ENEE12014 *Electrical Circuit Analysis*
Term 3 - 2018

Profile information current as at 12/10/2024 12:33 pm

All details in this unit profile for ENEE12014 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student).The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview
This unit introduces the modelling electrical components and systems. You will apply theorems and network reduction techniques to DC and AC circuits, and apply problem solving techniques in the analysis of AC and DC circuits. The unit also covers the concepts of transient response, and two port network theorems. You will also apply laboratory techniques and appropriate software tools to the analysis of electrical circuits. You will use fundamental electrical engineering language in context and document the process of modelling and analysis. They present information, communicate, work and learn in a professional manner. Distance students must complete practical activities outcomes by attending residential school.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Prerequisites: (PHYS11185 Engineering Physics B OR ENEG11009 Fundamentals of Energy and Electricity) AND MATH11219 Applied Calculus
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 3 - 2018

- Mixed Mode

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Online Quiz(zes)**
Weighting: 10%
2. **Written Assessment**
Weighting: 15%
3. **Practical and Written Assessment**
Weighting: 10%
4. **Written Assessment**
Weighting: 15%
5. **Practical and Written Assessment**
Weighting: 10%
6. **Examination**
Weighting: 40%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Unit evaluation

Feedback
Teaching staff was helpful and prompt answers were provided to questions.

Recommendation
Maintain the same practice.

Feedback from Unit evaluation

Feedback
Labs interesting and templates easy to follow.

Recommendation
Continue with the same labs.

Feedback from Unit evaluation

Feedback
Need more worked examples to understand difficult concepts.

Recommendation
Add more examples.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Model electrical components and systems
2. Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
3. Explain transient phenomena and analyse the transient behaviour of simple circuits
4. Apply appropriate software tools to the analysis of electrical circuits
5. Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.
6. Present all information, Communicate, work and learn, individually and in peer learning teams, in a professional manner.

The Learning Outcomes for this unit are linked with Engineers Australia's **Stage 1 Competency Standard for Professional Engineers.**

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level | • Introductory Level | • Intermediate Level | • Graduate Level | ◦ Professional Level | ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Online Quiz(zes) - 10%	•	•	•		•	
2 - Written Assessment - 15%	•	•			•	

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
3 - Practical and Written Assessment - 10%	•	•	•	•	•	•
4 - Written Assessment - 15%	•	•	•		•	
5 - Practical and Written Assessment - 10%	•	•	•	•	•	•
6 - Examination - 40%	•	•	•		•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Communication	•	•	•	•	•	•
2 - Problem Solving	•	•	•	•	•	•
3 - Critical Thinking	•	•	•	•	•	•
4 - Information Literacy	•	•	•	•	•	•
5 - Team Work			•	•	•	•
6 - Information Technology Competence	•	•	•	•	•	•
7 - Cross Cultural Competence					•	•
8 - Ethical practice			•	•	•	•
9 - Social Innovation						
10 - Aboriginal and Torres Strait Islander Cultures						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Online Quiz(zes) - 10%		•	•			•				
2 - Written Assessment - 15%	•	•	•	•		•				
3 - Practical and Written Assessment - 10%	•	•	•	•	•	•				
4 - Written Assessment - 15%	•	•	•	•		•				
5 - Practical and Written Assessment - 10%	•	•	•	•	•	•				

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
6 - Examination - 40%	•	•	•					•		

Textbooks and Resources

Textbooks

ENEE12014

Prescribed

Electric Circuits
Global Edition 10 (2015)
Authors: James W. Nilsson, Susan A. Riedel
Pearson
Upper Saddle River , NJ , USA
ISBN: 9781488607257
Binding: Other

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Md Rakibuzzaman Shah Unit Coordinator
m.shah2@cqu.edu.au

Schedule

Week 1 - 05 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Resistance, Sources and Models	1-3	

Week 2 - 12 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Nodal Analysis	4	

