

ENG101 Professional Engineering

School: School of Science, Technology and Engineering

2026 | Trimester 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

This course will introduce the student to the engineering profession, professional communication ethics, teamwork and basic management tools. Through a range of discussion and practical examples, understanding of the difference between a professional engineer and an engineering technologist will be developed.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Asynchronous learning material	1hr	Week 1	12 times
Tutorial/Workshop 1 – On campus workshop	2hrs	Week 1	10 times
Seminar – En masse group discussion.	1hr	Week 1	3 times
Fieldwork – Fieldwork. Weeks subject to site visit arrangements	2hrs	Refer to Format	2 times

1.3. Course Topics

Topics may include:

- Understanding the engineering profession and systems
- Introduction to engineering problem solving
- Technical report writing in the engineering profession
- Information retrieval and management
- Ethics and sustainability
- Life cycle analysis
- Basic Occupational Health & Safety

2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first 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	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING *
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Competencies from multiple Professional Bodies (see below) *
1 Recognise the fundamentals applicable to the engineering professional and technologist areas of practice, systems and standards.	Knowledgeable	1, 1.1.a, 1.1.a, 1.5.e, 1.5.f, 1.6.a, 1.6.b, 1.6.c, 1.6.d, 1.1, 1.1, 1.5, 1.6
2 Examine the principles and importance of quality management and Workplace, Health and Safety risk management within Australian frameworks, legislation, standards and procedures in the context of the engineering profession.	Knowledgeable Ethical	1.6.a, 1.6.b, 1.6.b, 1.6, 3.1.a, 3.1.a, 3.1.b, 3.1.b, 3.1.c, 3.1.c, 3.1, 3.1
3 Apply basic systems engineering and/or project management tools and processes to solve engineering problems.	Creative and critical thinker Empowered	2.1.a, 2.1.a, 2.1.b, 2.1.b, 2.1.c, 2.1.c, 2.1.d, 2.1.d, 2.1.e, 2.1.e, 2.1.f, 2.1.f, 2.1.g, 2.1.g, 2.1.h, 2.1.h, 2.1.i, 2.1.i, 2.1, 2.1, 3.2.a, 3.2.a, 3.3.a, 3.3.a, 3.2, 3.2, 3.3, 3.3
4 Apply oral and written communication in a professional engineering and technologist environments and at appropriate levels for technical and general audiences.	Engaged	1, 1.6.b, 1.6, 3.2.a, 3.2.a, 3.6.b, 3.6.b, 3.2, 3.2, 3.6, 3.6
5 Identify where engineers can ethically contribute to society and sustainability.	Sustainability-focussed	1, 1, 1.6.c, 1.6.c, 1.6.e, 3, 3, 3.5.b, 3.5.b
6 Demonstrate commitment to life-long learning and professional development through establishment of an ePortfolio	Knowledgeable Empowered Engaged	3, 3.5.b, 3.5.c, 3.5.c, 3.5, 3.5

* Competencies by Professional Body

CODE	COMPETENCY
ENGINEERS AUSTRALIA STAGE 1 PROFESSIONAL ENGINEER COMPETENCY STANDARDS	
1	Elements of competency: Knowledge and Skill Base
1.1.a	Knowledge and Skill Base - Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline: Engages with the engineering discipline at a phenomenological level, applying sciences and engineering fundamentals to systematic investigation, interpretation, analysis and innovative solution of complex problems and broader aspects of engineering practice.
1.5.e	Knowledge and Skill Base - Knowledge of engineering design practice and contextual factors impacting the engineering discipline: Is aware of the fundamentals of business and enterprise management.
1.5.f	Knowledge and Skill Base - Knowledge of engineering design practice and contextual factors impacting the engineering discipline: Identifies the structure, roles and capabilities of the engineering workforce.
1.6.a	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the basis and relevance of standards and codes of practice, as well as legislative and statutory requirements applicable to the engineering discipline.
1.6.b	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the principles of safety engineering, risk management and the health and safety responsibilities of the professional engineer, including legislative requirements applicable to the engineering discipline.

