Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Sustainable Engineering Practice

Unit ID: ENGIN5208

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 039999

Description of the Unit:
This unit provides an overview of a wide range of issues relating to sustainable engineering design and practice. It covers content on sustainable engineering materials, life cycle assessment, cultural and heritage assessments, and environmental planning and impact assessment. Contemporary issues related to infrastructure and renewable energy, particualrly in the form of solar energy, wind and hydro power, will be explored and related to engineering project management.

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					✔	

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

Learning Outcomes:

Knowledge:

K1. Explain the principles of sustainable engineering as applicable to management of engineering projects.

K2. Evaluate the sustainable engineering materials and practices for a range of engineering and infrastructure projects, and recommend alternatives.

K3. Reflect how sustainability, environmental and social (including cultural and heritage) constraints impact engineering project development and delivery.

Skills:

S1. Critically analyse current engineering practice in an organisation and propose sustainable alternatives.

S2. Assess the feasibility of renewal energy sources in current engineering projects.

Application of knowledge and skills:

A1. Apply various analytical methods to evaluate engineering projects from a sustainability perspective.

A2. Examine how a project relates to the broader social, economic, and environmental context.

Unit Content:

Topics will include:

- Principles of sustainable engineering
- Sustainable systems design
- Sustainable engineering materials
- Advanced life cycle and systems assessments
- Renewable and solar fuels
- Wind and hydro power
- Sustainable engineering logistics systems
- Environmental planning and impact assessment

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-3, S1-2, A1-2	Research task on sustainble engineering practice in student's field.	Assignment or project report.	20 - 40%
K1-3, S1-2, A1-2	Group based analyses of sustainble engineering practices in a contemporary project and discuss imrpovements and alternatives.	Report and/or group presentation.	30 - 50%
K1-3, S1-2, A1-2	Problem based questions and design tasks pertinent to large civil infrastructure and renewable energy projects.	Assignment	20 - 40%

Adopted Reference Style:

Other (IEEE)

Refer to the library website for more information

Fed Cite - referencing tool