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### Overview

This unit is about preparing method statements, programmes and schedules and calculating resource requirements and monitoring progress and dealing with deviations from plans.

You will need to assess data, obtaining more if necessary and analyse and assess work methods and produce a method statement. You will need to identify activities, calculate the resources and time requirements, analyse the activities and produce activity programmes and schedules.

You will need to implement monitoring systems, identify deviations from plans and, following investigation, implement appropriate corrective action. You will need to regularly inform decision makers regarding progress and identify, and recommend possible improvements.

### Performance criteria

#### Assess and identify work methods

*You must be able to:*

- P1 assess the available project data accurately and summarise it to enable decisions on construction, installation and work methods to be made
- P2 obtain more information from alternative sources in cases where the available project data is insufficient
- P3 identify with site personnel any special considerations, record them and pass them onto people who may be affected
- P4 assess the selected work methods against relevant technical and project criteria and identify the one which best meets the criteria
- P5 analyse the method which has been selected for its activity content and quantify it accurately
- P6 prepare a method statement which is accurate, clear, concise and acceptable to all the people involved

#### Develop project programming and resourcing

*You must be able to:*

- P7 identify major activities, calculating the resources needed from the information available and prepare a draft work programme
- P8 develop schedules to procure resources
- P9 obtain clarification and advice where the resources needed are not available
- P10 calculate how long each activity will take, identify activities which influence each other and sequence them logically and realistically so that they make the best use of the resources available
- P11 analyse the sequential programming of activities against technical and project requirements and the necessary resources
- P12 produce detailed programmes and schedules of planned activities which are consistent with the complexity of the project
- P13 identify alterations to the works programme which will meet changed circumstances or offer cost and time benefits, calculate the savings accurately and justify them to decision makers
- P14 implement a system for monitoring the works programme and use the results to improve future production and planning

### **Monitor project progress against agreed programmes**

*You must be able to:*

- P15 implement systems to monitor and record the progress of the contract against the agreed programmes, and collect information regularly and summarise it accurately
- P16 identify and quantify any variations and deviations from planned progress which have occurred, or which may occur, and which could disrupt the programme
- P17 investigate the circumstances of any variations thoroughly and report to line manager
- P18 suggest options which are most likely to minimise increases in cost and time and help the contract progress, and pass these on to line manager
- P19 revise programme to accommodate new circumstances

### Knowledge and understanding

*You need to know and understand:*

#### Assess and identify work methods

- K1 how to summarise project data (application)
- K2 how and why to assess the available project data (analysis)
- K3 how and why to recommend the selected work methods (synthesis)
- K4 how and why to prepare a method statement (synthesis)
- K5 how to obtain more information from alternative sources in cases where the available project data is insufficient (application)
- K6 how and why to assess the selected methods against relevant technical and project criteria and identify the method which best meets the criteria (evaluation)
- K7 how and why to analyse and quantify the method which has been selected for its activity content (analysis)

#### Develop project programming and resourcing

*You need to know and understand:*

- K8 what to identify as major activities (understanding)
- K9 how to calculate the resources needed from the information available (application)
- K10 how to prepare a draft work programme (application)
- K11 how to obtain clarification and advice where the resources needed are not available (application)
- K12 how to calculate how long each activity will take and sequence activities (application)
- K13 which activities to you identify as influencing each other (understanding)
- K14 how and why to analyse the sequential programming of activities against technical and project requirements (analysis)
- K15 how to produce detailed programmes and schedules of planned activities (application)
- K16 what alterations to the work programme do you identify which will meet changed circumstances or offer cost and time benefits (understanding)

- K17 how to calculate the savings resulting from alterations to the work programme (application)
- K18 how and why to justify to decision makers the savings resulting from alterations to the work programme (evaluation)
- K19 how to implement a system for monitoring the works programme (application)
- K20 how to use the results of monitoring to improve future production and planning (application)

*You need to know and understand:*

### **Monitor project progress against agreed programmes**

- K21 how to implement systems to monitor and record the progress of the contract against the agreed programmes, and collect and summarise information (application)
- K22 what to identify as any variations and deviations from planned progress which have occurred, or which may occur, and which could disrupt the programme (understanding)
- K23 how and why to quantify any variations and deviations from planned progress which could disrupt the programme (analysis)
- K24 how and why to investigate the circumstances of any variations (analysis)
- K25 how to report variations and circumstances to line manager (application)
- K26 how to suggest options which are most likely to minimise increases in cost and time and help the contract progress and pass them to line manager (application)
- K27 how to revise programme to accommodate new circumstances (application)

