MONASH University

Unit Guide

ENG1001
Engineering design: Lighter, faster, stronger

Semester 2, 2017

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Unit handbook information

Synopsis

This unit develops a process for the analysis and design of static and dynamic structures and mechanisms using engineered materials. Through a multidisciplinary approach, the fundamentals of mechanical, civil and material engineering will be explained and the basic concepts of loads and motions are introduced.
Team-based projects will highlight the multidisciplinary nature of modern engineering. These concepts will be practised through hands-on projects carried out by teams. Communication and teamwork skills will be developed through teamwork tasks.

Mode of delivery

Clayton (Day)
Malaysia (Day)

Communications: (Clayton)

If you have a question, please first consult the course unit guide and also check if the issue was covered in class. Then the most efficient way to contact us is to ask us in person in one of the practical classes, during or after a workshop or at the weekly help desk sessions. We generally find that a "real-time" face-to-face discussion is more efficient than back-and-forth email. This also helps us to get know students better. However, there are some issues that are obviously best handled by email, in which case please contact us only at the following course email address and not through the addresses of the individual instructors:

Email: ENG1001.clayton-x@monash.edu

This email account will be monitored by all Lecturers and Lead Tutors, and will enable us to resolve your issues in a timely and consistent manner. If you send us an email outside of regular working hours, please be patient. While we can't guarantee a quick reply at those times, you'll likely find that we're often online as much as you are.

You will also periodically receive notices and announcements posted through Moodle related to this unit via email to your monash student email address. If you wish to respond to these you must also use the course email address shown above.

Email Communications: (Malaysia)
You may direct any questions or queries related to this unit to the unit lecturer at vivi.anggraini@monash.edu. You will also periodically receive notices and announcements related to this unit via email to your monash student email address.

Workload requirements

2 hours lectures, 3 hours of laboratory/workshop activities and 7 hours of private study per week.

Unit relationships

Prerequisites

None

Prohibitions

ENG1020, ENG1040, ENG1050

Co-requisites

None

Chief Examiner(s)

Professor Julia Lamborn

Unit Coordinator(s)

Name: Dr Elizabeth Sironic
Email: Lizi.Sironic@monash.edu

Clayton/Malaysia staff contact details

Clayton campus	
Campus Coordinator	Name: Dr Elizabeth Sironic Email: Lizi.Sironic@monash.edu Building: 60, Room: 107 Consultation hours: Please email
Lecturer(s)	Name: Dr Elizabeth Sironic Email: Lizi.Sironic@monash.edu Building: 60, Room: 107 Consultation hours: See Email Communications above Name: Assoc Professor John Forsythe (Materials) Email: John.Forsythe@monash.edu Building: 82, Room: 226 Consultation hours: See Email Communications above Name: Dr Thomas Simko (Mechanical) Email: ENG1001.clayton-x@monash.edu Building: 31, Room: 119 Consultation hours: Please speak to, to organise a time. ph: 03 990 20171

Malaysia campus	
Campus Coordinator	Name: Dr Vivi Anggraini Email: vivi.anggraini@monash.edu Building: 5, Room: 5-4-70 Consultation hours: See time table outside Room 5-4-70
Lecturer(s)	Name: Dr Vivi Anggraini (Civil) Email: vivi.anggraini@monash.edu Building: 5, Room: 5-4-70 Consultation hours: See time table outside Room 5-4-70 Name: Dr Darwin Gouwanda (Mechanical) Email: darwin.gouwanda@monash.edu Building: 5, Room: 5-5-21 Consultation hours: See time table outside Room 5-5-21 Name: Dr Pooria Pasbakhsh (Materials) Email: pooria.pasbakhsh@monash.edu Building: 5, Room: 5-4-36 Consultation hours: See time table outside Room 5-4-36

Demonstrator(s)

Malaysia Campus:
Lim Pooi Mee
lim.pooi.mee@monash.edu

Clayton Campus:

Too many to list

Section A: For Clayton students

Academic Overview

Engineers Australia Stage 1 competencies

The Engineers Australia Policy on Accreditation of Professional Engineering Programs requires that all programs ensure that their engineering graduates develop to a substantial degree the stage 1 competencies. Listed below are the activities in this unit that will help you to achieve these competencies.

Note: that not all stage 1 competencies are relevant to each unit.

Element of competency	Indicators of attainment	Learning outcomes
1 Knowledge and skill base		
1.1 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.	**a)** 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.	1,2,3,4,5,6,7,8
1.2 Develops and fluently applies relevant investigation analysis, interpretation, assessment, characterisation, prediction, evaluation, modelling, decision making, measurement, evaluation, knowledge management and communication tools and techniques pertinent to the engineering discipline.	**a)** Develops and fluently applies relevant investigation analysis, interpretation, assessment, characterisation, prediction, evaluation, modelling, decision making, measurement, evaluation, knowledge management and communication tools and techniques pertinent to the engineering discipline.	1,2,3,4,5,6,7,8
1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline.	**a)** Proficiently applies advanced technical knowledge and skills in at least one specialist practice domain of the engineering discipline.	1,2,3,4,5,6,7,8
2. Engineering application ability		
2.4 Application of systematic approaches to the conduct and management of engineering projects.	**a)** Contributes to and/or manages complex engineering project activity, as a member and/or as the leader of an engineering team.	9
3. Professional and personal attributes		

3.2 Effective oral and written communication in professional and lay domains.	**a)** Is proficient in listening, speaking, reading and writing English	1,2,3,4,5,6,7,8,9
	b) Prepares high quality engineering documents such as progress and project reports, reports of investigations and feasibility studies, proposals, specifications, design records, drawings, technical descriptions and presentations pertinent to the engineering discipline.	9
3.3 Creative, innovative and pro-active demeanour.	**a)** 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.	1,2,3,4,5,6,7,8,9
3.5 Orderly management of self, and professional conduct.	**d)** Manages time and processes effectively, prioritises competing demands to achieve personal,career and organisational goals and objectives.	9
3.6 Effective team membership and team leadership.	**a)** Understands the fundamentals of team dynamics and leadership.	9
	b) Functions as an effective member or leader of diverse engineering teams, including those with multi-level, multi-disciplinary and multi-cultural dimensions.	9
	c) Earns the trust and confidence of colleagues through competent and timely completion of tasks.	9
	d) Recognises the value of alternative and diverse viewpoints, scholarly advice and the importance of professional networking.	9
	e) Confidently pursues and discerns expert assistance and professional advice.	9
	f) Takes initiative and fulfils the leadership role whilst respecting the agreed roles of others.	9

Teaching and learning method

In this unit, formal contact hours consist of workshop/lectures and practice classes. A “flipped classroom” approach is adopted, whereby short videos and online quizzes **must** be watched and

completed prior to the relevant lecture/workshop.

