

Course Outline (Higher Education)

School:	School of Engineering, Information Technology and Physical Sciences
Course Title:	INDUSTRIAL TECHNIQUES IN MAINTENANCE MANAGEMENT
Course ID:	MREGC5003
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	039999

Description of the Course:

This course is on industrial techniques useful for maintenance and reliability engineering problem solving. Topics include work measurement, method study and activity sampling applied to maintenance activities. Topics extend to personnel time management, stock control of materials and parts within the maintenance function, stores layout, establishing inventories, and stock levels and re-order levels. Project management techniques are integrated into the course to show how they can be applied to shutdowns and major maintenance project activities including critical path analysis of networks and analysis of schedules for time requirements using Gantt charts and project evaluation and review technique. Motivation and control of the workforce covering leadership and management in maintenance are also covered. This is an important course for students interested in practicing good asset management, maintenance and reliability engineering.

This is an important foundational course for students interested in practicing good asset management, maintenance and reliability engineering.

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 checked="" type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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.** Identify opportunities for improvement using industrial engineering tools and techniques for utilisation of resources including human resources relevant to maintenance activities.
- K2.** Select network analysis tools and estimate times and conduct resource levelling for planning of inspection and shutdown maintenance projects.
- K3.** Recognise factors involved in purchase, supply and stock management for predicting required stock level, ordering time and order quantity of spare parts and maintenance materials.

Skills:

- S1.** Apply industrial engineering tools including activity sampling in maintenance activities and analysing utilisation of resources.
- S2.** Identify and apply tools for scheduling covering network analysis, Gantt charts and resource levelling.
- S3.** Modelling and analysis of spare part requirements and stock control in plant maintenance and outage plan.

Application of knowledge and skills:

- A1.** Assess resource utilisation and justify improvement options in maintenance departments.
- A2.** Construct Network for maintenance schedule and estimate critical path including benefits of resource levelling.
- A3.** Formulate inventory strategy for cost effective stock control of spares and maintenance materials.

Course Content:

This course covers industrial engineering tools, stock control and project management techniques applied to shutdowns and major maintenance project activities.

Topics may include:

- Industrial engineering techniques.
- Stock control and spare parts management.
- CPM Network analysis.
- Network analysis and PERT techniques.

- Outage management.
- Leadership in maintenance and asset management.

Values:

- V1.** Be confident in resource utilisation, developing maintenance schedules and managing maintenance spares.

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,A3	AT1, AT2
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.	K2,K3,S2,S3, A2,A3	AT1, AT2
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,A3	AT1,
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,K2,K3,S1,S2,S3, A1, A2,A3	AT1, AT2
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.	K2,K3,S2,S3, A2,A3	AT2

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,K3,S1,S3, A1,A3	Analysis and report on utilisation of resources.	Analysis and report	10% - 30%
K1,K2,S1,S2, A1, A2	Analysis and reports on scheduling maintenance projects.	Analysis and report.	20% - 40%
K1,K2,K3,S1,S2,S3, A1, A2,A3	Examination/ online test.	Examination/ online test	40% - 60%

Adopted Reference Style:

Other (IEEE)

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

Fed Cite - [referencing tool](#)