



**MECH4900
MECHANICS OF FRACTURE
AND FATIGUE**

Contents

1. Staff contact details	2
Contact details and consultation times for additional lecturers/demonstrators/lab staff	2
2. Course details	2
Credit Points	2
Contact hours.....	2
Summary of the course	3
Aims of the course	3
Student learning outcomes.....	3
3. Teaching strategies.....	3
4. Course schedule	4
5. Assessment	5
Assessment overview.....	5
Assignments	6
Presentation	6
Submission.....	6
Examinations	6
Calculators	6
Special consideration and supplementary assessment	7
6. Expected resources for students	7
7. Course evaluation and development	7
8. Academic honesty and plagiarism.....	8
9. Administrative matters.....	9
Appendix A: Engineers Australia (EA) Stage 1 Competencies for Professional Engineers ..	10

I. Staff contact d

Contact details and consultation times for additional lecturers/demonstrators/lab staff

Dr Kana Kanapathipillai
Room J17/408J
School of Mechanical and Manufacturing Engineering
Tel (02) 9385 4251
Fax (02) 9663 1222
Email s.kanapathipillai@unsw.edu.au

Consultation concerning this course is available during the problem solving guidance sessions. You may make appointment for consultation by email.



Credit Points

This is a 6 unit-oET.54 Tm0 g0 G[)TJET EMC /P A MCID 2TJETBT1 0 0 1 143.06 463.27 Tm[-]A MCID 2TJOT

Summary of the

4. Course schedule

The following table shows the time table of lecture topics and problem solving guidance sessions times.

		Wednesday 2 4 pm Colombo Theatre B	Wednesday 4 5pm or 5 6pm CEG06/102	Due
Date	Week	Lecture Topic	Problem solving guidance	Task
27 July	1	Introduction to damage tolerance analysis and fracture mechanics		
03 August	2	Plastic collapse		
10 August	3	Modes of fracture, crack-tip stresses and displacements, stress intensity factor.		
17 August	4	Fracture criterion		
24 August	5	Various methods of determining stress intensity factor Fracture toughness		Quiz
31 August	6	Crack-tip plasticity & Description of Major Assignment		
07 Sept	7	Fracture toughness		
14 Sept	8	Laboratory Fracture toughness testing		
21 Sept	9	Residual Strength Diagram Description of FEA Assignment		Lab
		Semester break		
05 Oct	10	Holiday		Lab report
12 Oct	11	Crack growth and fatigue		FEA Assignment
19 Oct	12	Crack growth diagram		Major Assignment
26 Oct	13	Damage tolerance analysis		

The timing of the above schedule is indicative and minor adjustments may occur.

The assessment tasks will be available on Moodle. The above-mentioned dates are indicative depending on progress in lectures. If so, the new dates for the tests and lab will be announced during the lectures. In order to pass the course, you must achieve a total mark of 50% or higher.

The assignments and the lab report will be submitted electronically through a drop box in Moodle by 11 pm, Friday in the weeks indicated in the course schedule

Assignments

Presentation

All submissions should have a standard School cover sheet which is available from this Moodle page.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work. Presenting them clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

Submission

Late submissions will be penalised 5 marks per calendar day (including weekends). An extension may only be granted in exceptional circumstances. Where an assessment task is worth less than 20% of the total course mark and you have a compelling reason for being unable to submit your work on time, you must seek approval for an extension from the course convenor **before the due date**. Special consideration for assessment tasks of 20% or greater must be processed through student.unsw.edu.au/special-consideration.

It is always worth submitting late assessment tasks when possible. Completion of the work, even late, may be taken into account in cases of special consideration.

Examinations

There will be one two-hour examination during the formal university examination period at the end of the semester, based on all material covered during the whole semester.

Provisional Examination timetables are generally published on myUNSW in May for Semester 1 and September for Semester 2.

For further information on exams, please see the [Exams](#) section on the intranet.

Calculators

You will need to provide your own calculator, of a make and model approved by UNSW, for the examinations. The list of approved calculators is shown at

It is your responsibility to ensure that your calculator is of an approved make and model, and allowed into the examination room.

Special consideration and supplementary assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see the School [intranet](#) [Special Consideration page](#).

6 resources for students

Textbook & notes details

1. 00 (available on Moodle).
2. CRC Press.

List of required and suggested additional readings

- 1.
- 2.
3. 7.
- 4.
- 5.
- 6.

8 ~~Academic integrity~~

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas*

All students are expected to read and be familiar with School guidelines and policies, available on the intranet. In particular, students should be familiar with the following:

[Attendance, Participation and Class Etiquette](#)

[UNSW Email Address](#)

[Computing Facilities](#)

[Assessment Matters](#) (including guidelines for assignments, exams and special consideration)

[Academic Honesty and Plagiarism](#)

[Student Equity and Disabilities Unit](#)

[Health and Safety](#)

[Student Support Services](#)

Dr Kana Kanapathipillai
20/07/2016

