

# Construction Contracting Operations Level 3 CCOL3 (SQA Unit Code-F51D 04)

**The Unit:**

**CCOL3/O13 Plan, review and monitor project methods and progress**

## **The Standards that are part of this Unit**

CCOL3/O13.1 Assess and recommend work methods

CCOL3/O13.2 Plan project programming and resourcing

CCOL3/O13.3 Control project progress against agreed programmes

## **The Unit Commentary**

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

O13.1 Assess and recommend work methods

You will need to assess data, obtaining more if necessary and analyse and assess work methods and produce a method statement.

O13.2 Plan project programming and resourcing

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 and identify and deal with alterations.

O13.3 Control project progress against agreed programmes

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

## O13 Plan, review and monitor project methods and progress

### O13.1 Assess and recommend work methods

#### *Performance Criteria - this involves...*

- (a) assessing the available **project data** accurately and summarising it to enable decisions on **construction, installation and work methods** to be made
- (b) obtaining more information from **alternative sources** in cases where the available **project data** is insufficient
- (c) assessing the selected **work methods** against relevant **technical** and **project criteria** and recommending the one which best meets the **criteria**
- (d) **analysing** the **method** which has been selected for its activity content and quantifying it accurately
- (e) preparing a method statement which is accurate, clear, concise and acceptable to all the people involved

#### *The Range...*

- [1] **Project data:**
  - conditions of contract;
  - bills of quantities;
  - specifications;
  - detailed drawings;
  - health and safety plans;
  - time-scales;
  - contractual risks, obligations and scope of works
- [2] **Construction, installation and work methods:**
  - sequencing of work;
  - organisation of resources (people, plant, materials, finance);
  - physical;
  - construction and installation techniques;
  - temporary works;
  - prefabrication;
- [3] **Alternative sources:**
  - the client;
  - the client's representative;
  - contractors;
  - sub-contractors;
  - suppliers;
  - regulatory authorities;
  - technical literature;
  - trade literature
- [4] **Identifying work methods:**
  - standard lists and procedures;
  - investigative research
- [5] **Technical criteria:**
  - materials & component performance and availability;
  - structural forms;
  - occupancy;
  - health, safety and welfare;
  - fire protection;
  - access;
  - plant, equipment & people availability & performance;
  - traffic generation and management;
  - general environmental factors
  - transportation;
  - pollution risk;
  - waste and sustainability;
  - seasonal weather conditions
- [6] **Project criteria:**
  - cost benefit;
  - conformity to statutory requirements;
  - client and user needs;
  - contract requirements in terms of time, quantity and quality;
  - environmental considerations;
  - third party obligations;
  - other related programmes;
  - supply lead times
- [7] **Analysing:**
  - method study;
  - work study;
  - production analysis

## O13 Plan, review and monitor project methods and progress

### O13.1 Assess and recommend work methods

#### *The Evidence - performance and process*

*Taken as a whole, the evidence must show that the candidate consistently meets all the performance criteria, across the ranges for the Element.*

*References in brackets after items in the Evidence specification refer to the corresponding performance criteria, eg. (a), and range, eg. [1], to which they apply.*

*There must be workplace evidence against each performance criterion. Where the workplace evidence does not cover a whole range, knowledge evidence must be provided to cover the remaining items of range for each relevant performance criterion.*

#### **Product Evidence:**

*The candidate must produce documentary evidence from the workplace covering the following items that are considered to be common and key/critical to demonstrate competence:*

- (1) Evaluation(s) of work methods which include assessments of project data, information from alternative services, selected work methods, technical and project criteria (a,b,c,d) [1,2,3,4,5,6]
- (2) Record(s) of recommended work methods (c) [2]
- (3) Method statement(s) (e,f) [2,7]

*Simulations are not considered to be acceptable for producing evidence for this Element.*

#### **Process Evidence:**

*None applicable*

#### *Evidence: knowledge and understanding*

*Established from questioning the candidate or from industry recognised education and training course assessment, which is matched to the Element. A candidate's knowledge and understanding can also be demonstrated through presented performance evidence.*

- (1) How do you summarise **project data**? (application) (a) [1,2]
- (2) How and why do you assess the available **project data**? (analysis) (a) [1,2]
- (3) How and why do you recommend the selected **work methods**? (synthesis) (c) [2,4]
- (4) How and why do you prepare a method statement? (synthesis) (e) [2,4]
- (5) How do you obtain more information from **alternative sources** in cases where the available **project data** is insufficient? (application) (b) [1,2,3]
- (6) How and why do you assess the selected **methods** against relevant **technical** and **project criteria** and recommend the method which best meets the **criteria**? (evaluation) (c) [2,5,6,7]
- (7) How and why do you **analyse** and quantify the **method** which has been selected for its activity content? (analysis) (d) [4,7]

