Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	TEROTECHNOLOGY AND LIFE CYCLE COSTS
Unit ID:	MREGC5001
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	(ENMTX4050)
ASCED:	030799

Description of the Unit:

This unit will introduce terotechnology and capital investment decisions relevant to asset management. This unit will cover the broad subject area of life cycle costs and the costs-of-ownership of assets; impact of maintenance decisions and capital investment option analysis. The unit will also cover terotechnological aspects of engineering economics. Various tools and techniques will be introduced to help inform capital investment decision making, asset purchase and replacement policies and economic decisions to buy or replace major units and plants. Whole-of-life cost considerations are important in terms of their possible impact on maintainability and in the pursuit of reducing life cycle costs. This is an important foundational unit for students interested in practicing good asset management, maintenance and reliability engineering.

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. Define lifecycle cost (LCC) and apply principle to estimate the constituent components.

K2. Identify issues related to reliability, availability and maintainability and recognise impact on LCC.

K3. Select tools for appraising and ranking of capital investment options for informed decisions analysing the risk based time value of money.

Skills:

S1. Construct problems related to life cycle issues and challenges.

S2. Evaluate impact of reliability, availability and maintainability on life cycle costs.

S3. Model and solve life cycle cost and capital investment related problems.

Application of knowledge and skills:

A1. Apply techniques for the analysis of plant acquisition, operational, maintenance and disposal costs.

A2. Construct model for analysing various capital investment options.

A3. Justify capital investment decisions based on lifecycle costs.

Unit Content:

This unit will cover the broad subject area of life cycle costs and the costs-of-ownership of assets; impact of maintenance decisions and capital investment option analysis.

Topics may include:

- Introduction to asset management and Terotechnology.
- Asset management systems that can be used to ensure that maintenance costs and capital investments are considered throughout the life cycle of equipment.
- Improvement of maintainability and reduction of life cycle costs.
- Plant purchase techniques and capital investment analysis tools to optimise the life cycle costs of plants.
- Replacement policies, tools and techniques for risk based decisions in replacement of plants or major part of any plant or infrastructure.

Learning Task and Assessment:

This 15 CP online unit at postgraduate level requires a minimum time commitment of 150 hours of study. Assessments need to be submitted online in assessment submission area allocated for each assessment.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, A1, A2, A3	Analysis and report on a problem relevant to the industry analysing the context of the lifecycle cost and capital investment.	Analysis and report.	20% - 40%
K1, K2, K3, S1, S2, S3, A1, A2, A3	Analysis and report of alternative options for the best possible capital investment decisions.	Analysis and report	20% - 40%
K1, K2, K3, S1, S2, S3, A1, A2, A3	Examinations or online test	Examination or online test.	60% - 40%

Adopted Reference Style:

Other (IEEE)

Refer to the library website for more information

Fed Cite - referencing tool