Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	Understanding Reliability
Unit ID:	MREGC5102
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	031399

Description of the Unit:

This unit introduces important theories and key concepts of reliability with application towards industrial and infrastructure problems in engineering. It covers reliability principles, tools and techniques and approaches for a range of issues related to reliability strategies and practices for any product and/or engineering assets. The unit also covers the application of the foundational understanding of reliability within the workplace for physical assets and society.

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

Work Experience:

No work experience

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:

Knowledge:

K1. Summarise the latest reliability practices and describe specific aspects of legacy reliability practices.

K2. Source the relevant literature for reliability engineering in order to classify and explain various reliability terms, definitions and standards.

K3. Outline good governance and management practices for reliability engineering.

Skills:

S1. Review and critique reliability programs, plans and tasks.

S2. Develop change programs to influence workplace culture on reliability matters.

S3. Set-up an integrated organisation for reliability.

S4. Assess impact of through life reliability practices.

Application of knowledge and skills:

A1. Interpret reliability problems and how to solve them.

A2. Examine the importance of integrated reliability policies, plans and practices; and champion their implementation in the work place.

A3. Model opportunities for innovation through reliability.

Unit Content:

This unit covers reliability principles, tools and techniques and approaches for a range of issues related to reliability strategies and practices for any product and/ or engineering assets.
Introduction to reliability.
Reliability in management and quality control.
Reliability in design.
Reliability, Maintainability and Availability.
Reliability prediction and modelling.
Reliability testing.
Managing and solving reliability problems.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate high-level skills to effectively communicate, interact and work with others both individually and in groups Students will be required to display (in person and/or online) high-level skills in-person and/or online in: • Effective verbal and non-verbal communication via a range of synchronous and asynchronous methods • Active listening for meaning and influencing • High-level empathy for others • Negotiating and demonstrating extended conflict resolution skills • Working respectfully in cross-cultural and diverse teams	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply leadership skills and behaviours Students will be required to display skills in: • Creating, contributing to, and enabling collegial environments • Showing self-awareness and the ability to self-reflect for personal growth • Inspiring and enabling others • Making informed and evidence-based decisions through consultation with others • Displaying initiative and ability to solve problems	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complex and ambiguous environments, using their imagination to create new ideas Students will be required to display skills in: • Reflecting critically on complex problems • Synthesising, evaluating ideas, concepts and information • Proposing alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts through deep inquiry • Proposing creative solutions in problem solving	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work proficiently across a range of tools, platforms and applications to achieve a range of tasks Students will be required to display high-level skills in: • Finding, accessing, collating, evaluating, managing, curating, organising and appropriately and securely sharing complex digital information at a high-level • Receiving and responding to messages in a range of digital media • Using digital tools appropriately to conduct research • Contributing proficiently to digital teams and working groups • Participating in and utilising digital learning opportunities	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to think ethically and sustainably. Students will be required to display skills in: • The responsible conduct of research • Making informed judgments that consider the impact of devising solutions in multiple global economic environmental and societal contexts • Demonstrating commitment to social responsibility as a professional and a citizen • Generating research solutions which are sustainable,ethical, socially responsible and/or sustainable • Extending lifelong, life-wide and life-deep learning to be open to diverse others • Demonstrate extended actions to foster sustainability in their professional and personal life.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, S4, A1, A2, A3	Analysis and report on reliability policy and plan.	Analysis and report.	20% to 40%
K1, K2, K3, S1, S2, S3, S4, A1, A2, A3	Analysis of data applying reliability tools and report on decision for solving reliability problems.	Analysis and report.	20% - 40%
K1, K2, K3, S1, S2, S3, S4, A1, A2, A3	Examination or on-line test.	Examination or on-line test.	60% to 40%

Adopted Reference Style:

Other (IEEE)

Refer to the library website for more information

Fed Cite - referencing tool