

MODULE TITLE	PROJECT MANAGEMENT
Nominal Duration	One Module
Module code or number	EB 071
Module Purpose	To enable students to describe the principles and concepts of project management, as related to a specific project or process, including typical documents required and procedures associated with commissioning and finishing a project, and to draw up a Critical Path Method network for this project or process.
Relationship to competency standards	<p>This module will be modified in line with the requirements of the National Metals and Engineering Standards when they become available.</p> <p>The module contains the knowledge and skills identified and agreed by all states/territories. It has been developed on the assumption that these will be reflected in the Standards.</p>
Prerequisites	<p>Before attempting this module, the participant should have knowledge of:</p> <p>Management principles (planning,leading,controlling, organising) Industry/company organisation structure (owners, principals, banks, main subcontractors, consultants) Supervision (communications, industrial relations, people management) Safety (legislation, responsibility, industrial hazards) Quality control Appropriate module:</p> <p>(EA 040) Occupational Health and Safety for Supervisors</p>
Summary of content	<p>1. <u>Introduction to Project Management</u></p> <p>Simple and complex projects: project team, tasks, start and finish dates, events, activities and durations, dependencies, plans, specification, budget, materials, plant and equipment, variations, contingencies, checkpoints, milestones.</p>

The Project Management Process: project life cycle, starting a project, progressive monitoring, solving problems, milestones, finishing, the triple constraints of time, budget and quality, project outcomes. Need for reports and meetings, budgets, records and project tracking information. Finishing, commissioning, handover, acceptance, audit.

The Project Management Environment: projects within continuing organisations. Project applications and project application of management principles, company and public authority organisation, industrial relations, safety, quality control, finance, legal aspects, types of contracts, compliance bonds.

Importance of Project Management: Brief History, Aerospace Program, PERT, CPM. The mutual benefits to society, management, clients and workers of effective project management. The low salvage value of unsuccessful or uncompleted projects, follies. Project management in Civil, Mechanical and Electrical Engineering. This introduction may be supported by the available films.

2. Contract Documents

Different types of contracts: acts and regulations.

Contract Documentation.

Contract Administration.

Contract Variation

3. Graphical Representation of Projects

The Gantt Bar Chart: horizontal time, vertical activities, variations, specific examples and limitations.

The Network Diagram: arrows with activity durations, nodes and event times, interdependence of activities, dummy activities, burst nodes.

The Critical Path: alternative paths to the finish node, the critical path, forward and backward pass, earliest and latest start and finish times, slack or float times, special terminology, calculation procedures. Calendaring.

Case Studies in CPM: simple specific examples not requiring computer assistance. Critical Path Analysis by Lockyer contains 20 specific examples.

Relevant computer software packages.

4. Budgeting and Tracking Project Progress

Preparation and analysis of budget figures.

Co-ordination, Contingencies and Risk: task interdependence, tracking progress and projecting changes and bottle-necks, reports and meetings of task leaders with project manager.

Reviews: periodic and topical, task leader meetings, and written reports, checkpoints and milestones, document types.

Variations: ripple effects of adopting changes, problem solving meetings, decisions and variations, project slippage. Reasons for changes: bankruptcy or default of subcontractor, accidents, errors, changes in rates and charges, unseasonal weather, plant breakdowns, late or defaulted deliveries, staff sickness or diversion to other projects, etc.

Problems and case studies: simple specific examples. Examples of forms of recording project status and costings.

Relevant computer software packages.

Delivery

Learning Outcomes

On completion of this module the learner will be able to:

Learning Outcome 1

Apply the concepts , specific technical terms and procedures used in project management.

Assessment Criteria

The student will outline a specific project or process identifying the role of each of the major participants in accordance with standard engineering practice.

Conditions

Assessment Method

Essay/Project

Learning Outcome 2

List and state the purpose of typical documents needed before the start of a project and those used to track and record project progress and costs.

Assessment Criteria

The student will identify and describe the essential features of each component area of the contract document for the relevant engineering field related activity, all in accordance with written literature and texts pertinent to this course of study.

Conditions

Assessment method

Short answer written test

Learning Outcome 3

Discuss case studies in writing, including graphics, comparison charts and checklists, relating possible solutions and probable consequences.

Assessment Criteria

The students will develop and draw up a critical path method network for a field related project/process. The CPM wall chart will sequence and co-ordinate a variety of activities required of a specific production or construction process, indicating critical paths, early and late finish dates, all in accordance with recognised industry practice.

Conditions

Assessment method

A CPM network flow chart with a written report.

Learning Outcome 4 Demonstrate an understanding of the procedures associated with finishing and commissioning a project.

Assessment Criteria Describe the procedures associated with finishing and commissioning a project.

Conditions

Assessment method Written test

Suggested learning resources

ALRUYA 1981
PROJECT MANAGEMENT, Wiley

ANTIL and RYAN 1982
CIVIL ENGINEERING CONSTRUCTION, McGraw Hill
(Part 3 pp 609-665 is Planning and Organisation)

HARRIS 1978
WORKED EXAMPLES IN CONSTRUCTION
MANAGEMENT, Granada

HARRISON 1989
ADVANCED PROJECT MANAGEMENT, Gower

KERRIDGE and VERVALIN 1986
ENGINEERING AND CONSTRUCTION PROJECT
MANAGEMENT, Gulf

KLEIN 1986
THE SECRETS OF SUCCESSFUL PROJECT
MANAGEMENT, Wiley

LOCK 1987
PROJECT MANAGEMENT, Wiley

LOCKYER 1984
CRITICAL PATH ANALYSIS, Pitman

LOVE 1989
ACHIEVING PROBLEM FREE PROJECT
MANAGEMENT, Wiley

ROSENAU 1984
PROJECT MANAGEMENT FOR ENGINEERS, Van
Nostrand Reinhold.