COURSE OUTLINE

ELC202 Electrical Circuits and Systems

School: School of Science, Technology and Engineering

2026 | Semester 1

UniSC Moreton Bay	BLENDED LEARNING	Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

Electrical circuits and systems form the basis of providing power in industrial and other applications. In this course you will learn how to design and analyse electrical circuits and systems and undertake measurement and troubleshooting. You will learn about capacitance, resistance and inductance; electric and magnetic fields; and electric circuits. Through hands-on electrical engineering projects and instruction from academic and industry experts, you will develop the essential skills and knowledge necessary for professional practice.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Asynchronous learning material	1hr	Week 1	13 times
Tutorial/Workshop 1 – On campus tutorial	2hrs	Week 2	10 times
Laboratory 1 – On campus lab	2hrs	Week 4	5 times
Seminar – On campus seminar	1hr	Week 1	Once Only

1.3. Course Topics

- Overview of electrical engineering
- Resistive circuits
- Inductance and capacitance
- AC and DC Circuits
- Circuit Analysis
- Transients
- Steady-state analysis
- Frequency response

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Select appropriate theory and design methodologies to describe, design and build simple electrical circuits.	Knowledgeable
2	Apply knowledge of electrical components and develop skills to design and build a range of electrical circuits	Empowered
3	Use basic circuit theories and mathematical principles to analyse electrical circuits and systems	Creative and critical thinker
4	Describe and interpret experimental results in appropriate engineering report format	Engaged
5	Work collaboratively in teams on electrical circuit and system design to meet specified requirements	Empowered

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1. Pre-requisites

ENG103 and must be enrolled in Program SC404, SC405, SC410, SC411, SC425 or AB101

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Performance and feedback from the workshop tasks will demonstrate the level of proficiency and understanding of the course material.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	20%	500 words equivalent	Week 5	Online Submission
All	2	Portfolio	Group	40%	1000 words equivalent.	Week 11	Online Submission
All	3	Examination - Centrally Scheduled	Individual	40%	2 hours	Exam Period	Exam Venue

All - Assessment Task 1: Mid-Semester Test

GOAL:	This tasks will assess students' ability to: design, analyse, varify and apply theoratical concepts related to electrical circuits.
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Students will be required to solve numerical problems related to electrical circuit theory in this assessment with in an assigned period of time. Questions will be uploaded online. Students will be required to upload their answer script in the Canvas assigment folder.
CRITERIA:	

No.		Learning Outcome assessed
1	Selection of appropriate theory and design methodologies to design and explain electrical circuits	1
2	Application of theories to design and build required electrical circuits / systems	2
3	Demonstrate the understanding of theories related to electrical circuit and system design.	3
4	Engineers Australia competencies assessed in this task: 2.3 Application of systematic engineering synthesis and design processes within the technology domain	3

GENERIC SKILLS:	Problem solving, Organisation, Information literacy

All - Assessment Task 2: Workshop-Portfolio

GOAL:	The electrical circuit or system for each of the exercises will be demonstrated to the workshop facilitator. A portfolio of work will be submitted by the group. You can seek and receive formative feedback on your progress from the workshop facilitator.
PRODUCT:	Portfolio
AUTHORSHIP STATEMENT:	
FORMAT:	The electrical circuit or system for each of the exercises will be demonstrated to the workshop facilitator. A portfolio of work will be submitted by the group. You will provide drafts of your work in Weeks 1-10 and receive formative feedback on your progress. Due Week 11

CRITERIA:

No.		Learning Outcome assessed
1	Selection of appropriate theory and design methodologies to design and explain electrical circuits	1
2	Application of theories to design and build required electrical circuits / systems	2 3
3	Demonstration of the functioning of the designed circuit and system	4 5
4	Completeness of all components of the reports with discussion and reflection on the exercise.	2 4
5	Demonstrated ability to work collaboratively in teams on electrical circuit and system design to meet specified requirements	5

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Applying technologies, Information literacy

All - Assessment Task 3: Final Exam

GOAL:	The final exam will develop your ability to independently apply your skills and knowledge to solve familiar problem-based questions with confidence within a set time limit and without access to additional resources.
PRODUCT:	Examination - Centrally Scheduled
AUTHORSHIP STATEMENT:	
FORMAT:	Centrally scheduled 2-hour closed book examination.

CRITERIA:

No.		Learning Outcome assessed
1	Selection of appropriate theory and design methodologies to design and explain electrical circuits.	1 2
2	Correct application of theory and knowledge to solve electronic circuit problems	2
3	Utilization of circuit theories and principles to examine circuits and systems.	3
4	Appropriate use of terminology, diagrams, theories and methodology	2 3

GENERIC SKILLS:	Problem solving, Applying technologies

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
n/a	n/a

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Allan R. Hambley	2018	Electrical Engineering	n/a	Pearson

8.2. Specific requirements

Fully enclosed shoes must be worn in the engineering laboratory. If you do not have the correct shoes you will not be allowed to do the practical. You must also undertake the laboratory induction before you can undertake any practical.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: The final mark is in the percentage range 47% to 49.4% The course is graded using the Standard Grading scale You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate: - 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task. - 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task. - A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

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