



# Unit Outline (Higher Education)

<b>Institute / School:</b>	Institute of Innovation, Science & Sustainability
<b>Unit Title:</b>	Advanced Engineering Design Project
<b>Unit ID:</b>	ENGRG9003
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	Nil
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	Nil
<b>ASCED:</b>	039999

**Description of the Unit:**

This unit will develop advanced principles of engineering design. Approaches to the design of specific artifacts are considered in the broader context of the choices presented to a design engineer. The design process includes considerations of safety and compliance with standards. Assessment of failure is also discussed in some depth. This unit is multidisciplinary and the designs demonstrated by student teams will highlight such an aspect.

**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:** No

Supplementary assessment is not available to students who gain a fail in this Unit.

**Course Level:**

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Learning Outcomes:**
**Knowledge:**

- K1.** Interpret physics theories and mathematical methods used in engineering design
- K2.** Investigate and explain various engineering design principles
- K3.** Explain and analyse how theories build into the complexities of engineering design within the students chosen engineering discipline.
- K4.** Discern how engineering projects are managed

**Skills:**

- S1.** Analyse a complex engineering system.
- S2.** Communicate the results of a design assignment both in writing and graphically
- S3.** Demonstrate the outcome of your design effort as required by the assignment

**Application of knowledge and skills:**

- A1.** Integrate the knowledge and skills from one of the various engineering disciplines in designing engineering systems.
- A2.** Apply methods and codes of engineering design within a team environment
- A3.** Manage and schedule your design project to complete it as required by assignment.

**Unit Content:**

Topics may include:

- Topics may include:
  1. Higher level design theory, such as, design specifications, concept selection methods, standards, patents, design of machine components and human factors.
  2. Topics relevant to the individual engineering discipline that will be embedded in the group project
  3. Management of engineering projects

**Learning Task and Assessment:**

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K3, S1-S2, A1-A3	Team-based design, analysis and design report.	Report	40%-60%
K2, K3, S1, A1-A3	Ongoing project progress assessment	Progress marks	10%-30%
K3, K4, S2, S3 and A1	Demonstrate project outcome as described by project supervisors	Demonstration (this would range from manufactured designs to group presentations depending on the resources available for the unit delivery)	20%-40%

**Adopted Reference Style:**

IEEE

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

Fed Cite - [referencing tool](#)