

Development Pack
National Occupational Standards
for
Geomatics and Site Surveying

Project 2019 / 2020

COSGSS001, COSGSS002, COSGSS003, COSGSS004,
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Contents

| | | Page no. |
|---------------------|---|----------|
| Revised NOS: | | |
| COSGSSO01 | Manage communications and personal and interpersonal skills in geomatics and site surveying | 1 |
| COSGSSO02 | Ensure your own actions reduce risks to health and safety in geomatics and site surveying | 10 |
| COSGSSO03 | Prepare, observe and record survey data in geomatics and site surveying | 15 |
| COSGSSO04 | Prepare, present and advise on survey information in geomatics and site surveying | 23 |
| COSGSSO05 | Establish and maintain the dimensional control and setting out of construction projects in geomatics and site surveying | 31 |
| COSGSSO06 | Establish and operate spatial and operational information systems in geomatics and site surveying | 39 |
| COSGSSO07 | Allocate and monitor team work in geomatics and site surveying | 46 |

Overview

This unit covers your key responsibilities for effective participation in meetings and working with other people. It is about preparing for and participating in meetings, and following actions up as appropriate. It deals with working relationships. These can be formal or informal relationships with people at all levels. It involves identifying skills that need to be developed, and planning and implementing the development of those skills.

Performance criteria

You must be able to:

Participate in meetings

- P1 brief yourself on the content of the meeting, identify relevant information and clarify your opinions on various agenda items
- P2 consult with those who have an interest in the various agenda items in order to understand and be able to represent their opinions
- P3 clarify your objectives from the meeting what you hope the meeting will achieve
- P4 present relevant information to the meeting clearly and concisely
- P5 present your opinions and the interests of those you are representing in a convincing way, providing evidence to support your case, if required
- P6 articulate any issues and problems emerging from discussions and propose and evaluate possible solutions
- P7 acknowledge and constructively discuss information and opinions provided by other people
- P8 clarify decisions taken on the various agenda items, where necessary
- P9 communicate decisions clearly and concisely and in a timely way to those who have an interest in the various agenda items, in line with any communication protocol agreed at the meeting

Develop and maintain relationships with people who are affected by your work

You must be able to:

- P10 develop, maintain and encourage **working relationships** with **people** which **promote goodwill and trust**
- P11 **inform people** about **work activities** in an appropriate level of detail and with an appropriate degree of urgency
- P12 **offer advice** and help to **people** about **work activities** with sensitivity and encourage questions, requests for clarification and comments
- P13 **present** proposals for action clearly to **people** at an appropriate time and with the right level of detail for the degree of change, expenditure and risk involved
- P14 **clarify** with **people** objections to proposals and suggest alternative proposals
- P15 resolve conflicts and differences of opinion in ways which minimise offence, and maintain **goodwill, trust** and respect

Undertake continuous personal development

You must be able to:

- P16 define, review and update the personal **aims and objectives** for undertaking **personal development**
- P17 identify and contact **sources of support and guidance** for undertaking **personal development**
- P18 prepare a **development plan** for achieving identified development needs

**Performance
criteria**

P19 undertake **development activities** aimed at achieving identified development needs, review and record progress and the effectiveness of the **activities**

Knowledge and understanding

You need to know and understand:

Participate in meetings

- K1 the importance of briefing yourself on the content of the meeting
- K2 how to identify relevant information for the meeting and clarify your opinions on various agenda items
- K3 the importance of consulting those who have an interest in the various agenda items, and how to do so in order to understand and be able to represent their opinions
- K4 the importance of setting your objectives for the meeting, and how to do so
- K5 the importance of presenting relevant information and opinions to the meeting clearly and concisely, and how to do so
- K6 how to present your opinions and the interests of those you are representing in a convincing way
- K7 the importance of identifying and articulating any issues and problems emerging from discussions, and how to contribute to resolving them
- K8 the importance of acknowledging information and opinions provided by other people and how to discuss these constructively
- K9 the importance of clarifying decisions taken on various agenda items, where necessary, and how to do so
- K10 the importance of communicating decisions clearly and in a timely way to those who have an interest in the various agenda items, and how to do so in line with any communication protocol agreed at the meeting
- K11 industry/sector requirements for participating in meetings
- K12 the types and sources of information relevant for the meeting
- K13 people who have an interest in the various agenda items

Develop and maintain relationships with people who are affected by your work

You need to know and understand:

- K14 how to maintain and encourage **working relationships** with **people** which **promote goodwill and trust** (application)
- K15 how and why to develop **working relationships** with **people** which **promote goodwill and trust** (synthesis)
- K16 how and why to resolve conflicts and differences of opinion in ways which minimise offence, and maintain **goodwill, trust** and respect (synthesis)
- K17 how to encourage questions, requests for clarification and comments (application)
- K18 how to **present** proposals for action to **people** (application)
- K19 how to **clarify** with **people** objections to proposals (application)
- K20 how and why to suggest alternative proposals where objections have been raised in respect of existing proposals (synthesis)

Knowledge and understanding

- K21 how to **inform people** about **work activities** in an appropriate level of detail and with an appropriate degree of urgency (application)
- K22 how and why to **offer advice** and help to **people** about **work activities** (synthesis)

Undertake continuous personal development

You need to know and understand:

