Course Outline

Semester 1 2015

MMAN3400

Mechanics of Solids 2

CONTENTS

Some students spend much more than 40 h/w, but you should aim for not less than 40 h/w on coursework for 24 UOC.

This means that you should aim to spend not less than about 10 h/w on this course, i.e. an additional 4 h/w of your own time. This should be spent in making sure that you understand the lecture material, completing the set assignments, further reading about the course material, and revising and learning for the examination.

There is no parallel teaching in this course.

Course aims

The course aims include developing and further your skill in solving technical problems and familiarizing you with analysis: of membrane stresses in axisymmetric thin shells, stresses in long thin beams, buckling of columns, torsion of thin tubes, deflection analysis, statically indeterminate beams. You also will learn elementary concepts in the area of mechanics of fracture and fatigue. Knowledge of these topics is vital in design, analysis and integrity assessment of mechanical systems.

This is a third year course in the area of mechanics of solids. Having learnt the basis of statics in MMAN1300 and elementary topics in area of the mechanics of solids including basic stress/strain analyses in MMAN2400, this course applies the knowledge obtained in the previous statics and mechanics of solids courses to analysis of thin shells, beams and columns as well as introduces the students to some advanced topics in mechanics of solids such as mechanics of fracture and fatigue.

3. Professionals who are:
   (a) capable of independent, self-directed practice
   (b) capable of lifelong learning
   (c) capable of operating within an agreed Code of Practice

4. Global Citizens who are:
   (a) capable of applying their discipline in local, national and international contexts
   (b) culturally aware and capable of respecting diversity and acting in socially just/responsible ways
   (c) capable of environmental responsibility

= Developed in this course

In this course, you will be encouraged to develop Graduate Attributes 1(a), 1(d), 1(f), 1(g), 2(b), 3(a), and 4(a) by undertaking the selected activities and knowledge content. These attributes will be assessed within the prescribed assessment tasks, as shown in the assessment table on Page 7.

3.

Problem solving classes are designed to provide you to work through set problems in preparation for examinations

Task	Assignment	Mark	Contribution	Learning Outcomes assessed*

*The material covered for assessment of learning outcomes may vary slightly. Any variation will be updated in the lecture and the Moodle.

6. Academic honesty and plagiarism

Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a booklet which provides essential information for avoiding plagiarism: https://my.unsw.edu.au/student/academiclife/Plagiarism.pdf

There is a range of resources to support students to avoid plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one. Information is available on the dedicated website Plagiarism and Academic Integrity website: http://www.lc.unsw.edu.au/plagiarism/index.html

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing

under the Student Misconduct Procedures.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in a honours thesis) even suspension from the university. The Student Misconduct Procedures are available here: http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, *Administrative Matters for All Courses*, available on the School website.

7. Course schedule

Table 1 (Block 1) describes lectures, tutorial and laboratory classes for fundamental topics and Table 2 (Block 2) describes lectures, tutorial and laboratory classes for more advanced topics. The schedule shown may be subject to change at short notice to suit exigencies.

Table 1: BLOCK 1 Fundamental Topics

Approx Week Day	Topic	Textbook - Notes	Ref & Questions	Problem Solving/Lab/Quiz
1 Monday & Wednesday	Membrane stresses in axisymmetric shells/vessels.	Moodle Notes + Hibbeler: Ch 8.1	Moodle -Web Questions + Hibbeler: 8-3, 8-4,8-5,8-8,8-12	

Table 1: BLOCK 1 - Fundamental Topics Continued				
Approx Week Day	**Topic**	**Textbook - Notes**	**Ref & Questions**	**Problem Solving/Lab/Quiz**
6 Mon	Column buckling:	Hibbeler: Ch 13.4		

Table 2: BLOCK 2 Advanced Topics