Week 3 - 19 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Mesh Analysis	4	

Week 4 - 26 Nov 2018		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Network Theorems	4	Quiz 1 Due on Monday 11:45 pm AEST
Vacation Week - 03 Dec 2018		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
		Residential school in Rockhampton
Week 5 - 10 Dec 2018		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Transient Analysis I	6	**Assignment 1** Due: Week 5 Friday (14 Dec 2018) 11:45 pm AEST
Week 6 - 17 Dec 2018		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Transient Analysis II	7	
Week 7 - 31 Dec 2018		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
RLC circuits	8	Quiz 2 Due on Monday 11:45 pm AEST
Week 8 - 07 Jan 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Steady State Sinusoidal Analysis I	9	**Laboratory Exercises and Reports Part I** Due: Week 8 Friday (11 Jan 2019) 11:45 pm AEST
Week 9 - 14 Jan 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Steady State Sinusoidal Analysis II	9	Quiz 3 Due on Monday 11:45 pm AEST
Week 10 - 21 Jan 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Sinusoidal Steady State Power calculations	10	**Assignment 2** Due: Week 10 Friday (25 Jan 2019) 11:45 pm AEST
Week 11 - 28 Jan 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Two port networks	18	
Week 12 - 04 Feb 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Exam Revision		**Laboratory Exercises and Reports Part II** Due: Week 12 Wednesday (6 Feb 2019) 11:45 pm AEST
Exam Week - 11 Feb 2019		
Module/Topic	**Chapter**	**Events and Submissions/Topic**

Assessment Tasks

1 Online Quiz(zes)

Assessment Type
Online Quiz(zes)

Task Description
This assessment item is a set of online quizzes which can be accessed via the unit Moodle site. The quizzes are an

integrated part of the study to test on the key concepts of each week. Details of the assessment can be found on the unit Moodle site at the beginning of the term. Each quiz will be available up to 2 weeks to allow students who cannot find time each week for study. For example quiz one will close at the end of week 4, and last quiz must be completed by week 9.
Each quiz can be attempted several times, but the score for the quiz will be the score for your first attempt. Correct answer for the quiz questions will be available immediately after you submit your answers.
If you encounter any network access issues during the quiz, the unit coordinator should be notified at your earliest convenient.

Number of Quizzes
3

Frequency of Quizzes
Fortnightly

Assessment Due Date

Throughout the term

Return Date to Students

Immediate feedback

Weighting
10%

Assessment Criteria
No Assessment Criteria

Referencing Style

- Harvard (author-date)

Submission
Online

assessmentOutcome

- Model electrical components and systems
- Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
- Explain transient phenomena and analyse the transient behaviour of simple circuits
- Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.

assessmentGradAttribute

- Problem Solving
- Critical Thinking
- Information Technology Competence

2 Assignment 1

Assessment Type
Written Assessment

Task Description
This assessment item relates to topics 1- 4. The assignment questions will be released on the unit website at the start of the term.
It is not expected that students will type up equations and calculations. Students can scan clear and legible hand written calculations for online submission. You are required to submit your assignment as a single document in .pdf format.

Assessment Due Date
Week 5 Friday (14 Dec 2018) 11:45 pm AEST

Return Date to Students

Two weeks after submission

Weighting
15%

Minimum mark or grade
50%

Assessment Criteria
The assignments will be graded using the following criteria:
Correct Answers and methods;
Correct format;
All working must be shown clearly; Assignments must be neat, tidy and legible; Attempt all questions.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
As a single PDF document

assessmentOutcome

- Model electrical components and systems
- Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
- Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

3 Laboratory Exercises and Reports Part I

Assessment Type
Practical and Written Assessment

Task Description
This assessment item relates to all the unit topics.
Laboratories will be held at various times, as directed by the unit website, through the semester or in the case of mixed mode students at the residential school. All information regarding the laboratories will be provided to the students via the unit website. Laboratories are compulsory and all students must pass the laboratory techniques assessments to obtain an overall pass for this unit.
Students need to submit **individual lab report (not one report per lab group) for assessment by the due date.**

