



Course Outline (Higher Education)

School:	School of Engineering, Information Technology and Physical Sciences
Course Title:	RELIABILITY APPLICATIONS
Course ID:	MREGC5104
Credit Points:	15.00
Prerequisite(s):	(Nil)
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	030799

Description of the Course:

This course looks at reliability within an industrial setting focusing on physical and infrastructure assets. It is a project based course covering the application of several reliability tools and techniques such as the Markov process, failure modes, Effects and Criticality Analysis, reliability data analysis, accelerated testing and fault tolerant systems. This course may also cover the latest or emerging tools and techniques used in industry.

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

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	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

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

Knowledge:

- K1.** Investigate and solve a wide variety of opportunities for improvements in industrial plants and infrastructure.
- K2.** Identify and define appropriate tools and technologies for the analysis of reliability engineering problems.
- K3.** Review alternative options and recommend reliability engineering solutions for physical assets in a range of industries and infrastructure settings.

Skills:

- S1.** Compare and contrast reliability, availability, maintainability problems to formulate solutions using appropriate tools and techniques for plant, equipment and infrastructure.
- S2.** Synthesize and model options for reducing downtimes, enhancing reliability, availability, maintainability and/or safety.
- S3.** Create strategies to evaluate impacts on costs, risks and performances through applying reliability engineering solutions.

Application of knowledge and skills:

- A1.** Develop solutions and justify best possible option by applying appropriate reliability engineering tools and techniques.
- A2.** Utilisation of reliability tools and techniques to create solutions to succinctly convey findings to reliability engineering end users.

Course Content:

This course covers the application of reliability engineering tools and techniques to a work-based topic and the introduction of some new tools and techniques.

Topics may include:

- Introduction to Markov Processes.
- Failure Mode and Effects Analysis (FMEA).
- Reliability Data Analysis.
- Accelerated Testing.
- Fault Tolerant Systems.
- Structuring and writing of an industry problem based research project report.

Values:

- V1.** Be competent in applying reliability engineering tools and technologies in the industries for solving related problems of plants and infrastructure.
- V2.** Be a confident professional in Reliability Engineering for continuous improvement projects for reducing costs and risks and lifelong learning.

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)	Assessment task (AT#)
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, K2, K3, S1, S2, S3, A1, A2	AT1, AT2, AT3
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, K2, S1, S2, S3, A1, A2	A2, A3
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.	K1, K2, K3, S1, S2, S3, A1, A2	AT1, AT2
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, K3, S1, S2, S3, A1, A2	AT1, AT2, AT3
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, K2, S1, S2, S3, A1, A2	AT2, AT3

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, A1, A2	Analysis and report with project scoping for solving reliability problems.	Analysis and report	10% - 20%
K1, K2, K3, S1, S2, S3, A1, A2	Analysis of tools and techniques in reliability and report on industrial applications.	Analysis and report	20% - 30%
K1, K2, K3, S1, S2, S3, A1, A2	Analysis and report from research on reliability problems and applications of solutions.	Analysis and report	40% - 70%

Adopted Reference Style:

Other (IEEE)

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

Fed Cite - [referencing tool](#)