quizzes and Assignment • Mid-Term Test • Final Exam
CLO4 : Identify the conditions that make the lumped-element models of electrical circuits break down at high frequency (HF), and replace them with distributed element models	• Quizzes and Assignment • Final Exam
CLO5 : Calculate the effect of reflections in transmission lines at HF, and apply analytical and graphical methods to design reflection-free transmission lines	• Quizzes and Assignment • Final Exam
CLO6 : Describe and apply the fundamental properties of propagation modes in waveguides	• Quizzes and Assignment • Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

Students are expected to attend all lectures, workshops, labs in order to maximise learning. You must prepare well for your laboratory classes and your lab work will be assessed. In addition to the lecture notes/video, you should read relevant sections of the recommended 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 face-to-face classes throughout the course.

Laboratory work

The laboratory work provides students with opportunities to measure and characterise basic electromagnetic devices and applications. There are 3 labs to be completed during the session and students will do one lab every second week. Students choose a laboratory time when they enrol and will do experiments in pairs. Students must comply with all H&S requirements and complete the relevant lab inductions before they may begin work. Each experiment has some required preparation, including a brief video introducing the equipment. All laboratory work must be recorded in a lab-book and not on loose sheets of paper. The lab work and the student's performance will be assessed by the demonstrator, and a mark given at the end of each lab session. More details about the laboratory activities can be found in a separate document available on Moodle.

Laboratory Exemption

There is no laboratory exemption for this course. Regardless of whether equivalent labs have been completed in previous courses, all students enrolled in this course must take the labs. If, for medical reasons, (note that a valid medical certificate must be provided) you are unable to attend a lab, you will need to apply for a catch-up lab during another lab time, as agreed by the laboratory coordinator/course in-charge.

Workshops

Workshops provide students with an opportunity to discuss problems with others, while being guided by a staff member. You should attempt all questions of the practice tutorial-sheets published in Moodle in advance of attending the workshops. The importance of adequate preparation prior to each tutorial cannot be overemphasised, as the effectiveness and usefulness of the tutorial depends to a large extent on this preparation. Group learning is encouraged. Answers for some of these questions or additional questions provided during the tutorial class will be discussed during the tutorial session. Solutions

discussed during the tutorial class may not be made available on the web, so it is worthwhile for you to attend workshops to gain maximum benefit.

Out of class work

Lectures can only ever introduce the key ideas. Students must further reflect on these to fully develop their understanding. Students are encouraged to read the textbook and reference materials. Preparation for laboratory exercises provides further understanding of the experiment. The practice tutorial questions develop an in-depth quantitative understanding of basics of electromagnetic engineering. These problems take the student through all critical course topics and aim to develop and exercise their thinking skills. Students are expected to attempt complete all the problems, though not expected necessarily to successfully complete the harder ones. Making serious attempts to understand and complete these problems is the proven method to succeed in ELEC3115.

Other Professional Outcomes

Engineers Australia, Professional Engineer Stage 1 Competencies

The learning outcomes of this course contribute to your development of the following EA competencies:

	EA Stage 1 Competencies	Course Learning Outcomes (CLOs)
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals	1, 2, 3, 4, 5, 6
PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing		1, 2, 3, 4, 5, 6
PE1.3 In-depth understanding of specialist bodies of knowledge		1, 2, 3, 4, 5, 6
PE1.4 Discernment of knowledge development and research directions		
PE1.5 Knowledge of engineering design practice		1, 2, 3, 4, 5, 6
PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice		
PE2: Engineering Application Ability	PE2.1 Application of established engineering methods to complex problem solving	1, 2, 3, 4, 5, 6
PE2.2 Fluent application of engineering techniques, tools and resources		1, 2, 3, 4, 5, 6
PE2.3 Application of systematic engineering synthesis and design processes		
PE2.4 Application of systematic approaches to the conduct and management of engineering projects		
PE3: Professional and Personal Attributes	PE3.1 Ethical conduct and professional accountability	1, 2, 3, 4, 5, 6
PE3.2 Effective oral and written communication (professional and lay domains)		1, 2, 3, 4, 5, 6
PE3.3 Creative, innovative and pro-active demeanour		5, 6
PE3.4 Professional use and management of information		1, 2, 3, 4, 5, 6
PE3.5 Orderly management of self, and professional conduct		1, 2, 3, 4, 5, 6
PE3.6 Effective team membership and team leadership		1, 2, 3

