

Term 1, 2020 Course Outline

SOLA5057-GSOE9017

**Energy Efficiency/
Managing Energy Efficiency**

1. Staff contact details

Course Convener: Prof. Gavin Conibeer, TETB, g.conibeer@unsw.edu.au
Room 245, TETB, Tel: 9385 7858
Lecturers: Prof. Gavin Conibeer, Dr. Mehrdad Farshchimonfared,
Prof. Alistair Sproul

Consultations: For all enquiries about the course please contact the course convener. For all other questions or enquiries you are encouraged to ask the lecturer after class or post your question on the Discussion Forum on Moodle.

<https://moodle.telt.unsw.edu.au/login/index.php>

Keeping Informed: All course material and announcements will be posted on Moodle. Please note that you will be deemed to have received this information, so you should take careful note of all announcements. Email contact via UNSW student email will also be used at times.

Please see the course [Moodle](#).

2. Important links

- < [Moodle](#)
- < [Health and Safety](#)
- < [Student Resources](#)
- < [UNSW Timetable](#)
- < [UNSW Handbook](#)
- < [Engineering Student Support Services Centre](#)
- < [UNSW Photovoltaic and Renewable Energy Engineering](#)

3. Fundamentals

Credit points

This is a 6 unit-of-credit (UoC) course and involves 4 hours per week (h/w) of face-to-face contact.

The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work.



Context and Aims

engineering approach to end use energy. Traditional engineering focuses on small components of a total system. Opportunities to use energy most efficiently are possible only once the whole system is considered. This approach can allow much larger energy reductions of end use energy consumption to be achieved (in some cases as much as 95% energy reductions can be achieved whilst still delivering the same service). Assignments based on energy audits of a usage in transportation and household energy usage allow students to gain hands on experience of how to reduce energy consumption. Analysis of energy systems will focus on understanding the basic physical processes involved, identifying and quantifying the minimum energy requirements of energy consuming processes.

Learning outcomes

After successful completion of this course, you should be able to:

1. Identify and quantify energy efficiency opportunities across a range of energy consuming end use applications.
2. Analyse the economic potential of various energy efficiency options.
3. Carry out effective energy audits.
4. Communicate the results of such audits.

This course is designed to achieve the above learning outcomes which address the specific

5.

Week	Class Schedule (subject to small changes)
Week 1	Introduction to course <i>Case study the Tyree Energy Technologies Building (TETB)</i> Economic Terms and Energy Policy <i>Project: Arrangement of project groups;</i> <i>Transport to/from UNSW</i>
Week 2	Residential Energy, Hot Water, Energy Management <i>Project: Household energy usage</i>
Week 3	Lighting, MEPS, Energy Audits, Design Rating Schemes <i>Project: Deliverable on personal energy usage</i>
Week 4	Transport Efficiency <i>Project: The Power Factor Virtual Laboratory</i>
Week 5	Commercial, HVAC, Co-Generation, Coefficient of Performance, Energy management control systems <i>Project: Computer energy usage</i>



Please note that UNSW now has a [Fit to Sit / Submit rule](#), which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, **please** see the [Special Consideration page](#).

7. Expected ~~resources for students~~

Reference Books

- ◁ Energy Efficiency Manual: for everyone who uses energy, p(t)-ncy Manuaeveryone who uses enu4(c

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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 website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/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.

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

Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
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PE1: Knowledge