

## Unit 222

# The management of construction projects

### Unit summary

This unit is about the management principles, organisational structures, performance measurement and control of issues of particular relevance to the management of construction companies and projects.

### Aims

The unit aims to develop a candidate's awareness of the functions of management in the execution of construction projects including planning, cost and time management.

### 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 **three** outcomes to this unit. The candidate will be able to:

- Demonstrate the process involved in construction project management
- Demonstrate the techniques required to procure projects
- Apply control techniques during the project execution

### 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:

N4.1

Develop a strategy for using application of number skills over an extended period of time.

N4.2

Monitor progress and adapt your strategy, as necessary, to achieve the quality of outcomes required in work involving:

- deductive and inferential reasoning;
- algebraic manipulation.

N4.3

Evaluate your overall strategy and present the outcomes from your work, including use of charts, diagrams and graphs to illustrate complex data.

## **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
- 1.4.3 Create designs for engineering products or processes
- 1.4.4 Evaluate designs for engineering products or processes
- 2.1.1 Determine the production requirements of engineering products and processes
- 2.1.2 Specify production methods and procedures to achieve production requirements
- 3.1.1 Determine the installation requirements for engineering products or processes
- 4.1.1 Determine the operational requirements of engineering products or processes
- 7.1.1 Develop objectives for projects
- 7.1.2 Plan the delivery of projects
- 7.2.1 Establish project management systems
- 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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## **The management of construction projects**

Outcome 1

Demonstrate the process involved in construction project management

### **Knowledge requirements**

#### **The candidate knows how to:**

- 1 describe the nature and structure of the construction industry
- 2 describe the construction project cycle
- 3 identify the roles and functions of relevant parties
- 4 describe various construction companies organisational formats and departmental roles within it
- 5 describe contractual relationships and the project procurement process
- 6 assess types of contract

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### **Outcome 2**

## **The management of construction projects**

Demonstrate the techniques required to procure projects

### **Knowledge requirements**

#### **The candidate knows how to:**

- 1 identify and prepare the documentation required at the tendering stage
- 2 describe the tendering and estimating process
- 3 use estimating methods
  - a unit rate and operational estimating
  - b direct and indirect costs
  - c preliminaries
  - d overheads
  - e tender adjustment
- 4 prepare pre-tender planning and method statements

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### Outcome 3

Apply control techniques during the project execution

#### Knowledge requirements

##### The candidate knows how to:

- 1 develop cost control measures
  - a total budget and sub-budgets
  - b S curves and cash flow forecasting
  - c cost control coding
  - d reporting systems
  - e standard costs and variances
  - f indices and price adjustments
  - g interim evaluations
  - h claims
- 2 apply arbitration, adjudication and alternative dispute resolution
- 3 implement various types of construction planning and know their relationship to stages of the construction process
- 4 use planning methods
  - a bar charts
  - b critical path networks
  - c line of balance
- 5 use methods of resource estimation
  - a scheduling
  - b allocation
- 6 monitor and record progress
- 7 take corrective action
- 8 define performance
- 9 implement key performance indicators
- 10 explain the cost/time/quality triangle
- 11 define productivity
- 12 measure and improve productivity through work study
  - a method study
  - b work measurement

- 13 organise sitework
  - a selection of construction plant
  - b plant maintenance policies
  - c site layout
  - d materials management
  - e Health and Safety issues and regulations
  - f Construction (Design and Management) regulations
  - g quality management
    - i principles
    - ii application

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### Recommended reading list

<b>Core texts</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>ISBN</b>
Construction Management in Practice	Fellows, Langford et al	Blackwell	0632064021
Construction Methods and Planning	Illingworth	Spon Press	041924980X
Modern Construction Management	Harris, McCaffer	Blackwell	0632055138
Principles of Construction Management	Pilcher	McGraw-Hill	0077072367 o/p
<b>Other useful texts</b>			
Building Economics	Seeley	Palgrave Macmillan	0333638352
Project Cost Estimating	Smith (Editor)	Thomas Telford	0727720325
Cost Planning of Building		Ferry Blackwell	0632042516 o/p