



# BLAR12054 *Structural Design Processes*

## Term 1 - 2017

Profile information current as at 05/05/2024 02:20 am

All details in this unit profile for BLAR12054 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 develops an understanding of: structural drawings and computational methods associated with timber, reinforced concrete and steel structures; design processes for timber structures including: beams, columns, tension members, compression members and connections; design processes for reinforced concrete structures including; approximate analysis and sizing of members; singly reinforced beams; doubly reinforced beams; T beams; L beams; One-way slabs; Two-way slabs; columns-short and long; footings; design process for steel structures including approximate sizing of beams and columns, tension members, compressing members, beams, columns-short and long, stiffeners and connections.

#### 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 - BLAR11032

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 1 - 2017

- Distance

#### 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: 30%

#### 3. **Written Assessment**

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 Moodle course evaluation

##### Feedback

• The assignments were always very clearly explained, all students that had questions received answers in a timely manner and the weekly recorded lectures were always very clear with multiple examples of each given concept worked through to its completion. Assignments were always marked as per the course profile feedback date.

##### Recommendation

Good to know that the online lectures, content were useful towards learning progress and assessments completion. Thank you for your feedback. Will continue to do our level best in the next offer as well.

#### Feedback from Moodle course evaluation

##### Feedback

\* The way Daniel conducted his lectures made it easy to follow and understand the content.

##### Recommendation

Thanks for the feedback. Will continue to do our level best in the next offer too.

## Unit Learning Outcomes

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

1. Describe structural analysis processes.
2. Analyse statically indeterminate structures by both rigorous and approximate methods.
3. Perform preliminary designs for structures and also sizing and design of simple structural members in buildings
4. Use effectively a range of appropriate communication modes.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Written Assessment - 30%	•	•	•	•
2 - Written Assessment - 30%	•		•	•
3 - Written Assessment - 40%			•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - 30%	•	•	•	•		•		•		
3 - Written Assessment - 40%	•	•	•	•		•		•		

## Textbooks and Resources

### Textbooks

BLAR12054

#### Prescribed

##### Understanding Structures

Edition: 5th (2014)

Authors: Seward, D

Palgrave Macmillan

Swindon , UK

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Microphone and headset
- WebCam

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Remadevi Dhanasekar** Unit Coordinator

[r.dhanasekar@cqu.edu.au](mailto:r.dhanasekar@cqu.edu.au)

## Schedule

### Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Structural analysis processes: An overview of the design of multi cell building		

### Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
The analysis of indeterminate structures		

### Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Combined stress analysis and limit state design. Design of timber structures		

### Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Design of timber structures

#### Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of timber structures.		<b>A1 Written Assessment</b> Due: Week 5 Wednesday (5 Apr 2017) 11:45 pm AEST

#### Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
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#### Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of concrete structures		

#### Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of concrete structures		

#### Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of concrete structures		<b>A2 Written Assessment</b> Due: Week 8 Wednesday (3 May 2017) 11:45 pm AEST

#### Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of steel structures		

#### Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of steel structures		

#### Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Design of steel structures		

#### Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Professional practice: The future		

#### Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
Program Review week		<b>A3 Written Assessment</b> Due: Review/Exam Week Wednesday (7 June 2017) 11:45 pm AEST

#### Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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## Assessment Tasks

### 1 A1 Written Assessment

#### Assessment Type

Written Assessment

#### Task Description

This assessment item aligns to course learning outcomes 1,2 and 4 as outlined in the course profile. Assessment

questions include theory and analysis of structures.

**Assessment Due Date**

Week 5 Wednesday (5 Apr 2017) 11:45 pm AEST

**Return Date to Students**

Week 7 Wednesday (26 Apr 2017)

**Weighting**

30%

**Assessment Criteria**

(5%) Presentation and layout—includes the selection of typeface, written and general appearance, detail and quality of the assessment item submission

(90%) Content—includes the accuracy and relevance of information, application of knowledge, language and grammar used in answering questions, and proper referencing of sources of information, equations, images, data and tables used in the assessment submission. When referencing, use of the Harvard Referencing System

(5%) Reference - Use of the Harvard Referencing System. Harvard referencing guide can be available via course profile.

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Must be submitted as a single word or pdf file. Hand-written answers are accepted. Students should scan the hand-written answers and submit it as a pdf file for online submission.

**Learning Outcomes Assessed**

- Describe structural analysis processes.
- Analyse statically indeterminate structures by both rigorous and approximate methods.
- Perform preliminary designs for structures and also sizing and design of simple structural members in buildings
- Use effectively a range of appropriate communication modes.

**Graduate Attributes**

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

## 2 A2 Written Assessment

**Assessment Type**

Written Assessment

**Task Description**

This assessment item aligns to course learning outcomes 1,3 and 4 as outlined in the course profile. Assessment questions include theory and design of structural elements .

**Assessment Due Date**

Week 8 Wednesday (3 May 2017) 11:45 pm AEST

**Return Date to Students**

Week 10 Wednesday (17 May 2017)

**Weighting**

30%

**Assessment Criteria**

(5%) Presentation and layout—includes the selection of typeface, written and general appearance, detail and quality of the assessment item submission

(90%) Content—includes the accuracy and relevance of information, application of knowledge, language and grammar used in answering questions, and proper referencing of sources of information, equations, images, data and tables used in the assessment submission. When referencing, use of the Harvard Referencing System

(5%) Reference - Use of the Harvard Referencing System. Harvard referencing guide can be available via course profile.

## Referencing Style

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

## Submission

Online

## Submission Instructions

Must be submitted as a single word or pdf file. Hand-written answers are accepted. Students should scan the hand-written answers and submit it as a pdf file for online submission.

## Learning Outcomes Assessed

- Describe structural analysis processes.
- Perform preliminary designs for structures and also sizing and design of simple structural members in buildings
- Use effectively a range of appropriate communication modes.

## Graduate Attributes

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

# 3 A3 Written Assessment

## Assessment Type

Written Assessment

## Task Description

This assessment item aligns to course learning outcomes 1,3 and 4 as outlined in the course profile. Assessment questions include theory and design of structural members .

## Assessment Due Date

Review/Exam Week Wednesday (7 June 2017) 11:45 pm AEST

## Return Date to Students

5.00PM on 01 July Friday - University Vacation period

## Weighting

40%

## Assessment Criteria

(5%) Presentation and layout—includes the selection of typeface, written and general appearance, detail and quality of the assessment item submission

(90%) Content—includes the accuracy and relevance of information, application of knowledge, language and grammar used in answering questions, and proper referencing of sources of information, equations, images, data and tables used in the assessment submission. When referencing, use of the Harvard Referencing System

(5%) Reference - Use of the Harvard Referencing System. Harvard referencing guide can be available via course profile.

## Referencing Style

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

## Submission

Online

## Submission Instructions

Must be submitted as a single word or pdf file. Hand-written answers are accepted. Students should scan the hand-written answers and submit it as a pdf file for online submission.

## Learning Outcomes Assessed

- Perform preliminary designs for structures and also sizing and design of simple structural members in buildings
- Use effectively a range of appropriate communication modes.

## Graduate Attributes

- Communication
- Problem Solving



- Critical Thinking
- Information Literacy
- Information Technology 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