Learning in the unit is through multiple methods consisting of:

- pre-workshop videos and/or readings with an online quiz assessment
- Workshops with associated worksheets which are assessed.
- practical class activities which will develop key skills and knowledge required for the major projects, and develop teamwork skills.
- completing private study questions throughout the semester

Lecture/Workshop class allocation

Each student must enrol in and attend one of the two available 2-hour Workshop classes each and every week, using Allocate Plus. These workshop classes will be taught in a Lecture theatre, and will be a mix of presentations from the lecturer and active learning. Due to class size limitations students MUST attend their allocated workshop, and cannot opt to attend whichever stream they prefer. Each workshop stream will be exactly the same and taught by the same staff. Where possible we will select project teams to try and ensure that team members are scheduled for the same workshop stream.

Practical class allocation

Each student must enrol in and attend one of the four available 3-hour practice classes scheduled each week using Allocate Plus. These commence in Week 1 and run every week. Project teams will be selected by the instructors within each of the different practical classes. Students who do not enrol in a particular practice class, or do so late may be moved to a different class to balance project team numbers. Once a particular session is full, no more students will be accepted, unless MUTTS evidence is provided, clearly showing your clash, and evidence of attempts to rescheduling your other class. In these cases we will work to try and resolve your issues but offer no guarantees. Sadly we cannot reschedule you based on work or other commitments outside of university unless special consideration is awarded.

Learning outcomes

At the successful completion of this unit you will be able to:

1. Identify different structural systems (e.g. beams and trusses) and translate physical structures into appropriate models for analysis and design.
2. Determine forces acting in simple beams and truss systems using free body diagrams and rigid body equilibrium.
3. Determine internal axial and bending stresses in beams, struts and/or trusses structures and select appropriately sized members.
4. Determine the motion of particles and rigid bodies using fundamental concepts of kinematics and kinetics.
5. Determine the motion of particles and rigid bodies using energy methods.
6. Describe the key properties of structural materials for specific applications.
7. Describe, determine and summarise the importance of the microstructure of materials and analyse the microstructure-property relationship.
8. Describe how different material processing routes directly influence material structural properties.

9. Function as part of a team and communicate effectively with team members to prepare and present engineering prototypes and oral and written reports in a professional engineering format.

Your feedback to us

One of the formal ways students have to provide feedback on teaching and their learning experience is through the Student Evaluation of Teaching and Units (SETU) survey. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied with and areas for improvement.

Previous student evaluations of this unit

In response to previous SETU results of this unit, the following changes have been made:

- Help desks will be run on two separate days to allow more flexibility for students to attend.
- Fewer marks deducted from Worksheets for minor errors.

Student feedback has highlighted the following strength(s) in this unit:

- Best aspect was the inclusion of the hands on experience of building and constructing stuff
- Weekly worksheets were a good way to keep up to date
- Online videos are a much better way to teach than lectures

If you wish to view how previous students rated this unit, please go to:
https://unitevaluations.connect.monash.edu.au/unitevaluations/index.jsp

Unit schedule - Clayton campus

Week/ date	Online Video Topics	Online Quiz	Expert lead Workshop (Lecture)	Practical Classes (Worksheet questions may also be asked in these sessions)
0 **17 July**	• Introduction to structures and Loads	yes (%)		
1 **24 July**	• Equilibrium & reactions	yes (%)	Intro to subject and project 1	Teamwork icebreaker activity (%) Receiving Project 1 kits

			Worksheet on loads (%)	Lab 1 (%)
2 **31 July**	• What is a truss & how to analyse one	yes (%)	Internal pins Worksheet on reactions (%)	Lab 2 (%) Project work
3 **7 August**	• Axial Member design • Material Properties	yes (%)	Worked examples on truss Worksheet on Trusses (%)	Lab 3 (%) Teamwork activity (%) Project work
4 **14 August**	• Materials Properties continued • Materials Selection	yes (%)	Worksheet on Material Properties and Buckling (%)	Project work Tensile tests to run concurrently (%)
5 **21 August**	• Introduction to beams • Shear force and bending moments in beams	yes (%)	Worksheet on Materials selection (%) Introduction to Materials selection assignment (4%)	Project work – design exercise Tensile tests to run concurrently (%)
6 **28 August**	• Second moment of area • Bending Stress • Beam Deflection	yes (%)	Worksheet on SFD & BMD (%)	Project 1 SPAGHETTI BRIDGE TESTING and report submission (17%) Return of Project 1 Kits
7 **4 Sept**	• Kinematics	yes (%)	Worksheet on Bending stress, second moment of area and deflection (%)	Receiving Project 2 kits Lab 4 (%) Teamwork activity (%) Project work
8 **11 Sept**	• Kinetics	yes (%)	Worksheet on Kinematics (%)	Lab 5 (%) Teamwork activity (%) Project work

				Materials Assignment submission (8%) due 3pm Friday
9 **18 Sept**	• Rotational Motion	yes (%)	Worksheet on Kinetics (%)	Lab 6 (%) Project work Teamwork activity (%)
Mid semester break 25 -29 Sept				
10 **2 Oct**	• Rotational Motions continued	yes (%)	Worksheet on Rotational Motion (%)	Lab 7 (%) Project work
11 **9 Oct**	• Energy Methods	yes (%)	Worksheet on Rotational Motion (%)	Project 2 TREBUCHET TESTING and lab and teamwork activity submission (11%)
12 **16 Oct**			Worksheet on Energy Methods (%)	Project 2 Poster presentation (6%) Return of Project 2 Kits

NOTE:

1. % indicates an assessable task: Online quizzes total worth 6%, Worksheets total worth 12%

2. Tensile tests scheduled to run over two weeks, to be done in either week 4 or 5.

3. Labs and Teamwork activities assessment form part of the Project marks.

Assessment requirements

Assessment summary

Continuous assessment: 60%
Examination (3 hours): 40%
Students are required to achieve at least 45% in the total continuous assessment component and at least 45% in the final examination component and an overall mark of 50% to achieve a pass grade in the unit. Students failing to achieve this requirement will be given a maximum of 45% in the unit.

