

Unit 223

The management of engineering enterprises

Unit summary

This unit is about management principles, organisational structures, performance measurement and control issues of particular relevance to engineering, technology and operations management.

Aims

The unit aims to develop a candidate's awareness of the functions of management in the control of engineering, technology and operations.

Prerequisites

It is expected that the candidates will have a working knowledge of the materials in the four compulsory papers of the Certificate examinations.

Learning outcomes

There are **two** outcomes to this unit. The candidate will be able to:

- Understand managerial functions, roles and responsibilities
- Recognise the issues, difficulties and problems facing management and how to address them

Guided learning hours

It is recommended that 300 hours should be allocated for this unit. 120 of those hours are actual taught hours. This may be on a full time or part time basis.

Key Skills

This unit contributes towards the Key Skills in the following areas:

KS5.1

Explore the demands of the work and formulate viable proposals for meeting these demands.

KS5.2

Plan to manage the work, and meet your own skill-development needs, and gain the necessary commitment from others.

KS5.3

Manage the work, adapting your strategy as necessary to resolve at least **two** complex problems and achieve the quality of outcomes required. Formally review, with an appropriate person, your use of skills in:

- communication;
- problem solving;
- working with others.

KS5.4

Evaluate your overall performance and present the outcomes, including at least:

- one formal, oral presentation of the outcomes from the work;
- one written evaluation of your overall approach and
- application of skills.

Occupational Standards

This unit has been mapped to the following National Occupational Standards:

- 1.1.1 Identify the requirements of clients for engineering products or processes
- 1.1.2 Produce specifications for engineering products or processes
- 1.2.1 Identify and define areas of research
- 1.4.1 Establish a design brief for engineering products or processes
- 1.4.2 Develop a strategy for the design process
- 2.1.1 Determine the production requirements of engineering products and processes
- 2.1.2 Specify production methods and procedures to achieve production requirements
- 2.1.3 Obtain the resources to implement the production methods and procedures
- 2.1.4 Schedule production activities to implement the production methods and procedures
- 3.1.1 Determine the installation requirements for engineering products or processes
- 3.1.2 Specify installation methods and procedures to achieve installation requirements
- 4.1.1 Determine the operational requirements of engineering products or processes
- 4.1.2 Specify operational methods and procedures to achieve operational requirements
- 5.1.1 Determine the maintenance requirements of engineering products or procedures
- 5.1.2 Specify maintenance methods and procedures to achieve maintenance requirements
- 6.1.1 Analyse the risks arising from engineering products and processes
- 6.2.1 Assure the quality of engineering products or processes
- 6.2.2 Identify the reasons for quality assurance problems
- 7.2.2 Manage the implementation of projects
- 7.2.3 Evaluate projects
- 8.1.1 Maintain and develop own engineering expertise

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Outcome 1

Understand managerial functions, roles and responsibilities

Knowledge requirements

The candidate knows how to:

- 1 recognise the nature of organisations
 - a types of business
 - b business objectives, strategy and policy
 - c legal requirements of business
- 2 recognise the impact of technology on society
- 3 understand technology transfer and technology strategy
- 4 understand the structures, functions and roles within contemporary business organisations
- 5 prepare financial reports, budgets, costings, accounts and project appraisals
- 6 understand roles of and skills required for management
 - a leadership
 - b motivation
 - c team working and team building
 - d personal management
- 7 chart professional development and career advancement
- 8 understand the professional issues in management
- 9 understand the generic issues in project management environments
- 10 recognise classical techniques for project management
- 11 control resource scheduling, budgeting and cost control
- 12 assess the risks in project management
- 13 investigate human factors and team issues in project management
- 14 present and analyse business data (descriptive statistics not statistical inference)
- 15 use decision analysis techniques
 - a decision trees
 - b EMV
 - c EVPI
- 16 assess the value of information
- 17 understand optimisation principles
 - a LP formulation
 - b graphic solutions
- 18 use simulation principles for analysing business problems
- 19 use forecasting techniques

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Outcome 2

Recognise the issues, difficulties and problems facing management and how to address them

Knowledge requirements

The candidate knows how to:

- 1 recognise management issues within and across business functions
 - a marketing and sales
 - i market research
 - ii the marketing process
 - iii customer focus
 - iv quality
 - b managing the design and product development process
 - c procurement, purchasing and supply chain management
 - d human resource management
 - e job design and work organisation
 - f productivity and work measurement
 - g performance measurement
 - h continuous improvement
 - i Japanese management principles
 - j knowledge and information management
- 2 recognise issues facing contemporary organisations
 - a ethics and corporate responsibility
 - b engineering Health and Safety at Work
 - c legal requirements
 - d environmental issues
 - e International business and the impact of globalisation

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Recommended reading list

Core texts	Author(s)	Publisher	ISBN
Exploring Corporate Strategy: Text and Cases	Johnson,Scholes	Pearson Education	0273687344
Financial Accounting for Non-Specialists	Atrill, Peter	Prentice Hall	0273655876
Management and Organisational Behaviour	Mullins	FT Pitman	0273688766
The Essence of Business Economics	Parker	Pearson Education	0135731305
The Essentials of Project Management	Lock	Gower	0566082241
Operations Management	Wild	Continuum	0826449271
Principles of Marketing	Kotler, Saunders, Armstrong	Pearson	0273684566