

## ARBE1305: Construction Technology, Sequencing and Representation

Callaghan and Online  
Semester 2 - 2023



THE UNIVERSITY OF  
NEWCASTLE  
AUSTRALIA

## OVERVIEW

### Course Description

This course examines construction technology and sequencing, and drafting and interpretation of construction drawings for low-rise commercial and public buildings. Terminology and construction/design details for typical construction solutions and their graphical representation are examined in detail in accordance with Australian Standards for Architectural and Engineering drafting. The subject explores the main construction systems, processes and principles that students should be familiar with for this type of construction. Students develop an understanding of alternative construction techniques, principles of managing construction site operations and how services interface with the building.

### Requisites

This course replaces ARBE2100. If you have successfully completed ARBE2100 you cannot enrol in this course.

### Assumed Knowledge Contact Hours

ARBE1101 Construction Technology 1 or equivalent

#### Lectorial

Callaghan enrolled Face to Face On-campus students:  
3 hour(s) per Week for 2 Weeks (Week 1 and Week 11)  
Online learning students will receive equivalent instruction through online education strategies

#### Seminar/Workshop

Callaghan enrolled Face to Face On-campus students:  
3 day(s) per Term starting Week 6 (21/22/23 August)  
Online learning students will receive equivalent instruction through online education strategies

#### Online Zoom Sessions

Callaghan and Online learning students:  
1 hour Zoom session every Monday at 10am for Weeks 2, 3, 4, 5, 7, 8, 9, 10, 12.

### Unit Weighting Workload

10  
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

# COURSE OUTLINE

[www.newcastle.edu.au](http://www.newcastle.edu.au)

CRICOS Provider 00109J

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# CONTACTS

**Course Coordinator**      **Callaghan and Online**  
Dr Jessica Siva  
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(02) 49138386  
Consultation:  
By appointment

**Teaching Staff**              Other teaching staff will be advised on the course Canvas site.

**School Office**                **School of Architecture and Built Environment**  
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Callaghan  
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# SYLLABUS

**Course Content**

- Introduction to AS1100.101:1992 Technical Drawing - General Principles.
- Introduction to AS100.301:2008 Technical Drawing - Architecture Drawing
- Introduction to AS/NZS1100.501:2002 Technical Drawing Structural Engineering Drawing.
- Introduction to AS1100.210:1992 Technical Drawing Mechanical Engineering Drawing.
- Sub-structure options and selection for a low rise commercial building.
- Super-structure options and selection for a low rise commercial building.
- Understanding the need and place of drawings in the construction process.
- Reading and interpreting architectural and engineering drawings.
- Project planning and sequencing the construction process.
- Principles of managing construction site operations
- Organisation and management of the construction process.
- The development of sectional drawings

**Course Learning Outcomes**

**On successful completion of this course, students will be able to:**

1. Identify the function and types of drawings in the construction process.
2. Recognise the symbols, techniques and methods used in preparing construction and engineering drawings as given in AS1100.101:1992; AS100.301:2008; AS/NZS1100.501:2002; AS1100.201:2002.
3. Select appropriate construction techniques for a low rise commercial or public building.
4. Visualise the sequence of the construction process including organisation and management of site operations for a low rise commercial or public building
5. Draft a set of construction sections through elements of a low rise commercial/public building.