Assessment task	Value	Due date
Weekly Pre-Lecture Online Quizzes	6%	Each weekly quiz will close 10 minutes before the start of your scheduled Workshop time
Lecture/Workshop Participation	12%	Worksheets are required to be handed in at the beginning of students' practice class the following week
Project 1: Spaghetti Bridge	17%	Week 6 in practice class
Project 2: Trebuchet	17%	Refer project brief for details
Materials Assignment	8%	week 8 - refer assignment brief for exact date
SPECIAL ASSESSMENT FOR REPEATING STUDENTS (instead of 2 projects and materials assignment)	42%	Week 6 & 12 -to be confirmed
Examination	40%	To be advised

Hurdle requirements

To pass the unit, students are required to achieve an overall mark of 50% and satisfy the following hurdle requirements:

- at least 45% in the **total** continuous assessment component (sum of Projects, quizzes, worksheets) **AND**
- at least 45% in the final examination component

Students failing to achieve these hurdle requirements will be given a maximum of 45% in the unit. The unit coordinator reserves the right to moderate the assessments. This process will occur at the end of the semester.

Assessment tasks

Assessment title: Weekly Pre-Lecture Online Quizzes
Mode of delivery: Consult Moodle for details
Details of task: Students must read selected text and watch online videos before coming to weekly lectures. They must then complete online quizzes (12 in total) in Moodle **before** the workshops /lectures.

These quizzes will close each week 10 minutes before allocated lecture/workshop sessions.
Release dates (where applicable): Consult Moodle for details
Word limit (where applicable): N/A
Due date: Each weekly quiz will close 10 minutes before the start of your scheduled Workshop time
Value: 6%

Presentation requirements: N/A
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Students attain marks for correct answers
Additional remarks: N/A

Assessment title: Lecture/Workshop Participation
Mode of delivery: Consult Moodle for details
Details of task: Students will be handed a printed worksheet each week (12 in total) on entering the workshop which will be worked on during the class and if required completed by students in their own time. Time will be also be allocated in the weekly practical classes to seek help with the worksheets, before they are submitted. Help can also be sought at the weekly help desk sessions.
Release dates (where applicable): Consult Moodle for details
Word limit (where applicable): N/A
Due date: Worksheets are required to be handed in at the beginning of students' practice class the following week
Value: 12%
Presentation requirements: Worksheets to be handed in at the beginning of the practice classes the following week. They are each awarded a mark out of 1.

To obtain a mark of 1 worksheet workings must be 100% correct.

If submitted with no more work than what was done in the Workshop, 0.5 will be awarded.

Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Worksheets will be marked either as 1: completely correct 0.75: one minor error, 0.25 or 0.5: significant errors and/or incomplete
Additional remarks: None

Assessment title: Project 1: Spaghetti Bridge
Mode of delivery: Consult Moodle for details
Details of task: Students must complete labs, teamwork activities, build a spaghetti bridge and submit a written report on the day of testing, per the requirements of Project 1.
Release dates (where applicable): Consult Moodle for details
Word limit (where applicable): Consult Moodle for details
Due date: Week 6 in practice class
Value: 17%
Presentation requirements: Consult project brief
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): CATME peer assessment*
Criteria for marking: Please refer to the detailed Project description for more details.
Additional remarks: None

Assessment title: Project 2: Trebuchet
Mode of delivery: Consult Moodle for details
Details of task: Students must complete labs, teamwork activities, and build a model trebuchet for this project. The accuracy of the trebuchet will be tested at the end of semester and the team's understanding and testing of their design will be assessed. Please refer to the detailed Project

description for more details.
Release dates (where applicable): Consult Moodle for details
Word limit (where applicable): N/A
Due date: Refer project brief for details
Value: 17%
Presentation requirements: Consult project brief
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): CATME peer assessment*
Criteria for marking: Please refer to the detailed Project description for more details.
Additional remarks:

***CATME Online Peer Assessment:**
The CATME online peer assessment tool will be used to allow team members to anonymously rate the contributions made to each team project by both themselves and their team mates. Students will be required to complete a calibration process which demonstrates how the system should be used. At the conclusion of each major project they will then rate themselves and their teammates on the basis of five key criteria, and using a behaviourally anchored scale. The individual ratings you give each person are not viewable or shared with other team members, but will be reviewed by the teaching staff. You will be asked to justify (via comments) why you rated particular people high or low. ***You are NOT allowed to simply rate everyone the same, or have your team all give each member the same ratings. This will incur a automatic -10% penalty if you do so.***

Based on these ratings a Peer Assessment Factor will be calculated by the system for each team member, and then reviewed and potentially moderated by the teaching staff in light of the written comments. This factor is a number potentially between 0 and 1.1, but for the vast majority of student in well functioning teams, it is usually between 0.9 and 1.05. This factor will be returned confidentially to students via Moodle Gradebook, and will be used to generate an individual mark for each student's project work, based on their team's mark for each of the major team projects.

Upon release of the results, CATME will send each student a link which will allow them to see, for each of the five questions an arrow indicating:

1. how they scored themselves;

2. the AVERAGE of what the team scored them personally;

3. the AVERAGE of what the team scored all team members

CATME will also provide detailed suggestions for improvement based on where your results fall relative to the rest of the team. For more information please visit this link: http://info.catme.org/

Assessment title: Materials Assignment
Mode of delivery: Consult Moodle for details
Details of task: The Materials team assignment comprises two parts: processing and interpreting the results of data obtained from a tensile test undertaken in one of the practical classes in weeks 4 or 5 and carrying out a material selection design.
Release dates (where applicable): Consult Moodle for details
Word limit (where applicable): N/A

Due date: week 8 - refer assignment brief for exact date
Value: 8%
Presentation requirements: Consult assignment brief for details
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Report rubrics will be specified in the assignment brief
Additional remarks: None

Assessment title: SPECIAL ASSESSMENT FOR REPEATING STUDENTS (instead of 2 projects and materials assignment)
Mode of delivery: On campus
Details of task: The continuous assessment grades obtained for the two major projects and Materials assignment undertaken in ENG1001, totalling 42% of the continuous assessment mark, **cannot be carried forward in subsequent enrolment and assessment**.

Students in the following categories will be required to repeat all project and practice class work:

- Students that received less than an average of 0.8 for their CATME peer assessment factors in their previous semester, indicating they did not contribute equally to the projects,
- Students that withdrew from the unit before its completion

Students that completed the unit previously with average CATME peer assessment factors greater than or equal to 0.8, and only failed the exam hurdle, may opt for the following alternative assessment, in place of the projects and materials assignment:

- 2 x 1.5 hour closed book tests, each worth 21% of the continuous assessment mark, one running mid semester and the other at the end of semester.
- The first test will cover the engineering disciplines of Civil and Materials Engineering, and the second test Mechanical Engineering, both tests covering material presented prior to the test times.
- You will **not** be allocated to teams and do **not** need to attend weekly practice classes. You may, however, come and seek extra help with your test preparation.
- To confirm the test marks will take the place of previously obtained project and assignment marks.