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quizzes and Assignment Assessment Format: Individual	20%	Start Date: weekly for quizzes and week 9 for the assignment. Due Date: weekly for quizzes and week 11 for the assignment.
Laboratory Assessment Format: Individual	15%	Start Date: At each lab session. Due Date: At finish of each lab session.
Mid-Term Test Assessment Format: Individual	15%	Start Date: 26/03/2024 04:00 PM Due Date: 26/02/2024 06:00 PM
Final Exam Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: Not Applicable

Assessment Details

Quizzes and Assignment

Assessment Overview

This assessment comprises two components and will require students to complete both at home:

1. Feedback quizzes: A set of weekly quizzes designed to give feedback on how well the student understands the course contents of each week. Worth 5%.

2. Take-home assignment: The assignment allows self-directed study leading to the solution of partly structured problems. Marks will be assigned according to how completely and correctly the problems have been addressed and the understanding of the course material demonstrated by the report. Worth 15%

Course Learning Outcomes

- CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.
- CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies
- CLO3 : Solve simple boundary value problems, using the method of images, Poisson's and Laplace's Equations
- CLO4 : Identify the conditions that make the lumped-element models of electrical circuits break down at high frequency (HF), and replace them with distributed element models
- CLO5 : Calculate the effect of reflections in transmission lines at HF, and apply analytical and graphical methods to design reflection-free transmission lines

- CLO6 : Describe and apply the fundamental properties of propagation modes in waveguides

Detailed Assessment Description

The weekly feedback quizzes are released on Fridays and closes on Tuesdays.

Take home assignment will be marked through a peer-review system managed by the Moodle platform. Students will be required to scan their written assignments and upload it in pdf form to the Moodle system. After the submission deadline, the system will randomly and anonymously forward 3 assignments to each student. Each student will mark the 3 assignments according to the marking guidelines and the solution that will be posted on Moodle. For each assignment, 85% of the mark will be given for the assignment score itself, and 15% for the undertaking of the peer-marking activity. The marking activity is mandatory. Failure to mark the 3 assignments forwarded to a student will result in a mark of 0 for the overall assignment. Because of the peerreview method of marking, the solutions will be posted online immediately after the submission deadline. Therefore, there is no possibility for late submission. At exactly the time indicated on the assignment paper and in Moodle, the system will stop accepting assignment uploads. Students who have, for whatever reason (including internet problems, etc), failed to upload their assignment by the submission deadline, will receive zero marks for the assignment, and will not be included in the peerreview process.

Submission notes

Students will be required to scan their written assignments and upload it in pdf form to the Moodle system.

Assignment submission Turnitin type

This is not a Turnitin assignment

Laboratory

Assessment Overview

The laboratory work provides students with opportunities to measure and characterise basic electromagnetic devices and applications. There are 5 labs to be completed over the term and students will do one every second week. Students choose a laboratory time when they enrol, and will do experiments in pairs.

Course Learning Outcomes

- CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.
- CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies

Assessment Length

3 hours

Assessment information

Laboratory of this course starts from week 4 for even week and week 5 for odd week groups. No laboratory class in week 1-3. Due to public holiday on Week 7, Monday, the lab group M9B will have a catch up lab in Week 11.

Assessment marks will be awarded according to students' participation, preparation (correct completion of a set of exercises or readiness for the lab in terms of pre-reading), how much of the lab were completed, understanding of the experiments and the topic covered by the lab.

Students are required to maintain a lab book to record their observations. A lab book is an A4 size notebook containing a mix of plain pages and graph sheets. Students must purchase their own lab book from any store. It is essential for the students to complete the laboratory preparation before coming to the lab. The studne may need to write the aim of the experiment and draw the diagram if required by the experiment in hand. This will be verified and signed by the lab demonstrators i. After completing each experiment, students work will be assessed by the demonstrator and a mark will be awarded.

