



UNSW

MECH9761

AUTOMOBILE ENGINE TECHNOLOGY

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MECH9761: Automobile Engine Technology

Course Outline

1. STAFF CONTACT DETAILS

The lecturer and demonstrators will be available to answer questions regarding the course during normal office hours and by e-mail (preferred).

Position	Name	Email	Office	
Lecturer	Dr Shawn Kook	s.kook@unsw.edu.au	EE room 464P	
Demonstrator (Head)	Lewis Clark	lewis@unsw.edu.au	Library office	Demo/Lab
Demonstrator	YiLong Zhang	yilong.zhang@unsw.edu.au	Library office	Demo/Lab
Demonstrator	Bryan Woo	changhwan.woo@unsw.edu.au	Library office	Lab

2. COURSE DETAILS

Credit Points:

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

The UNSW website states “The normal workload expectations of a student are approximately 25 hours per semester for each UoC, including class contact hours, other learning activities, preparation and time spent on all assessable work.”

For a standard 24 UoC in the semester, this means 600 hours, spread over an effective 15 weeks of the semester (thirteen weeks plus stuvac plus one effective exam week), or 40 hours per week, for an average student aiming for a credit grade. Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case.

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

5. GRADUATE ATTRIBUTES

UNSW's graduate attributes are shown at

<https://my.unsw.edu.au/student/atoz/GraduateAttributes.html>

UNSW aspires to develop graduates who are rigorous scholars, capable of leadership and professional practice in a global community. The university has, thus, articulated the following Graduate Attributes as desired learning outcomes for ALL UNSW students.

UNSW graduates will be

1. Scholars who are:

- (a) understanding of their discipline in its interdisciplinary context
- (b) anteo6W*nBT1 0 0 1 135.5 5381 0 0 1*nBT1 0 0 1 460.39 554.59 Tm[)

to where. Homework questions will be weighted differently as shown below the breakdown table. In week 6 and 7, students will attend a lab demonstration to obtain experimental data from engine rigs prepared for this course. Students will process the data to assess performance parameters learned from the lectures (10% weight). The term project will be a literature review that requires a reporting skill (10%) and an effective presentation skill (10%). The final exam will consist of 4~5 problems and is weighted at 50%.

Assessment task	Weight	
Homework (20%)	#1	#2

Special Consideration and Supplementary Assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see [Administrative Matters](#), available on the School website and on Moodle, and the information on UNSW's [Special Consideration page](#).

9. ACADEMIC HONESTY AND PLAGIARISM

10. COURSE SCHEDULE

Lecture schedule

Time: Thu 3-5pm Location: Electrical Engineering (G17) Room G25

Week	Topics	Suggested Readings
1	Automobile Industry Why still combustion engines?	
2	Engine classification Thermodynamic Cycle Analysis	Heywood book pp. 7-12, 161-173 Otto & Diesel cycle section of the Thermodynamics text book
3	Engine Performance Parameters	Heywood book pp. 42-54, 383-388, 508-511
4	Spark Ignition (SI) Engine	Heywood book pp. 294-296, 301-304, 314-316, 326-336, 371-375, 390-404, 413-418, 437-443, 450-457
5	Compression Ignition (CI) Engine	Heywood book pp. 491-493, 517-532, 536-549, 555-561
6	Lab	

Demonstration schedule

Time: Thu 3-5pm Location: Electrical Engineering (G17) Room G25

Week	Demonstration	Term Project
2	Homework #1 released	Term project outline released
3	Homework #1 due Homework #2 released	Build a team of 5 students Report a selected topic
4	Homework #2 due Homework #3 released	Term project presentation schedule released
5	Homework #3 due Background knowledge for the lab	
6	Lab for group 1~3, 25 in each group	
7	Lab for group 4~6, 25 in each group	
8	The lab review	Term Project Report due Term Project Presentation Team 1 ~ 5
9	Lab report due	

various means, including the Course and Teaching Evaluation and Improvement (CATEI) process, informal discussion in the final demonstration class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

13. OTHER INFORMATION TO BE INCLUDED

Find the information for the special consideration for the assessment in the following link: <https://student.unsw.edu.au/special-consideration>

Students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with