Course Outline (Higher Education)

School: School of Engineering, Information Technology and Physical Sciences

Course Title: UNDERSTANDING RELIABILITY

Course ID: MREGC5102

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 031399

Description of the Course :

This course 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 course also covers the application of the foundational understanding of reliability within the workplace for physical assets and society.

Grade Scheme: Graded (HD, D, C, etc.)

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory						
Intermediate				✔		
Advanced						

Learning Outcomes:

On successful completion of the course the students are expected to be able to:

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.

Course Content:

This course 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.

Topics may include:

- 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.

Values:

V1. Be confident with deeper interdisciplinary understanding of reliability for application in reducing costs and risks in the workplace.

V2. Be competent in achieving organizational performance goals in Reliability and Availability.

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program

progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		**Development and acquisition of GAs in the course**			
		Learning Outcomes (KSA)	**Code** A. Direct B. Indirect N/A Not addressed	**Assessment task (AT#)**	**Code** A. Certain B. Likely C. Possible N/A Not likely
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1 - K3, S1 - S4, A1 - A3	A	AT1, AT2	A
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	K1 - K3, S1 - S4, A1 - A3	B	AT1, AT2	B
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	A1 - A3	B	AT1, AT2	B
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K1 - K3, S1 - S4, A1 - A3	A	AT1, AT2	A
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	K1 - K3, S1 - S4, A1 - A3	B	AT1, AT2	B

Learning Task and Assessment:

This 15 CP online course 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	Learning 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)