Release dates (where applicable): N/A
Word limit (where applicable): N/A
Due date: Week 6 & 12 -to be confirmed
Value: 42%
Presentation requirements: N/A
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Students will undertake closed book tests and receive marks for correct workings and answers
Additional remarks:
N/A

Examination(s)

Exam title: Examination
Weighting: 40%
Length: 3 hours
Type (Open/closed book): closed book
Hurdle requirements (where applicable): To pass the unit, students are required to achieve an overall mark of 50% and satisfy the following hurdle requirements:

- at least 45% in the **total** continuous assessment component (sum of Projects, quizzes, worksheets) **AND**
- at least 45% in the final examination component

Students failing to achieve these hurdle requirements will be given a maximum of 45% in the unit.

The unit coordinator reserves the right to moderate the assessments. This process will occur at the end of the semester.

Electronic devices allowed: Faculty Approved Calculators are allowed
Remarks (where applicable): N/A

Calculators
A list of the Faculty of Engineering approved calculators and the process for obtaining a sticker is available online at:
http://www.eng.monash.edu.au/current-students/calculators.html

IMPORTANT: Only these listed calculators with the **authorised Monash University-Science or Monash University-Engineering STICKER** will be allowed into the examination by the invigilators.

A faculty approved calculator is permitted (meaning only scientific calculators that are not programmable and detailed in the list above will be permitted in the examination. These calculators must be checked by the faculty and have either a Faculty of Engineering or a Faculty of Science approved sticker).

Section B: For Malaysia students

Academic Overview

Program Education Objectives
The School of engineering discipline expects to produce graduates, who are:
1. competent in School of engineering
2. responsible and effective global citizens
3. leaders in their chosen profession or society at large.

Program Outcomes
The School of engineering discipline has developed a set of Program Outcomes (POs) for all of its graduates based on the competencies required by the Malaysian Engineering Accreditation Council.

Program Outcomes (POs)	Activities used in this unit to develop POs, achievement of Bloom's domains and complex problem solving
PO1 **School of Engineering Knowledge:** Apply knowledge of mathematics, natural science, engineering fundamentals and specialisation in School of engineering to the solution of complex engineering problems	Cognitive: Pre-lecture reading, lectures /workshops, practicals and e-Pub Technical content is taught from civil (structural), materials and mechanical engineering
PO2 **Problem Analysis:** Identify, formulate, survey research literature and analyse complex School of engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences	Cognitive: Two major projects in the unit
PO3 **Design/Development of Solutions:** Design solutions for complex School of engineering problems and design systems, components or processes that meet specified needs.	Cognitive: Project 1 require students to design and build a model truss bridge. Psychomotor: Project 2 requires students to design and build a projectile launching system (i.e. a trebuchet).
PO4 **Research-based Investigation:** Conduct investigations of complex School of engineering problems using research-based knowledge and research methods including design of experiments, (analysis and interpretation of data, and synthesis of information to provide valid conclusions.	Cognitive:
PO5 **Modern Tool Usage:** Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex School of engineering problems, with an understanding of the limitations	Cognitive: Psychomotor:
PO6 **Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice	Affective:

Program Outcomes (POs)	Activities used in this unit to develop POs, achievement of Bloom's domains and complex problem solving
and solutions to complex School of engineering problems	
PO7 **Environment and Sustainability:** Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex School of engineering problems in environmental contexts.	Cognitive: Affective:
PO8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.	Affective:
PO9 **Communication:** Communicate effectively on complex School of engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions	Affective: Team work and written reports on projects
PO10 **Individual and Team work:** Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings	Affective: Students work in teams of four across two projects and two assignments, supported by best practice education in teamwork theory and peer assessment.
PO11 **Lifelong Learning:** Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change	Affective:
PO12 **Project Management and Finance:** Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to manage projects	Cognitive: Affective:

Teaching and learning method

In this unit, formal contact hours consist of workshop/lectures and practice classes. A "flipped classroom" approach is adopted, whereby short videos and online quizzes **must** be watched and completed prior to the relevant lecture/workshop.

Learning in the unit is through multiple methods consisting of:

- pre-workshop videos and/or readings with an online quiz assessment
- Workshops with associated worksheets which are assessed.

- practical class activities which will develop key skills and knowledge required for the major projects, and develop teamwork skills.
- completing private study questions throughout the semester

Lecture/Workshop class allocation
Each student must enroll in and attend the 3-hour Workshop class each and every week on Monday 9am - 12pm, using Allocate Plus. These workshop classes will be taught in a Lecture Theatre (5001), and will be a mix of presentations from the lecturer and active learning.

Practical class allocation
Each student must enroll in and attend one of the four available 3-hour practice classes scheduled each week using Allocate Plus. These commence in Week 1 and run every week. Project teamswill be selected by the instructors within each of the different practical classes. Students who do not enroll in a particular practice class, or do so late may be moved to a different class to balance project team numbers. Once a particular session is full, no more students will be accepted, unless Monash University Timetable System (MUTTS) evidence is provided, clearly showing your clash, and evidence of attempts to reschedule your other class. In these cases, we will work to try and resolve your issues but offer no guarantees. Sadly, we cannot reschedule you based on work orother commitments outside of university unless special consideration is awarded.

Email Communications
You may direct any questions or queries related to this unit lecturer at vivi.anggraini@monash.edu, darwin.gouwanda@monash.edu and pooria.pasbakhsh@monash.edu. Aside from in class announcements, you will also be periodically receiving notices and announcements related to this unit via email to your monash student email address.

Online Content:
Read selected unit material and watch the short videos which are both downloadable from Moodle. Videos are also accessible via YouTube. These materials will be used to communicate the fundamental information and background knowledge required for this subject. Moodle quizzes will be used to check your basic comprehension of this material, prior to the lecture/workshop.

Lecture/Workshops:
The scheduled lecture times will generally be used to conduct what we have termed ‘workshops’. These can be thought of as interactive and academic guided tutorials. Students will work on problems presented during the class. Students will be provided with a hand-out which we call a ‘worksheet’, which features the information you require and room to complete each question. The lecturer and teaching assistants will periodically roam around the theatre to provide assistance during the working times. Students will be instructed to either complete activities on their own in silence or by working with the students immediately around them. Examples of student work will be discussed and reviewed, and students may be asked to comment or vote on questions etc. Some of the worksheet activities may have to be completed outside class of as homework tasks. It is the responsibility of each student to complete these worksheets and have them checked off and receive feedback from a tutor at the Prac class the following week ONLY. Worksheets more than 2

weeks old will no longer be able to be checked off. Completed worksheets must show your name and will get a stamp and tutor initial on the front page. Marks are NOT recorded every week for worksheet completion. Students must keep all of their completed worksheets at least until Week12 (a two-ring binder is highly recommended), at which point they will be counted by the tutors in the last Prac session and a single mark recorded based on the number of worksheets completed (and retained) by each student. Digital copies of the Worksheets will be made available on Moodle following the completion of the first stream of each workshop. Students which are sick or cannot attend any given Workshop will be required to download, print out and complete the relevant worksheet that they miss to obtain these marks. Extensions will only be given if a medical certificate is provided (digital copy of the medical certificate is acceptable).

