

CIV5311: Infrastructure Project Management

Background and Aims

This unit is an introduction to the principles and methods of project management as applied in various engineering and infrastructure projects. It is designed to be immediately applicable to physical and non-physical projects at a small and medium scale, and to provide a framework on which project management skills for large-scale projects can be developed.

After completing this unit participants will:

- understand how, when and why to use the principles of project management,
- appreciate the importance of the careful initial selection and evaluation of projects,
- understand the uses of the Statement of Work (SOW) and the Work Breakdown Structure (WBS),
- know how to represent a project in network format, and how to develop and refine a project time schedule,
- know how to estimate the cost of a project, and how to develop a cost budget and a cash-flow budget,
- understand the concepts of project risk, and know how to quantify and analyse project risk,
- understand the techniques involved in project execution and control, including Earned Value Analysis, and
- appreciate the causes of project success and failure.

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



Tony Richardson holds BE (Civil) and MEngSc (Transp) degrees from the University of NSW and a PhD in transport planning from Monash. He has 30 years experience in academia, research, government and consulting.

He has taught at Monash and RMIT Universities, the Universities of Melbourne and Sydney and Cornell University, USA. He has also worked for the ARRB, the Victorian Ministry of Transport and in his own consulting practices. He is presently a Director of The Urban Transport Institute, Victoria, Australia and an Adjunct Professor in the Department of Civil Engineering at Monash.

Enrolment or General Course Enquiries:

Ms Brenda O'Keefe:
Tele: +61 (0)3 9905 9627
Fax: +61 (0)3 9905 4944
Email: brenda.okeefe@eng.monash.edu.au
Website: civil.eng.monash.edu.au/its

Structure

The unit is structured around 13 topics which are generally associated with one week of study

Topic	<i>After completing this topic, participants will:</i>
1. Introduction to Project Management	<ul style="list-style-type: none"> • know the major components of Project Management • understand when Project Management techniques may be useful
2. Project Selection	<ul style="list-style-type: none"> • know how to define a problem, search for alternative solutions, and obtain a practical design for a solution
3. Project Feasibility	<ul style="list-style-type: none"> • understand the fundamentals of economic evaluation and multi-objective evaluation
4. Project Scoping and Work Breakdown	<ul style="list-style-type: none"> • understand the importance of defining the goals and scope of a project • know the contents of a Statement of Work as an official description of a project • be able to describe a project in terms of its Work Breakdown Structure
5. Project Schedule Development	<ul style="list-style-type: none"> • know how to estimate the time required for various types of activities • be able to construct various types of network representations of a project • be able to calculate the estimated duration of a project • be able to identify critical and non-critical activities in the project
6. Schedule Optimisation	<ul style="list-style-type: none"> • know how to minimise the time and/or cost needed to complete a project • know how to undertake a project with constraints on available resources
7. Project Cost Estimation	<ul style="list-style-type: none"> • know how to estimate projects costs using top-down and bottom-up methods • be able to budget for expenditures over the life of the project • be able to estimate cash-flows over the life of a project
8. Project Risk Assessment	<ul style="list-style-type: none"> • understand the sources of project risk and know how it can be quantified and analysed • understand how risk can be accounted for in project network analysis
9. Quality Management and Other Project Planning Issues	<ul style="list-style-type: none"> • understand the way in which ISO9000 can be applied in developing a Quality Plan for project management • understand the issues involved in developing an Organisational and Communication Plan • know how to write a formal Project Plan
10. Project Execution	<ul style="list-style-type: none"> • understand the tasks involved in Project Execution • be aware of the skills required of successful project managers
11. Project Control	<ul style="list-style-type: none"> • understand the scope of Project Control • understand the role of Earned Value Analysis in Project Control
12. Project Changes and Project Closure	<ul style="list-style-type: none"> • understand the importance of documenting all project changes • be aware of the tasks to be taken at the end of a project
13. Do's and Don'ts of Project Management	<ul style="list-style-type: none"> • be aware of some common problems in project management • understand the reasons for project success and failure