Unit Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
Unit Title:	INDUSTRIAL TECHNIQUES IN MAINTENANCE MANAGEMENT
Unit ID:	MREGC5003
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	039999

Description of the Unit:

This unit 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 unit 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 unit for students interested in practicing good asset management, maintenance and reliability engineering.

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. 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.

Unit Content:

This unit 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.

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,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

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