Practicals:

Practicals will be utilised primarily for hands on labs/project work, team work and soft skills activities and group tensile tests. Nearly all Practical activities must be completed with your Project team, they cannot be done individually or with other random students. The practical activities must be completed and stamped by tutors at the conclusion of your prac time, however
they will generally be submitted (and marked) as a part of the two major projects. It is therefore critical that students and teams keep the hardcopy evidence of this work, and we also recommend that teams take a clear digital photo which can be provided in the case the original is lost or damaged. Worksheets questions and the worksheet summary page will be checked off and stamped by designated tutors (only) during these classes and some individual help with private study questions may be sought. The tutors may quiz you on the questions to check your understanding, or insist that you revise or have another attempt at certain questions before a sheet is stamped off. It is essential that students retain all their worksheets until the end of semester for final checking and allocation of your worksheet marks. We also advise students to keep photographic evidence of all
their stamped worksheets.

PASS sessions:

PASS sessions will run weekly starting from Week 2. Students can attend this session and receive assistance from senior undergraduate students as part of your private study. Private study questions can also be discussed. More information is available at http://www.monash.edu.au /students/pass-program/. Time and venues would be announced in Week 1 of the semester.

In a typical week, students are expected to:

- Read selected unit materials and watch online videos **prior to attending lecture/workshop classes** . This will be assessed in a weekly **pre-lecture online quiz** in Moodle.
- Attend lectures/workshops that focus on the application of the weekly discipline specific topics and examples. Participation at these Workshops will be assessed by completion of the Worksheets, which will be checked off weekly in the practical classes.
- Perform self-study to work their way through the private study problems. Solutions to these problems will be posted at the end of each week.

Participate in practical classes, which will include a mix of activities that teach
- teamwork communication skills.
- apply discipline specific knowledge gained in class and the online material in hands-on experiments.
- Work in teams on completing the two major projects for the unit.

Learning outcomes

At the successful completion of this unit you will be able to:

1. Identify different structural systems (e.g. beams and trusses) and translate physical structures into appropriate models for analysis and design.
2. Determine forces acting in simple beams and truss systems using free body diagrams and rigid body equilibrium.
3. Determine internal axial and bending stresses in beams, struts and/or trusses structures and select appropriately sized members.
4. Determine the motion of particles and rigid bodies using fundamental concepts of kinematics and kinetics.
5. Determine the motion of particles and rigid bodies using energy methods.
6. Describe the key properties of structural materials for specific applications.
7. Describe, determine and summarise the importance of the microstructure of materials and analyse the microstructure-property relationship.
8. Describe how different material processing routes directly influence material structural properties.
9. Function as part of a team and communicate effectively with team members to prepare and present engineering prototypes and oral and written reports in a professional engineering format.

OBE requirements to learning outcomes (LOs)

Learning Outcomes (LOs) for Outcome Based Education (OBE) requirements	*Handbook Learning Outcomes (LOs)*
LO1 - Apply engineering fundamentals to solve static structural problems which includes load estimation, finding reaction forces and supports, determining member forces in two-dimensional trusses, predicting linear buckling, estimation shear force and bending moments in beams and calculating bending stresses and deflection in beams.	LO1a - describe, with examples, the multi-disciplinary nature of modern engineering problems LO1b - describe, with examples, the role of engineers in the design of structures and mechanisms in modern society
	LO1c - identify different structural forms (including beams and trusses) and translate physical

	structures into appropriate models for analysis and design
LO2 - Characterize mechanical properties of materials using tensile test data, knowledge on how work hardening and annealing can change these properties and perform materials selection for structural members.	LO2a - describe the key properties of structural materials for specific applications
	LO2b - define, measure and summarize the importance of the microstructure of materials and analyse the microstructure-property relationship
	LO2c - explain how different material processing routes directly influence material structural properties
LO3 - Apply kinematics, kinetic and energy approaches and the appropriate particle or solid body models to predict the behavior of dynamic systems experiencing linear and rotational motion.	LO3a - apply fundamental concepts of kinematics and kinetics to analyse motion of particles and rigid bodies
	LO3b - apply energy methods to analyse the motion of particles and rigid bodies
LO4 - Trouble shoot and find solutions to problems encountered in the process of designing and building static and dynamic systems.	LO4a- develop and apply problem-solving techniques that demonstrate knowledge and application of the technical content considered in the unit
LO5 - Design and build static and dynamic systems that meet a required set of specifications while optimizing performance in a competitive environment.	LO5a - recognize and apply systematic principles of engineering design
LO6 - Communicate the design process, analysis and experimental testing data in a professional manner through written report and oral presentation.	LO6a - prepare and present oral and written reports in a professional engineering format.
LO7 - Work effectively in teams on design and build projects.	LO7a - complete tasks as part of a team and communicate effectively with team members

Relationship between unit learning outcomes and program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
LO1	√											
LO2	√											
LO3	√											
LO4		√										
LO5			√									
LO6									√			
LO7										√		

Your feedback to us

One of the formal ways students have to provide feedback on teaching and their learning experience is through the Student Evaluation of Teaching and Units (SETU) survey. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied with and areas for improvement.