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1.6.c	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the social, environmental and economic principles of sustainable engineering practice.
1.6.d	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Understands the fundamental principles of engineering project management as a basis for planning, organising and managing resources.
1.6.e	Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline: Appreciates the formal structures and methodologies of systems engineering as a holistic basis for managing complexity and sustainability in engineering practice.
1.1	Knowledge and Skill Base: Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to 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.
2.1.a	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Identifies, discerns and characterises salient issues, determines and analyses causes and effects, justifies and applies appropriate simplifying assumptions, predicts performance and behaviour, synthesises solution strategies and develops substantiated conclusions.
2.1.b	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Ensures that all aspects of an engineering activity are soundly based on fundamental principles - by diagnosing, and taking appropriate action with data, calculations, results, proposals, processes, practices, and documented information that may be ill-founded, illogical, erroneous, unreliable or unrealistic.
2.1.c	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Competently addresses complex engineering problems which involve uncertainty, ambiguity, imprecise information and wide-ranging and sometimes conflicting technical and non-technical factors.
2.1.d	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Investigates complex problems using research-based knowledge and research methods.
2.1.e	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Partitions problems, processes or systems into manageable elements for the purposes of analysis, modelling or design and then re-combines to form a whole, with the integrity and performance of the overall system as the paramount consideration.
2.1.f	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Conceptualises alternative engineering approaches and evaluates potential outcomes against appropriate criteria to justify an optimal solution choice.
2.1.g	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Critically reviews and applies relevant standards and codes of practice underpinning the engineering discipline and nominated specialisations.
2.1.h	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Identifies, quantifies, mitigates and manages technical, health, environmental, safety and other contextual risks associated with engineering application in the designated engineering discipline.
2.1.i	Engineering Application Ability - Application of established engineering methods to complex engineering problem solving: Interprets and ensures compliance with relevant legislative and statutory requirements applicable to the engineering discipline.
2.1	Engineering Application Ability: Application of established engineering methods to complex engineering problem solving.
3.1.a	Professional and Personal Attributes - Ethical conduct and professional accountability: Demonstrates commitment to uphold the Engineers Australia - Code of Ethics, and established norms of professional conduct pertinent to the engineering discipline.
3.1.b	Professional and Personal Attributes - Ethical conduct and professional accountability: Understands the need for 'due-diligence' in certification, compliance and risk management processes.
3.1.c	Professional and Personal Attributes - Ethical conduct and professional accountability: Understands the accountabilities of the professional engineer and the broader engineering team for the safety of other people and for protection of the environment.

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3.2.a Professional and Personal Attributes - Effective oral and written communication in professional and lay domains: Is proficient in listening, speaking, reading and writing English.

3.3.a Professional and Personal Attributes - Creative, innovative and pro-active demeanour: Applies creative approaches to identify and develop alternative concepts, solutions and procedures, appropriately challenges engineering practices from technical and non-technical viewpoints; identifies new technological opportunities.

3.6.b Professional and Personal Attributes - Effective team membership and team leadership: Functions as an effective member or leader of diverse engineering teams, including those with multi-level, multi-disciplinary and multi-cultural dimensions.

3 Elements of competency: Professional and Personal Attributes

3.5.b Professional and Personal Attributes - Orderly management of self, and professional conduct: Understands the importance of being a member of a professional and intellectual community, learning from its knowledge and standards, and contributing to their maintenance and advancement.

3.5.c Professional and Personal Attributes - Orderly management of self, and professional conduct: Demonstrates commitment to life-long learning and professional development.

3.1 Professional and Personal Attributes: Ethical conduct and professional accountability.

3.2 Professional and Personal Attributes: Effective oral and written communication in professional and lay domains.

3.3 Professional and Personal Attributes: Creative, innovative and pro-active demeanour.

3.5 Professional and Personal Attributes: Orderly management of self, and professional conduct.

3.6 Professional and Personal Attributes: Effective team membership and team leadership.

ENGINEERS AUSTRALIA STAGE 1 ENGINEERING TECHNOLOGIST COMPETENCY STANDARDS

1.1.a Knowledge and Skill Base - Systematic, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the technology domain: Engages with the technology domain at a phenomenological level, applying sciences and engineering fundamentals to systematic investigation, interpretation, analysis and innovative solution of broadly-defined problems and engineering technology practice.