Assignment submission Turnitin type

Not Applicable

Mid-Term Test

Assessment Overview

A closed-book test will be held in the middle of the term. Marks will be assigned according to how completely and correctly the problems have been addressed and the understanding of the course material demonstrated by the students.

Course Learning Outcomes

- CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.
- CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies
- CLO3 : Solve simple boundary value problems, using the method of images, Poisson's and Laplace's Equations

Assessment Length

1-2 hours

Submission notes

Closed Book exam

Assessment information

A mid-term test will be held for part A of the course on Tuesday (26/03/2024) of week 7 during the lecture time.
Further details of the course materials for the test will be announced closer to the date.

Assignment submission Turnitin type

Not Applicable

Final Exam

Assessment Overview

The exam in this course is a standard closed-book 2 hour written examination, comprising four compulsory questions. The examination tests 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 (including laboratory), unless specifically indicated otherwise by the lecturer. Marks will be assigned according to the correctness of the responses.

Course Learning Outcomes

- CLO1 : Use Gauss', Ampere's and Faraday's Laws in the context of design and apply them in the evaluation of electrical devices such as power cables, actuators, transformers etc.
- CLO2 : Analyse characteristics of capacitor and inductor by evaluating the impact of dielectric and magnetic materials properties and calculate induced forces from their stored energies
- CLO3 : Solve simple boundary value problems, using the method of images, Poisson's and Laplace's Equations
- CLO4 : Identify the conditions that make the lumped-element models of electrical circuits break down at high frequency (HF), and replace them with distributed element models
- CLO5 : Calculate the effect of reflections in transmission lines at HF, and apply analytical and graphical methods to design reflection-free transmission lines
- CLO6 : Describe and apply the fundamental properties of propagation modes in waveguides

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Overall 50% from combined assessments.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 5 February - 11 February	Reading	Reveiw topics from prerequisite courses - Mathematics 2A(Math 2069), Physics 1A / Higher Physics1A/(Special) Higher Physics1A (PHYS1121/PHYS1131/PHYS1141), Physics 1b/Higher Physics 1b (PHYS1221/1231) • Vectors • Surfaces • Function of several variables • Partial derivatives • Gradient and directional derivatives • Normal and tangent lines, • tangent planes • Differentials • Double and triple integrals • Cylindrical and spherical coordinates • Change of variables • Line integrals, surface integrals, • Divergence and Curl • Stokes theorem • Divergence theorem • resolution and unit vectors; • vector addition; • dot and scalar products • ELECTRIC FIELDS • GAUSS'S LAW • ELECTRIC POTENTIAL • CAPACITANCE • MAGNETIC FIELDS • MAGNETIC FIELDS DUE TO CURRENTS • INDUCTION AND INDUCTANCE You are strongly encouraged to study thoroughly Chapter 1: The Electromagnetic Model and Chapter 2: Vector Analysis of your text book "Field and Wave Electromagnetics" by David K Cheng.
Week 1 : 12 February - 18 February	Lecture	Topic 1: Electrostatic field and capacitance 1.1 Finding of electric field and potentials 1.2 Electric field in material media 1.3 Capacitance formations 1.4 Electrostatic energy and force
	Workshop	Workshop 1 - Electrostatic field
Week 2 : 19 February - 25 February	Lecture	Topic 1: Electrostatic field and capacitance 1.1 Finding of electric field and potentials 1.2 Electric field in material media 1.3 Capacitance formations 1.4 Electrostatic energy and force
	Workshop	Worksop 2 - capacitance formation
Week 3 : 26 February - 3 March	Lecture	Topic 2: Solving electrostatic problems 2.1 Electrostatic problems and their solution methods 2.2 Current in electrostatic problems
	Workshop	Workshop 3 - Solving electrostatic problems
Week 4 : 4 March - 10 March	Lecture	Topic 3: Magnetic field: static and time-varying 3.1. Magnetostatic and finding of magnetic fields 3.2. Magnetic circuits 3.3. Inductance formation and stored energy 3.4. Time-varying electromagnetic field and effects
	Workshop	Workshop 4 - Magnetostatic and magnetic circuits
	Laboratory	Lab starts from student groups - M09B, W09B, W12B, H12B, H15B Expt 1: Permittivity Constant of Dielectric
Week 5 : 11 March - 17 March	Lecture	Topic 3: Magnetic field: static and time-varying 3.1. Magnetostatic and finding of magnetic fields 3.2. Magnetic circuits 3.3. Inductance formation and stored energy 3.4. Time-varying electromagnetic field and effects
	Workshop	Workshop 5 - Inductance formation and time-varying magnetic field
	Laboratory	Lab starts from student groups - M09A, W09A, W12A, H09A, H12A, H15A Expt 1: Permittivity Constant of Dielectric
Week 6 : 18 March - 24 March	Reading	Flexibility Week - Review and preparation for mid-term test