Previous student evaluations of this unit

In response to previous SETU results of this unit, the following changes have been made:

- Help desks will be run on two separate days to allow more flexibility for students to attend.
- Time will be made in the practice classes for students to ask for assistance with their weekly Worksheets
- Worksheets will be collected at the beginning of the practical classes on a weekly basis and returned the following week

Student feedback has highlighted the following strength(s) in this unit:

- Best aspect was the inclusion of the hands on experience of building and constructing stuff
- Weekly worksheets were a good way to keep up to date
- Online videos are a much better way to teach than lectures

If you wish to view how previous students rated this unit, please go to:
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Unit schedule - Malaysia campus

Week/ date	Online Video Topics	Online Quiz	Expert lead Workshop (Lecture)	Practical class
0 **17 July**	• Introduction to structures and Loads	yes (%)		
1 **24 July**	• Equilibrium & reactions	yes (%)	Intro to subject and project 1 Worksheet on loads (%)	Teamwork icebreaker activity (%) Receiving Project 1 materials 1 Lab 1: Geometrical properties of spahetti (%)
2 **31 July**	• What is a truss & how to analyse one	yes (%)	Internal pins Worksheet on reactions (%)	Teamwork activity (%) Lab 2: Spaghetti modulus, etc (%) Project work
3 **7 August**	• Axial Member design • Material Properties	yes (%)	Worked examples on truss Worksheet on Trusses (%)	Lab 3:Spaghetti fracture stress, etc (%) Project work
4 **14 August**	• Materials Properties continued • Materials Selection	yes (%)	Worksheet on Material Properties and Buckling (%)	Project work Tensile tests to run concurrently (%)
5 **21 August**	• Introduction to beams • Shear force and bending moments in beams	yes (%)	Worksheet on Materials selection (%) Introduction to Materials selection assignment (4%)	Project work – design exercise
6 **28 August**	• Second moment of area • Bending Stress • Beam Deflection	yes (%)	Worksheet on SFD & BMD (%)	Project 1 SPAGHETTI BRIDGE TESTING and report submission (17%) Return of Project 1 Materials
7 **4 Sept**	• Kinematics	yes (%)	Worksheet on Bending stress, second moment of area and deflection (%)	Receiving Project 2 Materials Lab 4 (%) Teamwork activity (%) Project work
8 **11 Sept**	• Kinetics	yes (%)	Worksheet on Kinematics (%)	Lab 5 (%) Teamwork activity (%)

				Project work Material assignment submission (8%) due to 5pm Friday
9 **18 Sept**	• Rotational Motion	yes (%)	Worksheet on Kinetics (%)	Lab 6 (%) Project work Teamwork activity (%)
Mid semester break 25 – 29 Sept				
10 **2 Oct**	• Rotational Motions continued	yes (%)	Worksheet on Rotational Motion (%)	Lab 7 (%) Project work
11 **9 Oct**	• Energy Methods	yes (%)	Worksheet on Rotational Motion (%)	Project 2 TREBUCHET TESTING and lab and teamwork activity submission (11%)
12 **16 Oct**			Worksheet on Energy Methods (%)	Project 2 Poster presentation (6%) Return of Project 2 Materials

NOTE:

1. % indicates an assessable task: Online quizzes total worth 6%, Worksheets total worth 12%,
2. Tensile tests scheduled to run over two weeks, to be done in either week 4 or 5.
3. Labs and Teamwork activities assessment form part of the Project marks.
4. Help with worksheets can also requested in the weekly practical classes.

Assessment Summary

Continuous assessment: 60%
Examination (3 hours): 40%
Students are required to achieve at least 45% in the total continuous assessment component and at least 45% in the final examination component and an overall mark of 50% to achieve a pass grade in the unit. Students failing to achieve this requirement will be given a maximum of 45% in the unit.

Assessment task	Value	Due date
Project 1: Spaghetti Bridge (includes labs and soft skills)	17%	refer to unit schedule
Project 2: Trebuchet (includes labs and soft skills)	17%	refer schedule
Material Assignment	8%	Tensile Tests to run in Practicals during Week 4. Report **due on Week 8**.

Assessment task	Value	Due date
Weekly worksheets	12% (est. 12 x 1% each)	Worksheet must be completed and stamped off in the following week's Practical Session. Late submission will not be stamped off unless arrangement has been made earlier.
Weekly Pre-Lecture Online Quizzes	6% (est. 12 x 0.5% each)	Each weekly quiz will close 10 minutes before the start of your scheduled Workshop time.
SPECIAL ASSESSMENT FOR REPEATING STUDENTS (instead of 2 projects and materials assignment)	42%	Approx week 6 & 12 -to be confirmed
Examination	40%	To be advised

Hurdle requirements

To pass the unit, students are required to achieve an overall mark of 50% and satisfy the following hurdle requirements:

- at least 45% in the **total** continuous assessment component (sum of Projects, quizzes, worksheets) **AND**
- at least 45% in the final examination component

Students failing to achieve these hurdle requirements will be given a maximum of 45% in the unit.

The unit coordinator reserves the right to moderate the assessments. This process will occur at the end of the semester.

Bloom's Taxonomy:
Three domains of educational activities have been identified under the general taxonomy known as Bloom's.

- **Cognitive**: mental skills (*Head*)
- **Affective**: growth in feelings or emotional areas (*Heart*)
- **Psychomotor**: manual or physical skills (*Hand*)

The *cognitive* domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills.

The *affective* domain includes the attitudes with which someone deals with things emotionally, such as feelings, values, appreciation, enthusiasms and motivations.

The *psychomotor* domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.

Key for the LO-assessment relationship table above:

Cognitive

C1	C2	C3	C4	C5	C6
Knowledge: Remembers previously learned material	**Comprehension:** Grasps the meaning of material (lowest level of understanding)	**Application:** Uses learning in new and concrete situations (higher level of understanding)	**Analysis:** Understands both the content and structure of material	**Synthesis:** Formulates new structures from existing knowledge and skills	**Evaluation:** Judges the value of material for a given purpose

Psychomotor

P1	P2	P3	P4	P5	P6	P7
Perception: Senses cues that guide motor activity	**Set:** Is mentally, emotionally and physically ready to act	**Guided Response:** Imitates and practices skills, often in discrete steps	**Mechanism:** Performs acts with increasing efficiency, confidence and proficiency	**Complete Overt Response:** Performs automatically	**Adaption:** Adapts skill sets to meet a problem situation	**Organisation:** Creates new patterns for specific situations

Affective

A1	A2	A3	A4	A5
Receiving: Selectively attends to stimuli	**Responding:** Responds to stimuli	**Valuing:** Attaches value or worth to something	**Organisation:** Conceptualises the value and resolves conflict between it and other values	**Internalising:** Integrates the value into a value system that controls behaviour

Relationship between Assessments and OBE Learning Outcomes (LOs)

Assessment	Learning Outcomes								Open-ended Labs
	LO1	LO2	LO3	LO4	LO5	LO6	LO7		

1	Online quizes	C3	C3	C3						
2	Worksheets	C3	C3	C3						
3	Project 1	C3			C4	C6, P3	A2			
4	Project 2				C4	C6, P3	A2			
5	Tensile test		C3							
6	Final exam	C3	C3	C3						
7	Team work CATME									A2