**Course Materials**

# SCHEDULE

| Week           | Week Begins | Topic   | Learning Activity  | Assessment Due   |
|----------------|-------------|---|--|--|
| 1              | 17 Jul      | Course Introduction<br><br>Understanding the need and place of drawings in the construction process.  | Lectorial (mandatory attendance for Face-to-face on campus students)                                   |  |
| 2              | 24 Jul      | Reading, interpreting and understanding drawings<br><br>Referring to these AS:<br>AS1100.101:1992,<br>AS1100.301:2008,<br>AS/NZS1100.501:2002,<br>AS/NZS1100.201  | Blended: pre-recorded videos, Zoom catch up, online activities   | SMART study plan<br>Friday 28th July, 5pm<br>(Assignment 3 Part 1)<br><br>Assignment 1 Quiz #1<br>available online from<br>28th July (9am) to 4th<br>Aug (5pm)<br><br>Questions relating to<br>weeks 1 & 2 |
| 3              | 31 Jul      | Reading, interpreting and understanding drawings<br><br>Referring to these AS:<br>AS1100.101:1992,<br>AS1100.301:2008,<br>AS/NZS1100.501:2002,<br>AS/NZS1100.201  | Blended: pre-recorded videos, Zoom catch up, online activities   |  |
| 4              | 7 Aug       | Reading, interpreting and understanding drawings:<br><br>Referring to these AS:<br>AS1100.101:1992,<br>AS1100.301:2008,<br>AS/NZS1100.501:2002,<br>AS/NZS1100.201 | Blended: pre-recorded videos, Zoom catch up, online activities   | Assignment 1 Quiz #2<br>available online from<br>11th (9am) to 18th Aug<br>(5pm)<br><br>Questions relating to<br>weeks 3 & 4   |
| 5              | 14 Aug      | Sub-structure principles, technology, sequencing and processes<br><br>Introduce assignment 2  | Blended: pre-recorded videos, Zoom catch up, online activities   |  |
| 6              | 21 Aug      | A variety of academic skills such as resilience, careers, report writing/referencing as well as activities related to assignment 2.                               | Intensive Workshop 24th, 25th & 26th August (mandatory attendance for Face-to-face on campus students) |  |
| 7              | 28 Aug      | Super-structure principles, technology sequencing and processes   | Blended: pre-recorded videos, Zoom catch up, online activities   |  |
| 8              | 4 Sep       | Steel structure and building envelope principles, technology, sequencing and processes  | Blended: pre-recorded videos, Zoom catch up, online activities   |  |
| 9              | 11 Sep      | Principles of Project Management: theory  | Blended: pre-recorded videos, Zoom catch up, online activities   | Assignment 2<br>Monday 11th Sept<br>5pm  |
| 10             | 18 Sep      | Principles of Building Services   | Blended: pre-recorded videos, Zoom catch up, online activities   |  |
| Mid Term Break |             |   |  |  |
| Mid Term Break |             |   |  |  |

|                           |        |   |  |   |
|---------------------------|--------|---|--|---|
| 11                        | 9 Oct  | Principles of Project Management: case studies & practical examples | Lectorial (mandatory attendance for Face-to-face on campus students) |   |
| 12                        | 16 Oct | MEP principles, technology, sequencing and processes                | Blended: pre-recorded videos, Zoom catch up, online activities       |   |
| 13                        | 23 Oct | Revision - no lecture   | Revision as required   | Assignment 3 (Part 2)<br>Monday 23rd Oct<br>5pm |
| <b>Examination Period</b> |        |   |  |   |
| <b>Examination Period</b> |        |   |  |   |

## ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

|   | Assessment Name                | Due Date   | Involvement | Weighting | Learning Outcomes |
|---|--------------------------------|--|-------------|-----------|-------------------|
| 1 | Online Quizzes                 | Quiz 1: available 28th July (9am) to 4th Aug 2023 (5pm) (10%)<br><br>Quiz 2: available 11th (9am) to 18th Aug 2023 (5pm) (10%) | Individual  | 20%       | 1, 2              |
| 2 | Construction Techniques Report | Monday 11th Sept 2023<br>5pm   | Individual  | 40%       | 3, 4              |
| 3 | Construction Project Proposal  | Part 1 (Study Plan): Friday 28th July 2023, 5pm<br>Part 2: Monday 23rd Oct 2023, 5pm   | Individual  | 40%       | 3, 4, 5           |

### Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

## Assessment 1 - Online Quizzes

### Assessment Type

Quiz

### Purpose

On completion of this assignment students should be able to:

- Identify the function and types of drawings in the construction process
- Recognise the symbols, techniques and methods used in preparing construction drawings based upon AS1100.101:1992; AS1100.301:2008; AS/NZS1100.501:2002; AS1100.201:2002

### Description

There are two compulsory online quizzes that students are required to complete. These are open book quizzes to assess students' understanding of construction drawings. Completing the quizzes will provide students with an indication of progress in the course, where their strengths and weaknesses are, allowing them to address those weak areas in subsequent assignments. Students will not be able to repeat the quizzes. Questions undertaken outside the allocated timeframe provided will not be included in the final score.

### Weighting

20%

### Due Date

Quiz 1: available 28th July (9am) to 4th Aug 2023 (5pm) (10%)

Quiz 2: available 11th (9am) to 18th Aug 2023 (5pm) (10%)

### Submission Method

Online

### Assessment Criteria

### Return Method

Not Returned

### Feedback Provided

Online - .

