



Course Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Course Title: ADVANCED ENGINEERING PROJECT 1

Course ID: ENGIN5002

Credit Points: 30.00

Prerequisite(s): (ENGIN3001 or ENGIN5001)

Co-requisite(s): Nil

Exclusion(s): (ENCOR7020)

ASCED: 039999

Description of the Course:

This course is intended to be taken in sequence with ENGIN5003 and will equip students with knowledge and skills to undertake an engineering research project. In the process, students will employ a combination of hands-on, analytical and computing skills relevant to their field of advanced study. Students will also critically review relevant literature and present findings in front of a peer based audience.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced					✓	

Learning Outcomes:

On successful completion of the course the students are expected to be able to:

Knowledge:

- K1.** Identify and select the appropriate approach to undertake an engineering research project at an advanced level.
- K2.** Apply critical and independent thinking to research design, investigation and experimentation.
- K3.** Identify and apply the ethics, norms and concepts that guide engineering (research) practice (including professionalism, innovation and adaptability).
- K4.** Recognise the importance of continuous professional development and awareness of the current engineering practice.

Skills:

- S1.** Assess research literature to identify gaps in knowledge and to synthesize information and/or ideas at an advanced level.
- S2.** Demonstrate an ability to effectively manage time and research resources (independently and/or as a member of a team).
- S3.** Present and effectively communicate engineering research outcomes to others within the engineering profession and the wider community through written and verbal mediums.
- S4.** Elaborate on the limitations and uncertainties of research undertaken and formulate recommendations for future research.

Application of knowledge and skills:

- A1.** Analyze and evaluate engineering research data at an advanced level (appropriate to the discipline or advanced field of research).
- A2.** Create a major piece of written work through the development of a thesis (commensurate with the discipline and field of research).

Course Content:

Topics may include:

- Structuring and drafting of a research thesis.
- Producing a research paper out of the thesis work.

Values:

- V1.** Demonstrate an independent intellectual demeanour befitting an engineering graduate.

Graduate Attributes

The Federation University Federation graduate attributes (GA) are entrenched in the [Higher Education Graduate Attributes Policy](#) (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1-K2, S1, S4, A1	1, 2
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	K2, K3, S1, A2	1, 2
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K3, K4, S2	1-4
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	S3, S4, A2	1-3
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	S2	1-3

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-K3, S1-S3, A1	Presentation and reporting in the early weeks of the semester on the progress, which has been achieved thus far in the research project.	Progress report	5 - 10%
K1-K3, S1-S3, A1	Report on the continuous progress of research project	Continuous progress report and activity logs	10 - 20%
K1-K3, S1-S4, A1-A2	Demonstrable progress of a written dissertation or other modes of written work.	Final report	75 - 85%
K3, K4, S3	Completing 6-8 hours of equivalent professional development relevant to specialised fields of engineering in the form of participating in industry presentations, professional guest lectures, etc.	Participation in the required professional development hours	Hurdle

Adopted Reference Style:

Other (IEEE-Refer to the library website for more information.)

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)