



1. Staff contact details

Contact details and consultation times for course convenor

Name: Dr Charitha de Silva

Office location: J17 Ainsworth Building Room 311/H

Email: c.desilva@unsw.edu.au

Moodle: Charitha De Silva

Microsoft Teams Chat Hours: Contact via teams Chat or Moodle Forum page

Contact details and consultation times for additional lecturers/demonstrators/lab staff

Head Demonstrator

Name: Momar Hughes

Email: momar.hughes@unsw.edu.au

All non-personal matters should be addressed through forums in the first instance. Personal administrative matters should be directed to the Head Demonstrator, then to the Course Convener only if matters remain unresolved.

Other Demonstrators

Joshua Pham

Kevin Chen

Matthew Brand

Timothy Davis

Shantanu Kumthekar

Please see the course [Moodle](#).

2. Important links

[Moodle](#)

[Lab Access](#)

[Health and Safety](#)

[Computing Facilities](#)

[Student Resources](#)

[Course Outlines](#)

[Engineering Student Support Services Centre](#)

[Makerspace](#)

[UNSW Timetable](#)

[UNSW Handbook](#)

[UNSW Mechanical and Manufacturing Engineering](#)

3.6 Unit Set total

Credit points

This is a 6 unit-of-credit (UoC) course and involves 6 hours per week (h/w) of scheduled online 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.

You should aim to spend about 15 h/w on this course. The additional time should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

Contact hours

	Day	Time	Location
Lectures	Monday	11am - 1pm	Microsoft Teams
	Wednesday	1pm - 3pm	
Problem Solving ns	Thursday	9am - 11am	Microsoft Teams
		11am - 1pm	
		2pm - 4pm	
		4pm - 6pm	

Heat transfer is commonly an important aspect of design and analysis in mechanical engineering whenever a component or process has a significant temperature differential.

Advanced fluids will also be covered, including the structure of boundary layers, internal and external laminar flow and turbulent forced convection. Also covered are compressible flows and shocks. Finally, non-reacting gas mixtures / combustion will be introduced.

The aim of covering these smaller topics is to prepare students for later electives within the course of mechanical engineering and to raise a fundamental awareness of these fields for those who do not take the elective extension subjects later in their program.

Student learning outcomes

This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

After successfully completing this course, you should be able to:

Learning Outcome		EA Stage 1 Competencies
1.	Apply steady state and transient conduction, convection and radiation modes of heat transfer to idealized analysis cases. Extend this analysis to the particular cases of heat exchangers and cooling fins.	PE1.3, PE2.1
2.	Undertake compressible flow analysis and assess whether compressibility needs to be considered for a stated case.	PE1.2, PE1.3
3.	Appreciate the thermodynamics of gas mixtures /combustion and their energy release	PE 1.2, 1.3, PE1.6

4. Teaching strategies

Lectures are designed to cover the theoretical aspects of the course listed in the course schedule. Students are encouraged to attend and actively participate to gain the greatest understanding from these lectures.

The Textbooks are recommended reading throughout the course to supplement theory covered in class.

Problem solving sessions provide the opportunity for students to test their conceptual framework on problems.

The Laboratories focus on the Heat Transfer component of the course and provide students the opportunity to compare specific parts of the theory to practical results in a controlled

environment. This is to encourage students to consider the practical implications of their

6. Assessment

Assessment overview

Assessment	Group Project? (# Students per group)	Length	Weight	Learning outcomes assessed	Assessment criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
Heat Transfer Formative Quiz	No	2 hours	0%	1	Understanding of Heat Transfer content delivered so far.	Friday Week 4 26 June 2020 via Moodle	N/A	On closure of the quiz
Heat Transfer Laboratories	No	~10 pages	20%	1	Demonstrating heat transfer theory knowledge and data			

Assignments

Formative Quiz

Marking

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Examinations

You must be available for all quizzes, tests and examinations.

Final examinations for each course are held during the University examination periods: February for Summer Term, May for T1, August for T2, and

8. ~~Course feedback and improvement~~

Feedback on the course is gathered periodically using various means, including the UNSW myExperience

Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include restructuring the course to group the heat transfer material and related content which may be useful to a graduate engineer in industry.

9. ~~Academic honesty and plagiarism~~

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them*

10. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and policies. In particular, students should be familiar with the following:

[Attendance](#)

[UNSW Email Address](#)

[Special Consideration](#)

[Exams](#)

[Approved Calculators](#)

[Academic Honesty and Plagiarism](#)

[Equitable Learning Services](#)

Competencies