

In Progress

Please note that this Unit Profile is still in progress. The content below is subject to change.



ENEE13021 *Power System Analysis and Design*

Term 2 - 2022

Profile information current as at 18/05/2022 06:07 am

All details in this unit profile for ENEE13021 have been officially approved by CQU University 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

On the satisfactory completion of this unit, you will be able to work both individually and in-team to model, analyse and investigate design and operation options for electrical power networks to meet community service requirements. You will be able to analyse the steady-state performance of power systems, perform both symmetrical and unsymmetrical fault calculations, and conduct stability analysis of power systems. You will be using the power systems simulation software Power World Simulator or equivalent to simulate different scenarios in the power network. As such, you will articulate the process of updating and maintaining power network assets to meet most safety, reliability, and quality requirements for both present and future.

Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

ENEE12015 Electrical Power Engineering.

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 2 - 2022

- Bundaberg
- Cairns
- Gladstone
- Mackay
- Mixed Mode
- Rockhampton

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

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 Student feedback

Feedback

Students appreciated the lecture content to be assisting the tutorial questions

Recommendation

Continue this good practice

Feedback from Self reflection/Student Feedback

Feedback

Poor quality of tutorial materials

Recommendation

Update the tutorial material

Feedback from Student Feedback

Feedback

The students expected project problems to be released earlier in the term

Recommendation

Release the problems for the project activity earlier in the term

Feedback from Self reflection

Feedback

Lack of good quality presentation slides for the lectures

Recommendation

Improve the slides by embedding some simulation results.

Unit Learning Outcomes

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

1. Calculate fault currents under different scenarios and discuss the selection of appropriate protection schemes
2. Solve power flow problems and appreciate the relevance of such studies in power system planning and operation
3. Analyse power system performance in both balanced and unbalanced modes of operation by using appropriate software packages
4. Investigate power angle stability for both single-machine and multimachine power systems
5. Work both collaboratively and autonomously to analyse and solve problems
6. Communicate effectively using power systems terminology, symbols and diagrams to present design documents, solutions, and calculations.

The Learning Outcomes for this unit are linked with the Engineers Australia Stage 1 Competency Standards for Professional Engineers in the areas of 1. Knowledge and Skill Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Intermediate 1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 1I 2I 3I 4I) 1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 1I 2I 3I 4I) 2.3 Application of systematic engineering synthesis and design processes. (LO: 3I 6I) 3.3 Creative, innovative and pro-active demeanour. (LO: 3I)

Advanced 1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 1A 2I 3I 4A) 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 1A 2A 3A 4A 5A 6I) 2.1 Application of established engineering methods to complex engineering problem solving. (LO: 1I 2A 3A 4I 5A) 2.2 Fluent application of engineering techniques, tools and resources. (LO: 1I 2A 3A 4I) 3.2 Effective oral and written communication in professional and lay domains. (LO: 5I 6A) 3.4 Professional use and management of information. (LO: 1I 2I 3A 4I 5I) 3.6 Effective team membership and team leadership. (LO: 3A 5A 6A)

Note: LO refers to the Learning Outcome number(s) which link to the competency and the levels: N - Introductory, I - Intermediate and A - Advanced.

Refer to the Engineering Undergraduate Course Moodle site for further information on the Engineers Australia's Stage 1 Competency Standard for Professional Engineers and course level mapping information <https://moodle.cqu.edu.au/course/view.php?id=1511>



Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Project (applied) - 15%	•		•		•	•
2 - Written Assessment - 30%		•	•		•	•
3 - Online Quiz(zes) - 20%				•		
4 - Online Test - 35%	•	•		•		•

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						

Textbooks and Resources

Textbooks

ENEE13021

Prescribed

Power System Analysis and Design

Edition: 6th edn (2016)

Authors: J. Duncan Glover, Thomas Overbye, and Mulukutla Sarma

CENGAGE Learning

Boston , MA , USA

ISBN: 9781305636187

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.