COURSE OUTLINE

CIV340 Construction Technology

School: School of Science, Technology and Engineering

2026 | Semester 1

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

Civil construction projects share the common factors of utilising workers, machines and materials and management. You will be provided with appropriate knowledge, skills and techniques used to maximise construction project outcomes and success. The course covers cutting-edge digitisation techniques in construction focusing on Building Information Modelling. Hands-on activities are embedded in the course, covering various equipment, construction methods and planning/organising a project. The importance of aligning construction activities to the Sustainable Development Goals will be considered.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Background material, concept videos and quizzes	2hrs	Week 1	13 times
Tutorial/Workshop 1 – On campus workshop	2hrs	Week 1	13 times
Fieldwork – Fieldwork details to be communicated	5hrs	Week 7	Once Only
Seminar – Guest presenter on cutting-edge construction techniqes	1hr	Week 1	2 times

1.3. Course Topics

Theme 1: Sustainable civil infrastructure projects:

- Assessing risk and project safety
- Earth moving plant
- Preparing a tender submission – cost estimation
- Engaging the market
- Latest developments
- Cutting edge techniques
- Building Information Modelling (BIM)
- Sustainable Development Goals

MODULE 2: Management theories for civil infrastructure activities:

- Managemenent theory and tools
- Contract models
- Project delivery methods
- Financial management
- Managing contractors
- Work breakdown structure
- Ethical considerations

MODULE 3: Infrastructure requirements at the National, State and local levels:

- Australian Standards
- Infrastructure Sustainability Council of Australia
- Qld Government requirements – DTMR
- Local council requirement – Erosion and sediment control and environmental considerations

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Engineers Australia Stage 1 Professional Engineer Competency Standards
1 Develop a mindset of continous learning to keep up to date with cutting-edge construction techniques and technology	Knowledgeable Empowered	1.3, 1.4
2 Identify, explain and assess the underpinning theories for civil infrastructure management, contract models and project delivery methods	Knowledgeable Ethical	1.5, 2.2
3 Collect, evaluate and analyse risk, project safety, sediment control and environmental considerations relevant to a sustainable civil infrastructure construction project	Creative and critical thinker Engaged	2.2, 2.4, 3.1
4 Respond to national, state and local infrastructure requirements	Knowledgeable Empowered	1.5, 3.1, 3.4
5 Implement a BIM for the planning of a civil infrastructure project	Knowledgeable Sustainability-focussed	2.2, 3.4
6 Demonstrate knowledge of materials, construction techniques and testing to the level of a student engineer working on a construction site	Knowledgeable	1.6, 2.2

* Competencies by Professional Body

CODE	COMPETENCY
ENGINEERS AUSTRALIA STAGE 1 PROFESSIONAL ENGINEER COMPETENCY STANDARDS	
1.3	Knowledge and Skill Base: In-depth understanding of specialist bodies of knowledge within the engineering discipline.
1.4	Knowledge and Skill Base: Discernment of knowledge development and research directions within the engineering discipline.
1.5	Knowledge and Skill Base: Knowledge of engineering design practice and contextual factors impacting the engineering discipline.
1.6	Knowledge and Skill Base: Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.
2.2	Engineering Application Ability: Fluent application of engineering techniques, tools and resources.
2.4	Engineering Application Ability: Application of systematic approaches to the conduct and management of engineering projects.
3.1	Professional and Personal Attributes: Ethical conduct and professional accountability.
3.4	Professional and Personal Attributes: Professional use and management of information.

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in Program SC410, SC411, SC425, SC404, SC405

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

ENG340

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

In this course you will be required to submit a reflective journal on the learning outcomes from each week to track your progress. The first submission is due in Week 3.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Journal	Individual	25%	Weekly individual reflections on meeting learning outcomes. Each reflection should be no longer than a single paragraph (five sentences) for each learning outcome. The maximum learning outcomes per week will be six.	Throughout teaching period (refer to Format)	Online ePortfolio Submission
All	2	Report	Group	45%	2000 words maximum	Week 12	Online Assignment Submission with plagiarism check
All	3	Quiz/zes	Individual	30%	2 x Quizzes (45 minutes duration)	Refer to Format	Online Test (Quiz)