Relationship between Assessments and Complex Problems /Activities

	Assessment	Complex Problems							Complex Activities				
		Depth of Knowledge	Range of Requirements	Depth of Analysis	Infrequent Issues	Extent of Codes	Stakeholder Involvement	Components or Sub-problems	Range of Resources	Level of Interactions	Innovation	Consequences to Society and Environment	Unfamiliarity
1	Online quiz	x		x									
2	Worksheet	x		x									
3	Project 1	x	x	x						x	x		
4	Project 2	x	x	x						x	x		
5	Tensile	x		x									
6	Final exam	x		x									
7	Team work CATME												

Assessment requirements

Assessment tasks

Assessment title: Weekly Pre-Lecture Online Quizzes
Mode of delivery: Online
Details of task: Students must read selected text and watch online videos before coming to weekly lectures. They must then complete online quizzes in Moodle **before** the workshops/lectures.These quizzes will close each week 10 minutes before allocated lecture/workshop sessions.
Release dates (where applicable): Weekly
Word limit (where applicable): NA
Due date: Each weekly quiz will close 10 minutes before the start of your scheduled Workshop time
Value: 6% (12 X 0.5%)
Presentation requirements: Multiple choice or short calculation questions
Hurdle requirements (where applicable): none
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Students attain marks for correct answers
Additional remarks: -

Assessment title: Lecture/Workshop Participation (Weekly Worksheet)
Mode of delivery: Worked on in lecture/workshop and completed in own time.
Details of task: Students will be handed a printed worksheet each week on entering the workshop which will be worked on during the class and if required completed by students in their own time.
Release dates (where applicable): Weekly
Word limit (where applicable): NA
Due date: Weekly
Value: 12% (12 X 1%)
Presentation requirements: Worksheets will be reviewed and checked off each week in the practical classes. At the end of semester, marks will be allocated based on a count of how many stamped worksheets each student has retained. These sheets must however be checked off and stamped each week.
Hurdle requirements (where applicable): none
Individual assessment in group tasks (where applicable): -
Criteria for marking: Worksheets will be typically be collected at the start of the practical classes, in the week following the workshop, and marked and returned a week later.
Additional remarks: -

Assessment title: Project 1: Spaghetti Bridge
Mode of delivery: -Project brief handed out in practice class
Details of task: Students must complete labs, teamwork activities, build a spaghetti bridge and submit a written report on the day of testing, per the requirements of Project 1.
Release dates (where applicable): NA
Word limit (where applicable): refer brief
Due date: Refer to schedule
Value: 17%
Presentation requirements: Refer to project brief
Hurdle requirements (where applicable): -
Individual assessment in group tasks (where applicable): CATME peer assessment*

Criteria for marking: Please refer to the detailed Project description for more details.
Additional remarks: -

Assessment title: Project 2: Trebuchet
Mode of delivery: Project brief handed out in practice class.
Details of task: Students must complete labs, teamwork activities, and build a model trebuchet for this project. The accuracy of the trebuchet will be tested at the end of semester and the team's understanding and testing of their design will be assessed. Please refer to the detailed Project description for more details.
Release dates (where applicable): NA
Word limit (where applicable): none
Due date: Refer to schedule
Value: 17%
Presentation requirements: Refer to project brief
Hurdle requirements (where applicable): -
Individual assessment in group tasks (where applicable): CATME peer assessment*

Criteria for marking: Please refer to the detailed Project description for more details.
Additional remarks: -

Assessment title: Materials Assignment
Mode of delivery: Project brief released after everyone has completed their tensile tests.
Details of task: Students will analyse tensile test data in the framework of a materials selection project. Tensile test will be run in Weeks 4.

Students will use CES software to undertake materials design and life cycle analysis tasks in Week 7.

Release dates (where applicable): -
Word limit (where applicable): -
Due date: Refer to schedule (Week 8)
Value: 8%
Presentation requirements: Refer to assignment brief
Hurdle requirements (where applicable): -
Individual assessment in group tasks (where applicable): the project is subject to moderation based on student feedback on project cover sheet
Criteria for marking: Report rubrics will be specified in the assignment brief
Additional remarks: none

Assessment title: SPECIAL ASSESSMENT FOR REPEATING STUDENTS
Mode of delivery: On-campus
Details of task: The continuous assessment grades obtained for the two major projects and Materials assignment undertaken in ENG1001, totalling 42% of the continuous assessment mark, **cannot be carried forward in subsequent enrolment and assessment**.

Students in the following categories will be required to repeat all project and practice class work:

- Students that received less than an average of 0.8 for their CATME peer assessment factors in their previous semester, indicating they did not contribute equally to the projects,
- Students that withdrew from the unit before its completion

Students that completed the unit previously with average CATME peer assessment factors greater than or equal to 0.8, and only failed the exam hurdle, may opt for the following alternative assessment, in place of the projects and materials assignment:

- 2 x 1.5 hour closed book tests, each worth 21% of the continuous assessment mark, one running mid semester and the other at the end of semester.
- Each test will be related to the engineering disciplines (Civil, Materials, and Mechanical) covered in the 5 weeks previous to the tests.
- You will **not** be allocated to teams and do **not** need to attend weekly practice classes. You may, however, come and seek extra help with your test preparation.
- To confirm the test marks will take the place of previously obtained project and assignment marks.

Release dates (where applicable): N/A
Word limit (where applicable): N/A
Due date: Approx week 6 & 12 -to be confirmed
Value: 42%
Presentation requirements: N/A
Hurdle requirements (where applicable): N/A
Individual assessment in group tasks (where applicable): N/A
Criteria for marking: Students will undertake closed book tests and receive marks for correct workings and answers
Additional remarks: N/A

Examination(s)

Exam title: Examination
Weighting: 40%
Length: 3 hours
Type (Open/closed book): Closed book
Hurdle requirements (where applicable): To pass the unit, students are required to achieve an overall mark of 50% and satisfy the following hurdle requirements:

- at least 45% in the **total** continuous assessment component (sum of Projects, quizzes, worksheets) **AND**
- at least 45% in the final examination component

Students failing to achieve these hurdle requirements will be given a maximum of 45% in the unit.

The unit coordinator reserves the right to moderate the assessments. This process will occur at the end of the semester.