1.6.b Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the technology domain: Appreciates the principles of safety engineering, risk management and the health and safety responsibilities of the engineering practitioner, applicable to the technology domain.

1 Elements of competency: Knowledge and Skill Base

1.6.c Knowledge and Skill Base - Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the technology domain: Appreciates the social, environmental and economic principles of sustainable engineering practice.

1.1 Knowledge and Skill Base: Systematic, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the technology domain.

2.1.a Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Identifies, discerns and characterises salient issues, determines and analyses causes and effects, justifies and applies appropriate simplifying assumptions, predicts performance and behaviour, synthesises solution strategies and develops substantiated conclusions.

2.1.b Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Ensures that the application of specialist technologies are soundly based on fundamental principles by diagnosing, and taking appropriate action with data, calculations, results, proposals, processes, practices, and documented information that may be ill-founded, illogical, erroneous, unreliable or unrealistic.

2.1.c Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Within specialist practice area(s), competently addresses broadly-defined engineering technology problems which involve uncertainty, ambiguity, imprecise information and wide-ranging and sometimes conflicting technical and non-technical factors.

2.1.d Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Recognises problems which have component elements and/or implications beyond the engineering technologist's personal expertise and correctly identifies the need for supplementary professional input.

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|-------|---|
| 2.1.e | Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Manages conflicting issues associated with interfacing, integrating and adapting specialist technologies where complex problems, processes or systems that have been partitioned into manageable elements for the purposes of analysis, modelling, design, prototyping, commissioning or testing, are recombined. |
| 2.1.f | Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Critically evaluates alternative implementation approaches using specialist engineering technologies and evaluates potential outcomes against appropriate criteria to justify an optimal solution choice. |
| 2.1.g | Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Interprets, applies and verifies compliance with relevant standards and codes of practice as well as legislative and statutory requirements underpinning specialist practice area(s) of the technology domain. |
| 2.1.h | Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Identifies, quantifies, mitigates and manages technical, health, environmental, safety and other contextual risks associated with engineering application in the technology domain. |
| 2.1.i | Engineering Application Ability - Application of established engineering methods to broadly-defined problem solving within the technology domain: Accesses appropriate professional knowledge resources as input to systematic problem investigation. |
| 2.1 | Engineering Application Ability: Application of established engineering methods to broadly-defined problem solving within the technology domain. |
| 3.1.a | Professional and Personal Attributes - Ethical conduct and professional accountability: Demonstrates commitment to uphold the Engineers Australia - Code of Ethics, and established norms of professional conduct pertinent to the technology domain. |
| 3.1.b | Professional and Personal Attributes - Ethical conduct and professional accountability: Understands the need for 'due-diligence' in certification, compliance and risk management processes. |
| 3.1.c | Professional and Personal Attributes - Ethical conduct and professional accountability: Understands the accountabilities of the engineering technologist and the broader engineering team for the safety of other people and for protection of the environment. |
| 3.2.a | Professional and Personal Attributes - Effective oral and written communication in professional and lay domains: Is proficient in listening, speaking, reading and writing English. |
| 3.3.a | Professional and Personal Attributes - Creative, innovative and pro-active demeanour: Applies creative approaches to identify and develop alternative concepts, solutions and procedures, appropriately challenges engineering practices from technical and non-technical viewpoints; identifies new technological opportunities. |
| 3.6.b | Professional and Personal Attributes - Effective team membership and team leadership: Functions as an effective member or leader of diverse engineering teams, including those with multi-level, multi-disciplinary and multi-cultural dimensions. |
| 3 | Elements of competency: Professional and Personal Attributes |
| 3.5.b | Professional and Personal Attributes - Orderly management of self, and professional conduct: Understands the importance of being a member of a professional and intellectual community, learning from its knowledge and standards, and contributing to their maintenance and advancement. |
| 3.5.c | Professional and Personal Attributes - Orderly management of self, and professional conduct: Demonstrates commitment to life-long learning and professional development. |
| 3.1 | Professional and Personal Attributes: Ethical conduct and professional accountability. |
| 3.2 | Professional and Personal Attributes: Effective oral and written communication in professional and lay domains. |
| 3.3 | Professional and Personal Attributes: Creative, innovative and pro-active demeanour. |
| 3.5 | Professional and Personal Attributes: Orderly management of self, and professional conduct. |
| 3.6 | Professional and Personal Attributes: Effective team membership and team leadership. |