## O13 Plan, review and monitor project methods and progress

### O13.2 Plan project programming and resourcing

#### *Performance Criteria - this involves...*

- (a) identifying major activities, calculating the **resources** needed from the information available and preparing a draft work **programme**
- (b) raising requisition sheets to procure goods, materials and sub-contract works
- (c) obtaining **clarification and advice** where the resources needed are not available
- (d) calculating how long each activity will take, identifying activities which influence each other and sequencing them logically and realistically so that they make the best use of the **resources** available
- (e) **analysing** the sequential programming of activities against **project requirements**, the requirements of significant **external factors**, and the necessary **resources**
- (f) **producing** detailed **programmes and schedules** of planned activities which are consistent with the complexity of the project
- (g) identifying alterations to the works **programme** which will meet changed circumstances or offer cost and time benefits, calculating the savings accurately and justifying them to decision makers
- (h) implementing a system for monitoring the works **programme** and using the results to improve future production and planning

#### *The Range...*

- [1] **Resources:**
  - people;
  - plant and equipment;
  - materials and components;
  - sub-contractors;
  - information
- [2] **Programmes and schedules:**
  - bar charts;
  - network analysis;
  - critical path;
  - line of balance;
  - action lists;
  - method statements
- [3] **Clarification and advice - from:**
  - the client/client's representative;
  - consultants;
  - project team partners;
  - practice research;
  - technical publications;
  - trade literature;
  - management
- [4] **Analysing - using:**
  - method study;
  - work study;
  - production analysis
- [5] **Project requirements:**
  - contract conditions;
  - contract programme stipulations;
  - statutory consent;
  - Building Control notification;
  - third party obligations;
  - health and safety requirements;
  - quantities
- [6] **External factors:**
  - other related programmes;
  - supply lead times;
  - contingencies;
  - special working conditions;
  - seasonal weather conditions;
  - statutory limitations
- [7] **Producing:**
  - manually;
  - electronically

## O13 Plan, review and monitor project methods and progress

### O13.2 Plan project programming and resourcing

#### *The Evidence - performance and process*

*Taken as a whole, the evidence must show that the candidate consistently meets all the performance criteria, across the ranges for the Element.*

*References in brackets after items in the Evidence specification refer to the corresponding performance criteria, eg. (a), and range, eg. [1], to which they apply.*

*There must be workplace evidence against each performance criterion. Where the workplace evidence does not cover a whole range, knowledge evidence must be provided to cover the remaining items of range for each relevant performance criterion.*

#### **Product Evidence:**

*The candidate must produce documentary evidence from the workplace covering the following items that are considered to be common and key/critical to demonstrate competence:*

- (1) Draft works programme(s) (a) [1,2]
- (2) Requisition sheets (b)
- (3) Detailed programme(s) and schedule(s) (c,d,e,f) [all]
- (4) Alterations to works programme(s) with savings identified (g) [2]
- (5) Records of system(s) implemented for monitoring works programmes which include the use of results to improve future production and planning (h) [2,4]

*Simulations are not considered to be acceptable for producing evidence for this Element.*

#### **Process Evidence:**

*None applicable*

#### *Evidence: knowledge and understanding*

*Established from questioning the candidate or from industry recognised education and training course assessment, which is matched to the Element. A candidate's knowledge and understanding can also be demonstrated through presented performance evidence.*

- (1) What do you identify as major activities? (understanding) (a) [1,2]
- (2) How do you calculate the **resources** needed from the information available? (application) (a) [1,2]
- (3) How do you raise requisition sheets to procure goods, materials and sub-contract works? (application) (b)
- (4) Which activities do you identify as influencing each other? (understanding) (d) [2]
- (5) What alterations to the work **programme** do you identify which will meet changed circumstances or offer cost and time benefits? (understanding) (g) [2]
- (6) How do you obtain **clarification and advice** where the **resources** needed are not available? (application) (c) [3]
- (7) How do you calculate the savings resulting from alterations to the work **programme**? (application) (g) [2]
- (8) How do you implement a system for monitoring the works **programme**? (application) (h) [2]
- (9) How do you prepare a draft work **programme**? (application) (a) [2]
- (10) How do you calculate how long each activity will take and sequence activities? (application) (d) [2,4]
- (11) How and why do you justify to decision makers the savings resulting from alterations to the work **programme**? (evaluation) (g) [2]
- (12) How do you use the results of monitoring to improve future production and planning? (application) (h) [2,4]
- (13) How and why do you **analyse** the activities against **project requirements** and the requirements of significant **external factors**? (analysis) (e) [4,5,6]
- (14) How do you produce detailed programmes and schedules of planned activities? (application) (f) [2,7]

