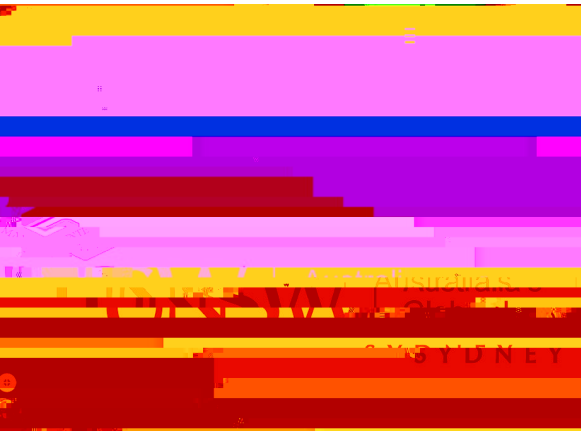

School of Mechanical and Manufacturing Engineering

Term 1

	Day	Time	Week	Location
Lectures	Monday-Thursday 18th - 21st February	6 pm – 9 pm	1	RedC M032
Lectures	Thursday	6 pm – 9 pm	3-9	RedC M032
Revision Tutorial	Thursday	6 pm – 9 pm	10	RedC M032

This course provides students with an introduction to the key elements of nuclear engineering. It is aimed at giving students the basic background knowledge, understanding and vocabulary to demonstrate what differentiates nuclear engineering from other engineering disciplines, and to understand later courses on the Nuclear Engineering MEngSci stream.

The course will introduce a variety of themes including nuclear fission, reactor physics and engineering, the historical context of nuclear engineering, the impact of radiation on matter, fuel fabrication and the fuel cycle, radioactive wastes and storage methods, reactor accidents, and nuclear safety and licensing.

The material will be presented by a team of leading researchers in nuclear engineering. The course material is advanced in nature, due to its interdisciplinary content, its delivery in an intensive mode, and the breadth of topics covered. Hence, students taking this course must have the skills of an Honours level graduate engineer such that they are capable of undertaking self-directed reading and learning in engineering systems, performing individual research, and have the required maths and engineering skills.

Week 1		Intensive Lectures:
Monday	Prof Grimes	Introduction, history, radiation fundamentals
Tuesday	Prof Grimes	Reactor designs, nuclear operational systems
Wednesday	Prof Grimes	Nuclear fuel cycle
Thursday	Prof Grimes	Nuclear waste and waste management
Week 2		No lecture
Week 3	Patrick Burr	Nuclear Physics, Radiation damage in materials
Week 4	Patrick Burr	Reactor Physics
Week 5	Ed Obbard	Reactor Kinetics
Week 6	Ed & Patrick	
Week 7	Ed Obbard	Nuclear Safety + Davis Besse
Week 8	Patrick Burr	Reactor Accidents 1 - TMI, Fukushima
Week 9	Ed Obbard	Reactor Accidents 2 - Chernobyl
Week 10	Ed Obbard	Revision tutorial

This is a postgraduate course convened by School of Electrical Enginee

7	Binding energy, the fission process and energy release and radiation absorption and shielding
8	Harnessing of energy, roles of the moderator and the coolant, neutron life cycle, criticality, re

The exam in this course is a standard

Regular and punctual attendance at all classes is expected. UNSW regulations state that if students attend less than 80% of scheduled clat sese

- An understanding of the social, cultural and global responsibilities of the professional engineer;
- The ability to work effectively as an individual or in a team;
- An understanding of professional and ethical responsibilities;
- The ability to engage in lifelong independent and reflective learning.

The course delivery methods and course content directly or indirectly addresses a number of core UNSW graduate capabilities, as follows:

- Developing scholars who have a deep understanding of their discipline, through lectures and solution of analytical problems in tutorials and assessed by assignments and written examinations.
- Developing rigorous analysis, critique, and reflection, and ability to apply knowledge and skills to solving problems. These will be achieved by the interactive checkpoint assignments and exams.
- Developing capable independent and collaborative enquiry, through a series of tutorials spanning the duration of the course.

	PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
	PE3.1 Ethical conduct and professional accountability	
	PE3.2 Effective oral and written communication (professional and lay domains)	
	PE3.3 Creative, innovative and pro-active demeanour	
	PE3.4 Professional use and management of information	
	PE3.5 Orderly management of self, and professional conduct	
	PE3.6 Effective team membership and team leadership	