CATME Online Peer Assessment:
The CATME online peer assessment tool will be used to allow team members to anonymously rate the contributions made to each team project by both themselves and their team mates. Students will be required to complete a calibration process which demonstrates how the system should be used. At the conclusion of each major project they will then rate themselves and their teammates on the basis of five key criteria, and using a behaviourally anchored scale. The

individual ratings you give each person are not viewable or shared with other team members, but will be reviewed by the teaching staff. You will be asked to justify (via comments) why you rated particular people high or low. ***You are NOT allowed to simply rate everyone the same, or have your team all give each member the same ratings. This will incur a automatic -10% penalty if you do so.***

Based on these ratings a Peer Assessment Factor will be calculated by the system for each team member, and then reviewed and potentially moderated by the teaching staff in light of the written comments. This factor is a number potentially between 0 and 1.1, but for the vast majority of student in well functioning teams, it is usually between 0.9 and 1.05. This factor will be returned confidentially to students via Moodle Gradebook, and will be used to generate an individual mark for each student's project work, based on their team's mark for each of the major team projects. Upon release of the results, CATME will send each student a link which will allow them to see, for each of the five questions an arrow indicating:
1.how they scored themselves;
2.the AVERAGE of what the team scored them personally;
3.the AVERAGE of what the team scored all team members
CATME will also provide detailed suggestions for improvement based on where your results fall relative to the rest of the team.
For more information please visit this link: http://info.catme.org/

Electronic devices allowed: Only Faculty of Engineering approved calculator
Remarks (where applicable): All communication devices must be shut down during examination

Calculators

A list of the Faculty of Engineering approved calculators and the process for obtaining a sticker is available online at:
http://www.eng.monash.edu.au/current-students/calculators.html

IMPORTANT: Only these listed calculators with the **authorised Monash University-Science or Monash University-Engineering STICKER** will be allowed into the examination by the invigilators.

A faculty approved calculator is permitted (meaning only scientific calculators that are not programmable and detailed in the list above will be permitted in the examination. These calculators must be checked by the faculty and have either a Faculty of Engineering or a Faculty of Science approved sticker).

Section C: All students

Extensions and penalties

he due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. Students are advised to NOT assume that granting of an extension is a matter of course.

If you need an extension for any of the assignments, you must submit a written request 48-hours *before* the due time and date, and attach supportive evidence such as medical certificate.

Returning assignments

Refer to details as stated in the Assessment tasks.

Plagiarism and collusion

Intentional plagiarism or collusion amounts to cheating under Part 7 of the Monash University (Council) Regulations.

Plagiarism: Plagiarism means taking and using another person's ideas or manner of expressing them and passing them off as one's own. For example, by failing to give appropriate acknowledgement. The material used can be from any source (staff, students or the internet, published and unpublished works).

Collusion: Collusion means unauthorised collaboration with another person on assessable written, oral or practical work and includes paying another person to complete all or part of the work. Where there are reasonable grounds for believing that intentional plagiarism or collusion has occurred, this will be reported to the Associate Dean (Education) or delegate,

Referencing requirements

All referencing should be in the **IEEE numbered notation**.

To build your skills in citing and referencing, and using different referencing styles, see the online tutorial Academic Integrity: Demystifying Citing and Referencing at http://www.lib.monash.edu.au/tutorials/citing/

Assignment submission

Hard Copy Submission:

Assignments must include a cover sheet. The coversheet is accessible via the Monash portal page located at http://my.monash.edu.au under the heading 'Learning and teaching tools'. Please keep a copy of tasks completed for your records.

Online Submission: If Electronic Submission has been approved for your unit, please submit your work via the Moodle site or other; as directed by your demonstator for this unit.
Please keep a copy of tasks completed for your records.

Feedback to you

This unit has been structured to make the learning outcomes clearer; to make the unit more stimulating; to improve resources and to improve the level of interaction and feedback. Feedback is always welcome at any time throughout the semester. Please use email to send it to the unit coordinator, or in person.

You may wish to use the open ended questions in the unit evaluation to provide written feedback on your experience of this and whether it has been helpful to you during this semester.

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. In this unit it will take the form of group feedback via practice classes, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions in class, as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance their/your learning.

Learning resources

Monash Library Unit Reading List (if applicable to the unit):
http://readinglists.lib.monash.edu/index.html

Required resources

Students generally must be able to complete the requirements of their course without the imposition of fees that are additional to the student contribution amount or tuition fees. However, students may be charged certain incidental fees or be expected to make certain purchases to support their study. For more information about this, go to Administrative Information for Higher Education Providers: Student Support, Chapter 21, Incidental Fees at: http://www.innovation.gov.au/HigherEducation/TertiaryEducation/ResourcesAndPublications/Pages/default.aspx

Each project team will be provided with a Project Kit for each of the major projects. Some of the items in these kits are considered ‘consumables’ and do not need to be returned at the conclusion of the project. Most parts however will need to be returned in good working condition, and these will be checked off by tutors. A cost will be incurred for any lost or damaged components. A list of replacement costs for each component will be provided with each kit. Project marks will be withheld from the whole team until such time as the cost of any lost or damaged components is

paid, or the parts are replaced. Teams are responsible for sharing or recouping these costs between members.

Technological requirements

Students must regularly check Moodle and their emails for announcements.

Students are expected to bring their own stationery (pen, pencil, eraser, ruler) for Workshops and practical classes. Personal laptops, tablets and smart phones are encouraged and may be useful for the workshops and practicals.

Student teams should arrange amongst themselve to bring at least 1 laptop to each practice class.

Additional unit costs

Teams should note that the purchase of some additional consumable materials will likely be required for the major projects. These costs are expected to be less than $50 in total per team, and should be evenly shared by team members.

Other information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at: http://www.policy.monash.edu/policy-bank/academic/education/index.html

Graduate Attributes Policy

http://www.monash.edu/policy-bank/academic/education/course-governance-and-design/course-design-policy

Student Charter

http://www.monash.edu/students/policies/student-charter.html

Student Services

The University provides many different kinds of services to help you gain the most from your studies. Contact your tutor if you need advice and see the range of services available at http://www.monash.edu/students.

Malaysia students go to: http://www.monash.edu.my/Student-services/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research.
Go to http://www.monash.edu/library or the library tab in http://my.monash.edu.au portal for more information.

For Malaysia students the Library and Learning Commons, Monash University Malaysia Campus, provides a range of services and resources that enable you to save time and be more effective in your learning and research.
Go to http://www.lib.monash.edu.my or the library tab in my.monash portal for more information.

Disability Support Services

Students who have a disability, ongoing medical or mental health condition are welcome to contact Disability Support Services.

Disability Support Services also support students who are carers of a person who is aged and frail or has a disability, medical condition or mental health condition.

Disability Advisers visit all Victorian campuses on a regular basis.

- Website: monash.edu/disability
- Telephone: 03 9905 5704 to book an appointment with an Adviser;
- Email: disabilitysupportservices@monash.edu
- Drop In: Level 1, Western Annexe, 21 Chancellors Walk (Campus Centre) Clayton Campus

At Malaysia campus, for information and referral, telephone: Student Adviser, Student Community Services at 03 55146018 or, drop in at Student Community Services Department, Level 2 Building 2, Monash University Malaysia Campus.