

Background and Aims

The need to ensure infrastructure operates and is maintained in an appropriate management fashion is required. This unit will focus on identifying and managing relevant asset management data. Participants will be exposed to techniques of analysing data enabling deterioration modelling and treatment tradeoffs. It will cover information management (maintaining data, condition rating methodologies, information planning decision making and long term impacts, asset usage data) and life cycle analysis (treatment options, performance models and optimisation).

After completing this unit participants will be able to:

- gather data and the application of data to the management of infrastructure networks
- understand the techniques used in asset management decision making
- develop a data collection and measurement method
- determine appropriate physical treatment options
- develop deterioration models based on whole of life analysis
- identify and report on best result for least cost scenarios (optimisation)
- develop life cycle models for assets

Details of the structure of the unit are provided over the page

Enrolment Options

Enrol as a single unit or as part of either the Graduate Certificate in Infrastructure Engineering and Management, Postgraduate Diploma in Infrastructure Engineering and Management, or Master in Infrastructure Engineering and Management.

Off-Campus Study Mode

This unit is offered by Off-Campus (distance education) and there is no requirement for participants to attend lectures. Study guides, comprising a comprehensive set of course notes, are sent following enrolment. Further support is provided through a unit web site and via e-mail. The lecturer is available to answer questions and to provide assistance as necessary throughout the semester. Assistance can be arranged by email, facsimile, mail, telephone or through the discussion groups on the unit web site. Assessment comprises two assignments and an examination (worldwide exam venues are available).

Unit Co-ordinator



Dr Zahidul Hoque is currently working at Pavement Management Services as a Senior Engineer. Dr Hoque's expertise includes asset management, pavement management, pavement performance modelling, and pavement design. He was awarded with a PhD for his

contributions in using artificial intelligence techniques.

Dr Hoque has worked on road deterioration and performance modelling for a number of asset management research projects during his time at ARRB Group. He is currently looking after Sydney's Performance Specified Maintenance Contract (PSMC) for the Road Transport Authority, NSW.

Dr Hoque has published a number of research reports, eighteen journal and conference articles and a book chapter in Handbook of Highway Engineering (2005), CRC Press, USA.

Enrolment or General Course Enquiries:

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Structure

The unit is structured around 9 topics which are generally associated with one week of study

Topic	<i>After completing this topic, participants will:</i>
1. Introduction to Assets Data	<ul style="list-style-type: none"> • understand what data means • understand the need for data in asset management • understand information (data analysis) in decision making
2. Use of Data in Asset Management	<ul style="list-style-type: none"> • understand why data is an important element of asset management. • be able to understand the impacts of good and bad data on asset management decisions
3. Types of Data in Asset Management	<ul style="list-style-type: none"> • understand data types • understand the role and importance of each data type in asset management decisions
4. Data Management	<ul style="list-style-type: none"> • understand the importance of fit for purpose • be able to determine fit for purpose data for any asset
5. Asset Condition and Functionality Data	<ul style="list-style-type: none"> • know the fundamental characteristics of condition and functionality data • understand why condition and functionality data is important in asset management • understand the key requirements of data collection and recording
6. Data Analysis - Valuation of Assets	<ul style="list-style-type: none"> • understand the features of straight line and condition based depreciation • be able to develop a method of valuation for any asset
7. Performance Modelling	<ul style="list-style-type: none"> • know the fundamentals of performance modelling • understand different types of performance modelling • long term models – what do they mean? • be able to apply the principles of optimisation to Asset Management
8. Optimisation	<ul style="list-style-type: none"> • know the fundamentals of optimisation • understand the purpose of optimisation in Asset Management • be able to apply the principles of optimisation to Asset Management
9. Life Cycle Analysis and Costing	<ul style="list-style-type: none"> • be aware of the fundamental characteristics of Life Cycle Analysis • understand why an organisation need Life Cycle Costing • understand the tools and techniques of Life Cycle Analysis • understand data needed for Life Cycle Costing • develop a Life Cycle Model