Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Advanced Engineering Research Project 1

Unit ID: ENGRG9004

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (ENGIN5002)

ASCED: 039999

Description of the Unit:
This unit is intended to be taken in sequence with ENGRG9005 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 the form of a report and 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

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced					✔	

Learning Outcomes:

On successful completion of the unit 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.

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).

Unit Content:

Topics may include:

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

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K3, S1-S3	Develope understanding of research approachs; identify possible research topics and explore and review list of references; develope/choose suitable methodology; prepare and present reserach project and proposed methodology	Research proposal report or presentation	10-20%
K1-K3, S1-S3, A1	Report on the continuous progress of the research project	Continuous progress reports and activity logs	20-30%
K1-K3, S1-S4, A1, A2	Demonstrable progress of a written dissertation or other modes of written work including a review of the latest developments in the field, the methodology and results of the project	Report	50-70%

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K3, K4, S3	Completing specific 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 activities and producing a report.	Hurdle

Adopted Reference Style:

IEEE

Refer to the library website for more information

Fed Cite - referencing tool