O13 Plan, review and monitor project methods and progress

### O13.3 Control project progress against agreed programmes

#### *Performance Criteria - this involves...*

- (a) implementing **systems to monitor and record** the progress of the contract against the agreed **programmes**, collecting information regularly and summarising it accurately
- (b) identifying inadequately and inappropriately specified **resources**, informing **decision makers** and specifying and obtaining alternative **resources**
- (c) identifying and **quantifying** any variations and **deviations** from planned progress which have occurred, or which may occur, and which could disrupt the **programme**
- (d) investigating the circumstances of any variations and **deviations** thoroughly and agreeing and implementing appropriate **corrective action**
- (e) recommending options which are most likely to minimise increases in cost and time and help the contract progress, and passing these on to **decision makers**
- (f) regularly informing **decision makers** about progress, changes to the operational programme, **resource** needs, and suggesting the decisions and actions that need to be taken
- (g) identifying improvements from feedback received and recommending them to **decision makers**

#### *The Range...*

##### [1] **Systems to monitor and record:**

- visual inspection;
- resource records;
- site inspection reports;
- contractors' reports;
- certified payments;
- written and graphical records of actual work against programmed work;
- site meetings;
- key performance indicators

##### [2] **Programmes:**

- bar charts;
- network analysis;
- critical path;
- line of balance;
- action lists;
- method statements;
- project expenditure forecasts

##### [3] **Resources:**

- people;
- plant and equipment;
- materials and components;
- finance;
- time;
- specialist services;
- public utility services;
- information

##### [4] **Quantifying:**

- method study;
- work study;
- production analysis

##### [5] **Deviations:**

- resource shortages;
- design problems and constraints;
- industrial disputes;
- lack of essential construction information;
- construction errors;
- inclement weather;
- physical (site) constraints;
- legal

##### [6] **Corrective action:**

- restore progress in accordance with agreed programme;
- agree new completion dates;
- initiate contract claim;
- securing additional resources;
- altering planned work

##### [7] **Decision makers:**

- the client;
- contractors;
- consultants;
- suppliers;
- contract management

## O13 Plan, review and monitor project methods and progress

### O13.3 Control project progress against agreed programmes

#### *The Evidence - performance and process*

*Taken as a whole, the evidence must show that the candidate consistently meets all the performance criteria, across the ranges for the Element.*

*References in brackets after items in the Evidence specification refer to the corresponding performance criteria, eg. (a), and range, eg. [1], to which they apply.*

*There must be workplace evidence against each performance criterion. Where the workplace evidence does not cover a whole range, knowledge evidence must be provided to cover the remaining items of range for each relevant performance criterion.*

#### **Product Evidence:**

*The candidate must produce documentary evidence from the workplace covering the following items that are considered to be common and key/critical to demonstrate competence:*

- (1) Progress monitoring and recording system(s) including record(s) which include collected and summarised information (a) [1,2]
- (2) Record(s) of identified and quantified variations and deviation(s) which include identified and inadequate and inappropriate specified resources, specified alternatives and agreed corrective action (b,c,d) [2,3,4,5,6,7]
- (3) Record(s) of information and recommendations about progress passed to decision makers which include options likely to minimise increases in cost and time, programme changes, resource needs, suggested decisions and improvements from feedback (b,d,e,f,g) [3,6,7]

*Simulations are not considered to be acceptable for producing evidence for this Element.*

#### **Process Evidence:**

*None applicable*

#### *Evidence: knowledge and understanding*

*Established from questioning the candidate or from industry recognised education and training course assessment, which is matched to the Element. A candidate's knowledge and understanding can also be demonstrated through presented performance evidence.*

- (1) How do you implement **systems to monitor and record** the progress of the contract against the agreed **programmes**, and collect and summarise information? (application) (a) [1,2]
- (2) What do you identify as inadequately and inappropriately specified **resources**? (understanding) (b) [3]
- (3) How do you inform **decision makers** about inadequately and inappropriately specified **resources**, and obtain alternative **resources**? (application) (b) [3]
- (4) How and why do you specify alternative **resources**? (evaluation) (b) [3]
- (5) What do you identify as any **deviations** from planned progress which have occurred, or which may occur, and which could disrupt the **programme**? (understanding) (c) [2,5]
- (6) How and why do you **quantify** any **deviations** from planned progress? (analysis) (c) [4,5]
- (7) How and why do you investigate the circumstances of any variations and **deviations**? (analysis) (d) [5,6]
- (8) What do you identify as improvements from feedback received? (understanding) (g) [3,7]
- (9) How do you implement **corrective action**? (application) (d) [6]
- (10) How and why do you recommend options which are most likely to minimise increases in cost and time and help the contract progress? (synthesis) (e) [3,6]
- (11) How and why do you agree **corrective action** in circumstances of any variations and **deviations**? (evaluation) (d) [5,6]
- (12) How do you recommend options which are most likely to minimise increases in cost and time and help the contract progress and regularly inform **decision makers** about progress, changes to the operational programme, and **resource** needs? (application) (e,f) [3,7]
- (13) How and why do you suggest the decisions and actions that need to be taken? (synthesis) (f) [7]
- (14) How and why do you recommend improvements to **decision makers**? (synthesis) (g) [7]