Week 7 : 25 March - 31 March	Assessment	Mid-term test to conclude Part A (Field Electromagnetics)
	Lecture	Topic 4: Basics of wave propagation 4.1 Telegrapher's equations 4.2 Characteristic impedance 4.3 Reflection diagrams 4.4 Smith chart 4.5 Impedance matching
	Laboratory	Expt 2: AC electromagnetic induction and inductance For student groups - M09A, W09A, W12A, H09A, H12A, H15A
	Workshop	No Workshop due to public holiday on Friday
Week 8 : 1 April - 7 April	Lecture	Topic 4: Basics of wave propagation 4.1 Telegrapher's equations 4.2 Characteristic impedance 4.3 Reflection diagrams 4.4 Smith chart 4.5 Impedance matching
	Workshop	Workshop 1 - part B (wave electromagnetics)
	Laboratory	Expt 2: AC electromagnetic induction and inductance For student groups- W09B, W12B, H12B, H15B *Due to public holiday on Monday, group M09B will have this lab as catch-up in week 11.
Week 9 : 8 April - 14 April	Lecture	Topic 5: Waveguides 5.1 Guided propagation 5.2 Waveguide modes 5.3 Phase and group velocity 5.4 Power transmission
	Workshop	Workshop 2 - part B (wave electromagnetics)
	Laboratory	Expt 3: Eddy currents, hysteresis & core losses For students groups - M09A, W09A, W12A, H09A, H12A, H15A
Week 10 : 15 April - 21 April	Lecture	Topic 5: Waveguides 5.1 Guided propagation 5.2 Waveguide modes 5.3 Phase and group velocity 5.4 Power transmission Topic 6: Antennas 6.1 Antenna basics 6.2 Dipole antennas
	Workshop	Workshop 3 - part B (wave electromagnetics)
	Laboratory	Expt 3: Eddy currents, hysteresis & core losses For students groups - M09B, W09B W12B, H12B, H15B
Week 11 : 22 April - 28 April	Laboratory	Expt 2: AC electromagnetic induction and inductance For student groups- M09B

Attendance Requirements

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

General Schedule Information

Course has two components: Part A: Field electromagnetics Week 1 - 5

Part B: Wave electromagnetics Week 7 - 10

Course Resources

Prescribed Resources

The following textbook is prescribed for the course:

Field and Wave Electromagnetics - D. K. Cheng; 2nd edn, AddisonWesley; 1989

On-line resources

All course documents, presentation slides, laboratory support material, etc., will be available on Moodle course page. Lecture recordings will be available from ECHO360. However, Workshops may not be recorded.

Past exam papers:

Some sample papers will be availble but solutions of these papers may not be released.

Recommended Resources

The following books are also good additional references: Electromagnetics -J. D. Kraus & D. A. Fleisch; McGraw Hill, fifth edition Engineering Electromagnetics - Nathan Ida, Springer. Introduction to Engineering Electromagnetics- Yeon Ho Lee, Springer

Lecturers may mention other references in class for topics.

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 myExpereince Process. 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.

The following changes are being undertaken to improve the course based on the previous students' feedback on the course:

- A new method of assessing your lab work is being tried out, in order to give you all better feedback.
- Videos will be used to introduce the lab equipment to you. This was an explicit student suggestion.
- Part B, high-frequency wave propagation and component, will be restructured with an increased focus on basic concepts, examples and visualisation of problems.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Rukmi Dutta		Room EE406	61293857884		No	Yes
Lecturer	Andrea Morello		Room Newton 103D			No	No

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