

ENGG102

Fundamentals of Engineering Mechanics

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ENGG102

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Programme for today

- ENGG102
 - What it is and how it works
- What do Engineers do? How do Engineers think?
- Real world Examples
- Newton's Laws like you've never seen them before

(C) UOW 2016 McCarthy T, Freeth C, Yu T, Hussain S

What happens in ENGG102

- Developing an Engineering *Method*
 - Problem solving
 - Engineering Analysis
- A few basic principles
 - Equilibrium (Static and beyond), Newton laws
 - Conservation Energy
- Master skills of abstraction
 - Free Body Diagrams
 - Mathematical representation of situations
 - Graphical representation of phenomena

Approach to Learning

- Explore engineering problems from start to finish
 - Dip into year 2 and year 3 subjects
- Explore different ways of solving engineering problems
- Develop a method of study and research
 - Be inquiring, be efficient, be successful
- Learning in teams

Where to find and learn:

- Subject Outline
 - Important document
 - Timetable
 - Rules
- Lectures
- Tutorial/practical
 - You must be enrol in one Tutorial
 - Assessments related to tutorial activities
- ENGG102 Moodle site

What to buy

- Text books

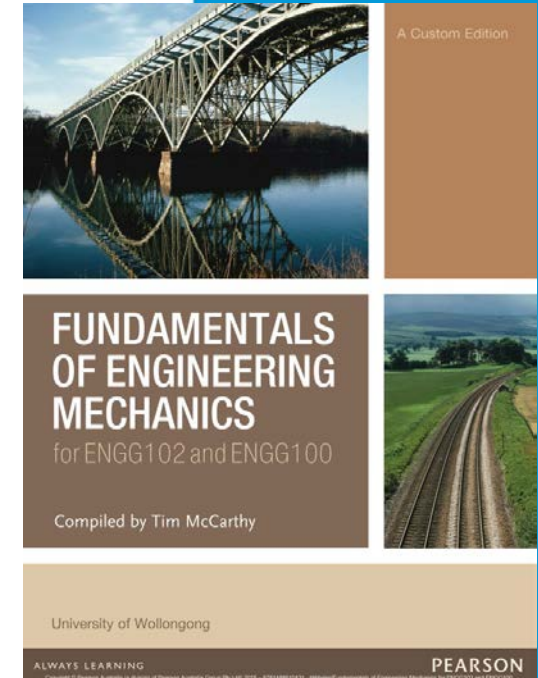
- Fundamentals of Engineering Mechanics

- by K D Hagen, RC Hibbeler and Yap (Compiled by T McCarthy)
Custom Publ Pearson 2015

- Required Text for
ENGG102

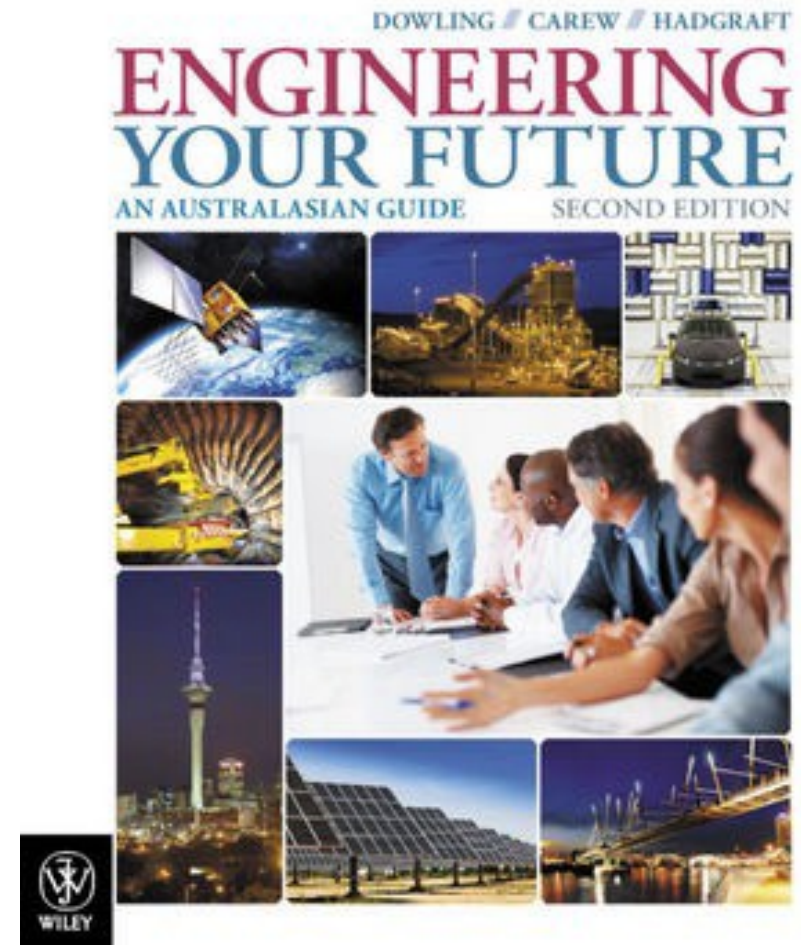
- <https://uae.kinokuniya.com/events/276>

- Ebook <http://www.pearson.com.au/9781488610547>



What to borrow or buy

- Reference text for ENGG102
- Engineering Your Future: An Australasian Guide 3rd Edition by D Dowling, A Carew R Hadgraft, T McCarthy, D Hargreaves and C Baillie Publ Wiley
- Great for Engineering students
 - Good career guidance



ENGG102 – Moodle eLearning system

- Access this through your SOLS account

Lectures are what you make of them:

- Keeping up with the subject
- Finding what you do and don't understand
- If you don't turn up, will you catch up at home?
- Ask questions!! Raise your hand, or pass a note to the front.

Engineering in action



Where is the engineering here?

Why was the extra 6 in of concrete important?

Component of Truck Force

Barrier Resistance Force

Weight force

Wheel reaction force

Engineering Knowledge

- Where do you gain the knowledge required?
- How accurate must the engineering solution be?
- How do you gain confidence that you are right?

What is your current knowledge then...what do you already know?

- Range of backgrounds
- Engineering Studies, physics, extension maths?
 - Seek out the deeper understanding of topics covered in ENGG102
- First real encounter with Engineering Topics?

Philosophy of ENGG102

- Learning opportunities
 - Recognise gaps in knowledge & understanding
 - Seek to fill these gaps
- Assessment approach
 - Check your LEARNING PERFORMANCE as an ENGINEER.

ENGG102 Tutorials

- Consolidate what is introduced in lectures and do something with it!
- This week's tutorial:
 - Solve engineering problem in Mechanics
 - No preparation required just look over the notes on Moodle
 - Just turn up to the lab, On Time
 - Wear closed in shoes*(not for distance learning)
 - Teams to be selected

Assessment of projects in lab

- Work in Teams
 - Good teamwork is the key to success
 - Design and manufacture solution prototype
 - Reflection report
 - Describe solution and its performance
 - Identify lessons learnt
 - Identify how to improve

Who will you meet in tutorials?

- Get to know your tutor.
- Make a note of consultation times of tutors and lecturers
- When you have problems – seek help.
- Check all the details in Subject Outline
- Log on to eLearning/Moodle for
 - Discussion and help
 - Messages
 - Lecture notes
 - Lab handouts – available the day before your lab
 - Practical feedback
 - And much more

How to succeed in ENGG102

- What's in the exam?
- Where does this get assessed?
- Engaging with the subject matter.
- What level of expertise do I need to achieve?