## Assessment 2 - Construction Techniques Report

|                            |   |
|----------------------------|---|
| <b>Assessment Type</b>     | Report  |
| <b>Purpose</b>             | On completion of this assignment students should be able to: <ul style="list-style-type: none"> <li>- Recognise the symbols in construction drawings based upon AS1100.101:1992;AS/NZS1100.501:2002; AS1100.201:2002; AS1102.101.1989.AS1100.101:1992; AS1100.301:2008; AS/NZS1100.501:2002; AS1100.201:2002</li> <li>- Explain different construction options for a low rise commercial/public building</li> <li>- Select appropriate construction techniques for a low rise commercial/public building</li> </ul>   |
| <b>Description</b>         | Through an examination of the technical drawings provided students are required to prepare a construction feasibility study report for a client which should include: <ul style="list-style-type: none"> <li>- Identification and description of key building features and site characteristics</li> <li>- A comparison of construction method options (at least 2 options) using text/graphical information such as photos and sketches (CAD sketch/drawing is optional)</li> <li>- Recommendation of selected construction methods with justifications</li> </ul> This feasibility report should contain sufficient information about the construction options with comprehensive description of advantages and disadvantages associated with each option in order to help the client make an appropriate decision on which option to select for the project. |
| <b>Weighting</b>           | 40%   |
| <b>Due Date</b>            | Monday 18th Sept 2023<br>5pm  |
| <b>Submission Method</b>   | Online  |
| <b>Assessment Criteria</b> | Refer to Canvas for rubric  |
| <b>Return Method</b>       | Not Returned  |
| <b>Feedback Provided</b>   | Online - .  |

## Assessment 3 - Construction Project Proposal

|                            |  |
|----------------------------|--|
| <b>Assessment Type</b>     | Proposal / Plan  |
| <b>Purpose</b>             | On completion of this assignment students should be able to: <ul style="list-style-type: none"> <li>- Read and interpret architectural and engineering drawings</li> <li>- Visualise the sequence of the construction process including organisation and management of site operations for a low-rise commercial/public building</li> <li>- Draft a set of construction sections through various building elements of a low rise commercial/public building</li> </ul>   |
| <b>Description</b>         | Part 1<br>You are required to develop a SMART study plan at the start of the semester, which will be assessed as part of this assignment. The Study Plan is due Friday 28th July, 5pm.<br>Part 2<br>Through an examination of the technical drawings provided, students are required to prepare a construction proposal plan for a client, which should include: <ul style="list-style-type: none"> <li>- Graphical information including (hand sketch is acceptable, CAD sketch/drawing is optional) section details to cut through the entire height of the building (from substructure to tallest height of superstructure)</li> <li>- Comprehensive outline and sequencing of the construction process. These can include (but are not limited to) project planning, site planning, material handling, to commissioning and handover.</li> </ul> |
| <b>Weighting</b>           | 40%  |
| <b>Due Date</b>            | Part 1 (Study Plan): Friday 28th July 2023, 5pm<br>Part 2: Monday 23rd Oct 2023, 5pm   |
| <b>Submission Method</b>   | Online   |
| <b>Assessment Criteria</b> | Refer to Canvas for rubric   |
| <b>Return Method</b>       | Not Returned   |
| <b>Feedback Provided</b>   | Online - .   |

## ADDITIONAL INFORMATION

### Grading Scheme

This course is graded as follows:

| Range of | Grade | Description |
|----------|-------|-------------|
|----------|-------|-------------|

| Marks  |                       |  |
|--------|-----------------------|--|
| 85-100 | High Distinction (HD) | Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.          |
| 75-84  | Distinction (D)       | Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.  |
| 65-74  | Credit (C)            | Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.            |
| 50-64  | Pass (P)              | Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes. |
| 0-49   | Fail (FF)             | Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.  |

\*Skills are those identified for the purposes of assessment task(s).

#### Communication Methods

Communication methods used in this course include:

#### Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

#### Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

#### Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to <https://policies.newcastle.edu.au/document/view-current.php?id=35>.

#### Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:

<https://policies.newcastle.edu.au/document/view-current.php?id=236>

#### Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies

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and procedures at <https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures> that support a safe and respectful environment at the University.

*This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.*

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