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

Not applicable

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

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

Formative feedback for both written and oral communication tasks is provided weekly during tutorials, from Week #1; oral communications skills in particular will be practised and discussed weekly.

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	Written Piece	Individual	50%	1500 words	Throughout teaching period (refer to Format)	Online Assignment Submission with plagiarism check
All	2	Report	Group	50%	2000 words plus 10 minute speech	Week 12	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Individual reflection

GOAL:	An individual reflection on an aspect of engineering that is topical in the relevant industry is reported.													
PRODUCT:	Written Piece													
AUTHORSHIP STATEMENT:														
FORMAT:	Recorded as first part of portfolio that is maintained during whole of studies.													
CRITERIA:	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Recognition of the fundamentals applicable to the engineering professional and technologist areas of practice, systems and standards.</td> <td>1</td> </tr> <tr> <td>2</td> <td>Application of oral and written communication in a professional engineering environment and at appropriate levels for technical and general audiences</td> <td>4</td> </tr> <tr> <td>3</td> <td>Demonstration of commitment to life-long learning and professional development through establishment of an ePortfolio</td> <td>6</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Recognition of the fundamentals applicable to the engineering professional and technologist areas of practice, systems and standards.	1	2	Application of oral and written communication in a professional engineering environment and at appropriate levels for technical and general audiences	4	3	Demonstration of commitment to life-long learning and professional development through establishment of an ePortfolio	6	
No.		Learning Outcome assessed												
1	Recognition of the fundamentals applicable to the engineering professional and technologist areas of practice, systems and standards.	1												
2	Application of oral and written communication in a professional engineering environment and at appropriate levels for technical and general audiences	4												
3	Demonstration of commitment to life-long learning and professional development through establishment of an ePortfolio	6												
GENERIC SKILLS:	Communication, Organisation, Applying technologies, Information literacy													

All - Assessment Task 2: Report

GOAL:	A team-based report and presentation detailing the outcome of a team-based project that has derived a solution to an engineering problem		
PRODUCT:	Report		
AUTHORSHIP STATEMENT:			
FORMAT:	A team-based report and presentation detailing the outcome of a team-based project that has derived a solution to an engineering problem		
CRITERIA:	No.		Learning Outcome assessed
	1	Recognition of the fundamentals applicable to the engineering professional and technologist areas of practice, systems and standards.	1
	2	Examination of the principles and importance of quality management and Workplace, Health and Safety risk management within Australian frameworks, legislation, standards and procedures in the context of the engineering profession.	2
	3	Application of basic systems engineering and/or project management tools and processes to solve engineering problems.	3
	4	Application of oral and written communication in a professional engineering and technologist environments and at appropriate levels for technical and general audiences	4
	5	Identification of where engineers can ethically contribute to society and sustainability.	5
GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Applying technologies, Information literacy		

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.

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
Recommended	Saeed Moaveni	2019	Engineering Fundamentals: An Introduction to Engineering, SI Edition	6th Ed	Cengage Learning

8.2. Specific requirements

It is preferable that you bring along a Laptop computer to the tutorials and field trips.

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:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

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 submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

- Less than 15 minutes: No penalty
- From 15 minutes to 30 minutes: 20% penalty
- More than 30 minutes: 100% penalty

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

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- [UniSC Student Central](#)
- [UniSC Adelaide Student Central](#)