Assessment Due Date
Week 8 Friday (11 Jan 2019) 11:45 pm AEST

Return Date to Students

Two weeks after submission due date

Weighting
10%

Minimum mark or grade
50%

Assessment Criteria
The lab reports will be graded using the following criteria:
Proper formatting and structuring of reports
Correct workings and solutions;
Where appropriate show the calculated values based on theory and compare them against the measured values;
Appropriate discussion of laboratory results;
Proper use of references;
Have neat and tidy work and presentation in the lab book;
All laboratory exercises must be attempted.
Combined laboratory part 1 and 2 marks need to be more than 50% to Pass.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
As a single PDF document

assessmentOutcome

- Model electrical components and systems
- Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
- Explain transient phenomena and analyse the transient behaviour of simple circuits
- Apply appropriate software tools to the analysis of electrical circuits
- Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.
- Present all information, Communicate, work and learn, individually and in peer learning teams, in a professional manner.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

4 Assignment 2

Assessment Type
Written Assessment

Task Description
This assessment item relates to topics 5-9.The assignment questions will be released on the unit website at the start of the term.
It is not expected that students will type up equations and calculations. Students can scan clear and legible hand written calculations for online submission. You are required to submit your assignment in .pdf format.

Assessment Due Date
Week 10 Friday (25 Jan 2019) 11:45 pm AEST

Return Date to Students

Two weeks after submission

Weighting
15%

Minimum mark or grade
50%

Assessment Criteria
The assignments will be graded using the following criteria:
Correct Answers and methods;
Correct format;
All working must be shown clearly;
Assignments must be neat, tidy and legible;
Attempt all questions.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
As a single PDF document

assessmentOutcome

- Model electrical components and systems
- Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
- Explain transient phenomena and analyse the transient behaviour of simple circuits
- Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

5 Laboratory Exercises and Reports Part II

Assessment Type
Practical and Written Assessment

Task Description
This assessment item relates to all the unit topics.
Laboratories will be held at various times, as directed by the unit website, through the semester or in the case of mixed mode students at the residential school. All information regarding the laboratories will be provided to the students via the unit website. Laboratories are compulsory and all students must pass the laboratory techniques assessments to obtain an overall pass for this unit.
Students need to submit **individual lab report (not one report per lab group) for assessment by the due date.**

Assessment Due Date
Week 12 Wednesday (6 Feb 2019) 11:45 pm AEST

Return Date to Students

Two weeks after submission

Weighting
10%

Minimum mark or grade
50%

Assessment Criteria
The lab reports will be graded using the following criteria:
Proper formatting and structuring of reports
Correct workings and solutions;
Where appropriate show the calculated values based on theory and compare them against the measured values;
Appropriate discussion of laboratory results;
Proper use of references;
Have neat and tidy work and presentation in the lab book;
All laboratory exercises must be attempted.
Combined laboratory part 1 and 2 marks need to be more than 50% to Pass

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
As a single PDF document

assessmentOutcome

- Model electrical components and systems
- Apply problem solving techniques, network reduction techniques and theorems in the analysis of DC and AC circuits.
- Explain transient phenomena and analyse the transient behaviour of simple circuits
- Apply appropriate software tools to the analysis of electrical circuits

- Use fundamental "electrical engineering language" in context, document the process of modelling and analysis.
- Present all information, Communicate, work and learn, individually and in peer learning teams, in a professional manner.

assessmentGradAttribute

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

Examination

Outline
Complete an invigilated examination.

Date
During the examination period at a CQUniversity examination centre.

Weighting
40%

Length
180 minutes

Minimum mark or grade
50

Exam Conditions
Restricted.

Materials
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).
Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

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assessmentOutcome

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assessmentGradAttribute

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem