School of Engineering

MECH4801A: Mechanical Engineering Project A

Callaghan
Semester 1 - 2022

COURSE OUTLINE

OVERVIEW

Course Description

Working under broad direction of a chosen academic supervisor, students undertake a substantial and open ended engineering project that encompasses research, problem solving, and report writing. Projects vary from highly theoretical research, through to strongly applied research projects, but in all projects a high level of personal drive is required to optimise the outcome.

The 'FYP' is your 'Capstone' educational experience allowing you to draw elements from across your degree to a single point of focus, you will need to demonstrate exceptional self-management and need to clearly demonstrate you are in control and leading the project through your final written submission.

Your grade is based on your final written report, reflective of your 450 hours of productive work, though your mark is moderated by your oral presentation outcomes.

Your Part A report, reflecting the initial 150 hours of work carries a Compulsory Component such that if your Part A report does not demonstrate sufficient commitment or progress in the project, you can be excluded from the Part B component.

A comprehensive FYP Manual is available from the Blackboard site and is your first point of reference for all questions relating to your FYP.

Requisites

Students must have successfully completed a minimum of 210 units to enrol in this course.

Assumed Knowledge

Completion of all 1000, 2000, and a majority of 3000 level courses in the Mechanical Engineering program

Contact Hours

Lecture
Face to Face On Campus
1 hour(s) per Week for Full Term
Lectures are only for Part A, no additional scheduled lectures for Part B students. Part B students will be notified if a special lecture is scheduled.

Unit Weighting Workload

10
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

Multi-Term Sequence Advice

This course is part of a multi-term sequence. Both Part A and Part B must be completed to meet the requirements of the sequence.

Part A and Part B must be completed in consecutive terms. Students must complete Part A before completing Part B. Students must complete the sequence within a twelve month period. If students complete Part A but are unable to complete Part B within the timeframe, they must re-enrol in Part A. Part A cannot be completed as a standalone course, it will only count towards your program once you have successfully completed Part B.

CONTACTS

Course Coordinator

Callaghan
A/Pr Jiabao Yi
Jiabao.Yi@newcastle.edu.au
(02)4926 1625
Consultation:

Teaching Staff

Other teaching staff will be advised on the course Canvas site.

School Office

School of Engineering
ES408
ES Building
Callaghan
+61 2 4921 5798
9.00am-1.00pm and 2.00pm-5.00pm (Monday to Friday)

SYLLABUS

Course Content

Individually supervised projects based on knowledge acquired during the first three years of the program.
Students are responsible for:

- reviewing current literature,
- design of equipment/experiments/models,
- learning/developing new techniques, and
- implementing what they have learned to solve an engineering problem.
- developing an appropriate thesis-style document.

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Identify engineering problems and provide solutions

2. Manage information and documentation

3. Have demonstrated creative and innovative solutions to encountered problems

4. Appreciate the issues surrounding the conduct of an engineering project

5. Communicate effectively with the engineering team and with the community at large

6. Demonstrate self-directed learning

Course Materials

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

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Course Assessment Requirements:

- Assessment 3 - Written Assignment: Pass Requirement - Students must pass this assessment item to pass the course. Failure to submit a document to a level acceptable to your supervisor will lead to a recommendation of exclusion from the FYP course.

Pre-Placement Requirements:

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ASSESSMENTS

This course has 7 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Part A Project Initiation Form	End of Week 2	Individual	Formative	1, 2, 5
2	Part A Conference Abstract	End of Week 7	Individual	Formative	2, 3, 5
3	Part A Report*	Thursday of Week 12 at 4pm to Administrative staff in Mechanical Engineering.	Individual	Formative	1, 2, 3, 4, 5, 6
4	Part A Conference	To be confirmed.	Individual	Formative	5
5	Part B Conference Abstract	End of Week 7	Individual	Formative	2, 3, 5
6	Part B Thesis	Thursday 4pm Week 13.	Individual	100%	1, 2, 3, 4, 5, 6
7	Part B Conference/Defence	Thursday Week 2 of Exam period	Individual	Formative	5

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Part A Project Initiation Form

Assessment Type Proposal / Plan
Purpose To inform the FYP co-coordinator that you have secured a project and supervisor.
Description Complete the MSForm page - link provided in Blackboard site
Weighting This is a formative assessment and will not contribute to your final grade.
Length A couple of paragraphs.
Due Date End of Week 2
Submission Method Online
Assessment Criteria Completion

Return Method	Not Returned
Feedback Provided	

Assessment 2 - Part A Conference Abstract

Assessment Type	Written Assignment
Purpose	A short description of your project, as understood at the time of writing, 'advertising' what staff and students can expect from your thesis defense.
Description	A pro-forma is available and must be used from Canvas. On completion upload this back to Canvas.
Weighting	This is a formative assessment and will not contribute to your final grade.
Length	1/3 page
Due Date	End of Week 7
Submission Method	Online
Assessment Criteria	Submission completed on time.
Return Method	Not Returned
Feedback Provided	

Assessment 3 - Part A Report

Assessment Type	Written Assignment
Purpose	To inform your project supervisor of your progress to date. To allow the supervisor to comment on your writing style and proposed layout. To determine if you should be asked to withdraw from the course due to lack of engagement/progress.
Description	An approximately 20 page report detailing the work completed to date on the project, and explicitly stating the future direction for Part B.
Weighting	This is a formative assessment and will not contribute to your final grade.
Compulsory Requirements	Pass Requirement - Students must pass this assessment item to pass the course..
Length	20+ pages
Due Date	Thursday of Week 12 at 4pm to Administrative staff in Mechanical Engineering.
Submission Method	Specific Location
Assessment Criteria	
Return Method	In Person
Feedback Provided	
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Discuss with supervisor.

Assessment 4 - Part A Conference

Assessment Type	Presentation
Purpose	For students to defend their work complete under their part A project, in a professional styled conference situation. This presentation is to support the part A submission and carries an identical criterion component.
Description	A professionally presented 12 minute + 3 min question time oral presentation.
Weighting	This is a formative assessment and will not contribute to your final grade.
Length	12 + 3 minute
Due Date	To be confirmed.
Submission Method	Specific Location
Assessment Criteria	Evaluation of depth of project engagement and presentation quality.
Return Method	
Feedback Provided	

Assessment 5 - Part B Conference Abstract

Assessment Type	Written Assignment
Purpose	A short description of your project, as understood at the time of writing, 'advertising' what staff and students can expect from your thesis defence.
Description	A pro-forma is available and must be used from Canvas. On completion upload this back to

	Canvas
Weighting	This is a formative assessment and will not contribute to your final grade.
Length	1/3 page
Due Date	End of Week 7
Submission Method	Online
Assessment Criteria	Submission
Return Method	Not Returned
Feedback Provided	

Assessment 6 - Part B Thesis

Assessment Type	Report
Purpose	To articulate the outcomes from your project in a professional thesis style report. Some layout suggestions are included in the Final Year Project handbook available from Blackboard.
Description	This is the document which you defend you 30 units worth of research/project work through. It should be written with the utmost attention to detail, quality and appropriate quantity. Your supervisor can help guide your writing.
Weighting	100%
Length	50-60 pages of text, 100 pages including appendix.
Due Date	Thursday 4pm Week 13.
Submission Method	Online Specific Location Submit 2 hardcopies to the Mech Eng Admin staff + an electronic Memory stick copy.
Assessment Criteria	As per the FYP manual.
Return Method	Not Returned
Feedback Provided	

Assessment 7 - Part B Conference/Defence

Assessment Type	Presentation
Purpose	For students to defend their completed work as a professional poster
Description	A professionally presented poster presentation session of around 1.5 hrs 25%
Weighting	This is a formative assessment and will not contribute to your final grade.
Length	1.5hr total
Due Date	Thursday Week 2 of Exam period
Submission Method	 Specific Location Anticipate this to be held in at the NUSpace campus
Assessment Criteria	Students will be required to rank peers and that feedback will be provided verbatim to the respective students.
Return Method	Online
Feedback Provided	

ADDITIONAL INFORMATION

Grading Scheme	This course is Part A of a multi-term sequence. A grade will be awarded at the completion of Part B.
Communication Methods	Communication methods used in this course include:
Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.
Oral Interviews	As part of the evaluation process of any assessment item in this course an oral examination may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be

	conducted in accordance with the principles set out in the Oral Examination Guidelines. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.
Adverse Circumstances	The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where: 1. the assessment item is a major assessment item; or 2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system; 3. you are requesting a change of placement; or 4. the course has a compulsory attendance requirement. Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236
Important Policy Information	The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.