



ENEC12011 *Transport Systems*

Term 2 - 2017

Profile information current as at 03/05/2024 05:25 pm

All details in this unit profile for ENEC12011 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

This unit introduces the design of roads and associated documentation. You are introduced to traffic analysis, safety, efficiency, environmental and cultural issues and sustainability of road design. You will analyse traffic survey data and interpret survey results, applying them to analysis of traffic flows and estimation of system capacity. You also apply design codes and manuals to common design problems involving geometric design of roads, road drainage, intersection design and pavement design and rehabilitation. You also collaborate with your team members to prepare plans, compile specifications and estimate quantities and costs.

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: [ENEC12009 Engineering Surveying OR ENAR12005 Surveying and Mapping] AND [MATH11218 Applied Mathematics OR MATH11160 Technology Mathematics]

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 - 2017

- Bundaberg
- Cairns
- Distance
- Gladstone
- Mackay
- 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

1. **Written Assessment**

Weighting: 30%

2. **Written Assessment**

Weighting: 40%

3. **Written Assessment**

Weighting: 30%

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 Course Evaluation

Feedback

The Moodle site format with Icon to aid navigation was reported as the best aspect of the course. It was graded 4.3 out of 5

Recommendation

The format of the Moodle site with ICON aiding navigation will be implemented across all courses delivered by the lecturer.

Feedback from Student Course Evaluation

Feedback

The Tutorial and workshop activities was acknowledged to aid learning. This involve hands on demonstrations on worked examples and suitable exercise on the Industry based software such as AutoCAD Civil 3D and CIRCLY. More learning activity for CIVIL 3D was suggested.

Recommendation

The Tutorial and Workshop sessions will continue to be implemented. The lecturer will explore the introduction of Civil 3D in lower level courses such as Design and Project Management courses. The hands-on demonstrations of worked examples will be continued.

Feedback from Student Course Evaluation

Feedback

Clarity of assessment was graded 2.2 out of 5. Most student recommended improvement with the require assessment task

Recommendation

Strategy will be implemented by the lecturer to provide more clarity for assessment items. The alignment of all required assessments will be explored by the lecturer.

Unit Learning Outcomes

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

1. Organise and conduct traffic surveys, analyse collected data and interpret the results
2. Apply standard techniques to forecasting future traffic demand
3. Design and document geometric alignments of transportation infrastructure using appropriate Australian guidelines
4. Evaluate the pavement sublayer materials properties using appropriate Australian guidelines
5. Design a basic road pavements using appropriate Australian guidelines
6. Demonstrate a professional level of communication

The learning outcomes are linked to Engineers Australia Stage 1 Competencies and also discipline capabilities.

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 - Written Assessment - 30%	•	•				•
2 - Written Assessment - 40%		•	•			•
3 - Written Assessment - 30%				•	•	•

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 - Written Assessment - 30%	•	•	•	•		•	•	•		
2 - Written Assessment - 40%	•	•	•	•		•	•	•		
3 - Written Assessment - 30%	•	•	•	•		•	•	•		

Textbooks and Resources

Textbooks

ENEC12011

Prescribed

Mastering AutoCAD Civil 3D: Autodesk Official Press: 2016
(2015)

Authors: Davenport, C & Voiculescu, I
John Wiley & Sons
New York , NY , USA
ISBN: 9781119059745
Binding: Paperback
ENEC12011

Prescribed

Traffic and Highway Engineering

Edition: 5th edn SI (2015)
Authors: Garber , Nicholas
Cengage Learning
Florence , KY , USA
ISBN: 9781133607083
Binding: Hardcover

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- AutoCAD Civil 3D
- CIRCLY
- SIDRA
- ZOOM

Referencing Style

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

Teaching Contacts

Jerome Egwurube Unit Coordinator
j.egwurube@cqu.edu.au

Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Traffic Studies	1. AGTM03-13 Chapter 2 2. Garber & Hoel Chapter 4	

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Design Principles
 1. AGRD03-10 Chapter 2
 2. Civil 3D Chapter 1
 3. Garber & Hoel Chapter 3

Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Geometric Cross Section	1. AGRD03-10 Chapter 4 2. Civil 3D Chapter 8 3. Garber & Hoel Chapter 9	

Week 4 - 31 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Horizontal Alignment Design	1. AGRD03-10 Chapter 7 2. Civil 3D Chapter 6 3. Garber & Hoel Chapter 15	Written Assessment Due: Week 4 Friday (4 Aug 2017) 6:00 pm AEST

Week 5 - 07 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Horizontal Alignment Design	1. AGRD03-10 Chapter 7 2. Civil 3D Chapter 6 3. Garber & Hoel Chapter 15	

Vacation Week - 14 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 21 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Vertical Alignment Design	1. AGRD03-10 Chapter 8 2. Civil 3D Chapter 7 3. Garber & Hoel Chapter 15	

Week 7 - 28 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Earthworks Design	1. AGRD03-10 Chapter 8 2. Civil 3D Chapter 12 3. Garber & Hoel Chapter 14	

Week 8 - 04 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pavement Design Input	1. TMR Supplement Guide Chapter 2 2. AGPT02-12 Chapter 2 3. Garber & Hoel Chapter 19	Written Assessment Due: Week 8 Friday (8 Sept 2017) 4:00 pm AEST