All - Assessment Task 1: Learning Outcomes Reflections - Journal

GOAL:	This task has been designed to track your progress meeting the learning outcomes prescribed for this course.
PRODUCT:	Journal
AUTHORSHIP STATEMENT:	
FORMAT:	Individual submission. The format will be provided and you will report on what you have learnt against the course learning outcomes and the Engineers Australia Stage 1 competencies. Submitted at the end of weeks 3, 7 and 13

CRITERIA:

No.		Learning Outcome assessed
1	Demonstration of the learning outcomes you achieved each week	2
2	identification of areas of practice that you need to develop	1

GENERIC SKILLS:	Communication, Applying technologies

All - Assessment Task 2: Construction Tender Submission

GOAL:	This task is designed to simulate a real engineering tender experience. You will collaborate with peers to develop a tender bid related to a civil infrastructure project
PRODUCT:	Report
AUTHORSHIP STATEMENT:	
FORMAT:	Group. You submit the task in two parts: Part A • A total of five meeting records completed in the supplied format. These are to be submitted progressively throughout the semester; the first two by the end of week 6 and the balance with the final submission. • A company structure diagram and position descriptions for each group member. Marking will be take place after the final submission, but feedback will be provided on the meeting records as they are submitted. Part B – Conforming tender • Completion of the schedules responding to the scope of works; • Bill of Quantities • A Gantt chart detailing the proposed methodology for the scope of works, including all tasks, their relationships and estimated duration.

CRITERIA:

No.		Learning Outcome assessed
1	Weekly Meeting records with clear responsibilities and time lines. Accurately completed tender forms and documents	4 5 6
2	Complete cost estimating of the project consistent with Industry standards. Estimated costings are structured to make a profit.	6
3	Logical and detailed methodology.	5

GENERIC SKILLS:	Collaboration, Problem solving, Applying technologies

All - Assessment Task 3: Construction Engineering Quizzes

GOAL:	These tests are designed to evaluate your knowledge of the underpinning theories for civil infrastructure management, safety, contract models, project delivery methods, risk, project safety, sediment control and evironmental considerations relevant to sustainable civil infrastructure construction projects (quiz 1), and knowledge of materials, construction techniques and testing (quiz 2).
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Submission: weeks 6 and week 13
CRITERIA:	**No.** — **Learning Outcome assessed** 1 accurate answers to the questions asked — 2 3 6
GENERIC SKILLS:	Problem solving, Applying technologies

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
MODULE 1: Introduction to construction technology: Weeks 1 and 2	Learning materials and review activities on introduction to construction technology and cutting edge techniques including Building Information Modelling (BIM) Workshop on reflective practice for this course and BIM
MODULE 2: Management theories for civil infrastructure activities: Weeks 3 to 5	Learning materials and review activities on management theory and tools, including contract models, financial management, project delivery methods and managing contractors Workshops on Work Breakdown Structure, assessing risk and project safety and erosion and sediment control and environmental considerations.
MODULE 3: Infrastructure requirements at the National, State and local levels: Weeks 6 and 7	Learning materials and review activities on Australian Standards and local government requirements Workshops on Infrastructure Sustainability Council of Australia and DTMR requirements
MODULE 4: Winning sustainable civil infrastructure projects: Weeks 7, 8 and 9	Learning materials and review activities on preparing a tender submission - cost estimation Workshops on preparing a tender submission - cost estimation and engaging the market
MODULE 5: Construction materials, techniques and cutting-edge technology: Weeks 10 to 13.	Learning materials and review activities on pavement design and construction, cement and concrete properties, testing and reinforcing, Pipe and conduit laying. Workshops on geotechnical surveys, pavement design and construction and cement properties.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Andrew Baldwin,David Bordoli	2014	Handbook for Construction Planning and Scheduling	n/a	John Wiley & Sons

8.2. Specific requirements

There are no specific requirements for CIV340

9. How are risks managed in this course?

Risk assessments have been performed for all field activities and a low level of health and safety risk exists. Some risks concerns may include working in an unknown environment as well as slip and trip hazards. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: The final mark is in the percentage range 47% to 49.4% The course is graded using the Standard Grading scale You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate: - 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task. - 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task. - A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

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