### Additional Information

#### Scope/range

#### Assess and identify work methods

##### 1. Project data:

- 1.1. conditions of contract
- 1.2. bills of quantities
- 1.3. specifications
- 1.4. detailed drawings
- 1.5. health and safety plans
- 1.6. time-scales
- 1.7. contractual risks, obligations and scope of works

##### 2. Construction, installation and work methods:

- 2.1. sequencing of work and integration of work operations
- 2.2. organisation of resources (people, plant, materials, finance)
- 2.3. construction and installation techniques
- 2.4. temporary works
- 2.5. prefabrication and standardisation (volumetric pods, panelised hybrid)
- 2.6. health, safety and welfare
- 2.7. new materials and technologies

##### 3. Alternative sources:

- 3.1. the client
- 3.2. consultants
- 3.3. contractors
- 3.4. sub-contractors
- 3.5. suppliers
- 3.6. regulatory authorities
- 3.7. technical literature
- 3.8. trade literature
- 3.9. organisational expertise

##### 4. Identify work methods:

- 4.1. standard lists and procedures
- 4.2. investigative research

### **5. Technical and project criteria:**

- 5.1. materials component performance and availability
- 5.2. structural forms
- 5.3. phased occupancy
- 5.4. fire protection
- 5.5. access
- 5.6. plant, equipment, people capability
- 5.7. traffic generation and management
- 5.8. environmental factors
- 5.9. transportation
- 5.10. waste and sustainability
- 5.11. seasonal weather conditions
- 5.12. buildability
- 5.13. value engineering
- 5.14. protection of archaeological and historically valuable resources
- 5.15. third party obligations
- 5.16. other related programmes
- 5.17. community benefits, including skills and training

### **6. Analyse:**

- 6.1. method study
- 6.2. work study
- 6.3. production analysis
- 6.4. benchmarking

### **Develop project programming and resourcing**

### **7. Resources:**

- 7.1. people
- 7.2. plant and equipment
- 7.3. materials and components
- 7.4. sub-contractors
- 7.5. information

### **8. Programmes and schedules:**

- 8.1. bar charts
- 8.2. network analysis
- 8.3. critical path
- 8.4. time change
- 8.5. action lists
- 8.6. method statements

### **9. Clarification and advice - from:**

- 9.1. the client/client's representative
- 9.2. consultants
- 9.3. project team partners
- 9.4. practice research
- 9.5. technical publications
- 9.6. trade literature
- 9.7. management

### **10. Analyse - using:**

- 10.1. method study
- 10.2. work study
- 10.3. production analysis

### **11. Technical and project requirements:**

- 11.1. materials component performance and availability
- 11.2. structural forms
- 11.3. phased occupancy
- 11.4. fire protection
- 11.5. access
- 11.6. plant, equipment, people capability
- 11.7. traffic generation and management
- 11.8. environmental factors
- 11.9. transportation
- 11.10. waste and sustainability
- 11.11. seasonal weather conditions
- 11.12. buildability
- 11.13. value engineering



11.14. protection of archaeological and historically valuable resources

11.15. third party obligations

11.16. other related programmes

11.17. community benefits, including skills and training

### **12. Produce:**

12.1. manually

12.2. electronically

### **Monitor project progress against agreed programmes**

### **13. Systems to monitor and record:**

13.1. visual inspection

13.2. resource records

13.3. site inspection reports

13.4. contractors' reports

13.5. certified payments

13.6. written and graphical records of actual work against programmed work

13.7. site meetings

13.8. key performance indicators

13.9. organisational procedures

13.10. management reports

13.11. benchmarks

### **14. Programmes:**

14.1. bar charts

14.2. network analysis

14.3. critical path

14.4. time change

14.5. action lists

14.6. method statements

14.7. project expenditure forecasts

### **15. Resources:**

- 15.1. people
- 15.2. plant and equipment
- 15.3. materials and components
- 15.4. finance
- 15.5. time
- 15.6. specialist services
- 15.7. public utility services
- 15.8. information

### **16. Quantify:**

- 16.1. method study
- 16.2. work study
- 16.3. production analysis
- 16.4. cost implication

### **17. Circumstances:**

- 17.1. resource shortages
- 17.2. design problems and constraints
- 17.3. industrial disputes
- 17.4. lack of essential construction information
- 17.5. construction errors
- 17.6. inclement weather
- 17.7. physical constraints
- 17.8. legal
- 17.9. environmental
- 17.10. contract variations
- 17.11. force majeure

### **18. Revise:**

- 18.1. revise programme
- 18.2. agree new completion dates
- 18.3. initiate contract claim

# COSCCO013

## Assess, plan and monitor project methods and progress in construction

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