Week 9 - 11 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pavement Design Traffic Determination	1. TMR Supplement Guide Chapter 7 2. AGPT02-12 Chapter 7	

Week 10 - 18 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pavement Material Characterization	1. TMR Supplement Guide Chapter 6 2. AGPT02-12 Chapter 6	

Week 11 - 25 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Pavement Material Characterization	1. TMR Supplement Guide Chapter 6 2. AGPT02-12 Chapter 6	

Week 12 - 02 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic

Pavement Design Methods

1. TMR Supplement Guide Chapter 8
2. AGPT02-12 Chapter 8

Written Assessment Due: Week 12
Friday (6 Oct 2017) 4:00 pm AEST

Review/Exam Week - 09 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 16 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

Obtain your free 3 years AutoCAD Civil 3D 2017 via <https://www.autodesk.com/education/free-software/autocad-civil-3d>

- Answer Moodle quiz in the relevant modules.

Communication with Lecturer

- All course related questions must be asked through appropriate forums or during the scheduled class time. No email will be responded for any queries related to this course unless those are private in circumstances.
- All emails related to this course should have the course code (ENEC14016) in the subject line. Any email without course code in the subject line may not be responded.

Example: ENEC12011: Quiz

Additional details are provided in the Moodle course site

Assessment Tasks

1 Written Assessment

Assessment Type

Written Assessment

Task Description

This assessment is composed of two components namely a Moodle quiz with a weight of 50% and a Traffic Survey task with a 50% weight. The quiz shall be based on the first two week activities. Further details are provided through the Moodle unit site.

Assessment Due Date

Week 4 Friday (4 Aug 2017) 6:00 pm AEST

Return Date to Students

within 10 working days

Weighting

30%

Minimum mark or grade

50%

Assessment Criteria

Evidence provided of achievement of Unit Learning Outcomes is to be based primarily on work undertaken individually within this unit.

The following weighting shall be applied

1. Moodle Quiz 50%
2. Design report maximum 10 pages 50%

Additional details are provided in the Moodle Unit site.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Learning Outcomes Assessed

- Organise and conduct traffic surveys, analyse collected data and interpret the results
- Apply standard techniques to forecasting future traffic demand
- Demonstrate a professional level of communication

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

2 Written Assessment

Assessment Type

Written Assessment

Task Description

Scenario

You are part of an engineering design team that has been appointed by the Department of Main Roads to design the realignment of a section of highway. Approaching the end of the financial year, Main Roads has funds allocated for this project which must commence construction in 8 - 10 weeks. In 8 weeks, the design of appropriate horizontal and vertical geometry (as well as cross-sectional information) is required to be prepared in accordance with Austroads and DMR standard documents and specifications.

Requirements

1. Horizontal and vertical geometry should be designed as a series of consecutive straights and curves - note that the curves must be tangential to the straights to comply with the requirements of curvilinear design - it is also good practice from a design and construction perspective.
2. The detail specific design parameter assign to you can be located in the Unit Moodle page
3. You will need to assess the horizontal and vertical curves and check that they are within appropriate minimum and maximum radii for the design speed, in addition to checking whether superelevation is required. If superelevation is required, this is to be designed appropriately to consider rate of rotation, position relative to the horizontal curve tangent point and length of horizontal curve.
4. You are also to research and provide some thoughts on "other considerations" that would be relevant in a real situation - funding, cultural heritage, lighting, drainage and environmental.

Further details are provided in the Moodle Unit site

Assessment Due Date

Week 8 Friday (8 Sept 2017) 4:00 pm AEST

Return Date to Students

within 10 working days

Weighting

40%

Minimum mark or grade

50%

Assessment Criteria

Evidence provided of achievement of Unit Learning Outcomes is to be based primarily on work undertaken individually within this unit.

The following weighting shall be applied

1. Moodle Quiz 40%
2. Design report maximum 15 pages excluding appendix 60%

Additional detail are provided in the Moodle unit page

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Learning Outcomes Assessed

- Apply standard techniques to forecasting future traffic demand
- Design and document geometric alignments of transportation infrastructure using appropriate Australian guidelines
- Demonstrate a professional level of communication

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

3 Written Assessment

Assessment Type

Written Assessment

Task Description

Your engineering design team that was appointed by to produce a pavement design in Central Queensland after the submission of the geometric design report. In 4 weeks, the Pavement design of appropriate road is required to be prepared in accordance with Austroads and DMR standard documents and specifications.

Primary Design Resources

1. Guide to Pavement Technology Part 2: Pavement Structural Design (AGPT02-12)
2. [Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology \(TMR 2013\)](#)

Additional details are provided in the Moodle Unit site

Assessment Due Date

Week 12 Friday (6 Oct 2017) 4:00 pm AEST

Return Date to Students

within 10 working days

Weighting

30%

Minimum mark or grade

50%

Assessment Criteria

Evidence provided of achievement of Unit Learning Outcomes is to be based primarily on work undertaken individually and in project teams within this unit.

The following weighting shall be applied

1. Moodle Quiz 30%
2. Design report Maximum 20 pages excluding appendix 70%

Additional details are provided in the Moodle Unit site

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Learning Outcomes Assessed

- Evaluate the pavement sublayer materials properties using appropriate Australian guidelines
- Design a basic road pavements using appropriate Australian guidelines
- Demonstrate a professional level of communication

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

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