- K23 how to update the personal **aims and objectives** for undertaking **personal development** (application)
- K24 how and why to review the personal **aims and objectives** for undertaking **personal development** (analysis)
- K25 how and why to define the personal **aims and objectives** for undertaking **personal development** (evaluation)
- K26 what to identify as **sources of support and guidance** for undertaking **personal development** (understanding)
- K27 how to contact **sources of support and guidance** for undertaking **personal development** (application)
- K28 how and why to prepare a **development plan** (synthesis)
- K29 how to record progress and the effectiveness of the **development activities** (application)
- K30 how and why to review progress and the effectiveness of the **development activities** (analysis)
- K31 how and why to undertake **development activities** (evaluation)

Scope/range**Develop and maintain relationships with people who are affected by your work**

- 1 Working relationships:
 - 1.1 formal (contractual and statutory)
 - 1.2 informal
- 2 People:
 - 2.1 internal to the organisation
 - 2.2 external to the organisation
 - 2.3 general public
- 3 Promote goodwill and trust:
 - 3.1 demonstrating a duty of care
 - 3.2 ethical relationships
 - 3.3 professional independence
 - 3.4 honouring promises and undertakings
 - 3.5 constructive relationships
- 4 Informing, offering advice, presenting and clarifying:
 - 4.1 orally
 - 4.2 in writing
 - 4.3 using graphics
 - 4.4 electronically
- 5 Work activities:
 - 5.1 progress
 - 5.2 results
 - 5.3 achievements
 - 5.4 emerging threats
 - 5.5 risks
 - 5.6 opportunities

Undertake continuous personal development

- 6 Aims and objectives:
 - 6.1 preparation for new projects
 - 6.2 intellectual challenge
 - 6.3 keeping abreast of new and innovative developments
 - 6.4 compliance with employer, industry and professional requirements

Scope/range

- 6.5 promotion or job change
- 6.6 awareness of development needs
- 7 Personal development:
 - 7.1 maintenance of competence
 - 7.2 development of new competence
 - 7.3 commitment to professional excellence
- 8 Sources of support and guidance:
 - 8.1 national/industry bodies
 - 8.2 professional Institutions
 - 8.3 education and training providers
 - 8.4 in house
 - 8.5 current publications (printed or online)
 - 8.6 National Occupational Standards
- 9 Development plan includes:
 - 9.1 priorities
 - 9.2 target dates
 - 9.3 development activities
- 10 Development activities:
 - 10.1 formal courses
 - 10.2 research
 - 10.3 work experience
 - 10.4 personal learning

COSGSSO01

Manage communications and personal and interpersonal skills in geomatics and site surveying



COSGSSO01

Manage communications and personal and interpersonal skills in geomatics and site surveying



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Relevant occupations Building and civil engineering technicians; chartered surveyors (not quantity surveyors) managers; cartographer (digital)

Suite Geomatics and Site Surveying

Keywords Key Words meetings; relationships; develop; skills; personal development

Overview

This unit is about identifying any work practices which could harm you or others. It is also about dealing with them in accordance with workplace instructions and legal requirements and reporting hazards to those responsible for health and safety. It is about making sure that your behaviour and personal presentation meets legal responsibilities and is in accordance with workplace instructions.

Performance criteria*You must be able to:*

- P1 identify which workplace instructions are relevant to your job
- P2 identify those working practices in your job which could harm you or others
- P3 identify those aspects of your workplace which could harm you or others
- P4 check which of the potentially harmful working practices and aspects of your workplace present the highest risks to you or to others
- P5 deal with hazards in accordance with workplace instructions and legal requirements
- P6 name and locate correctly the people responsible for health and safety in your workplace
- P7 report to the people responsible for health and safety in your workplace those hazards which present the highest risks
- P8 carry out your work in accordance with your level of competence, workplace instructions, suppliers' or manufacturers' instructions and legal requirements
- P9 control those health and safety risks within your capability and job responsibilities
- P10 pass on any suggestions for reducing risks to health and safety to the responsible persons
- P11 make sure your behaviour does not endanger the health and safety of you or others in your workplace
- P12 follow the workplace instructions and suppliers instructions for the safe use of equipment, materials and products
- P13 report differences between workplace instructions and suppliers' or manufacturers' instructions
- P14 make sure that your personal presentation and behaviour at work protects the health and safety of you and others, meets any legal responsibilities, and is in accordance with workplace instructions
- P15 make sure you follow environmentally-friendly working practices

Knowledge and understanding

You need to know and understand:

- K1 what "hazards" and "risks" are
- K2 your responsibilities and legal duties for health and safety in the workplace
- K3 your responsibilities for health and safety as required by the law covering your job role
- K4 the hazards which exist in your workplace and the safe working practices which you must follow
- K5 the particular health and safety hazards which may be present in our own job and the precautions you must take
- K6 the importance of remaining alert to the presence of hazards in the whole workplace
- K7 the importance of dealing with, or promptly reporting, risks
- K8 the responsibilities for health and safety in your job description
- K9 the safe working practices for your own job
- K10 the responsible people you should report health and safety matters to
- K11 where and when to get additional health and safety assistance
- K12 your scope and responsibility for controlling risks
- K13 workplace instructions for managing risks which you are unable to deal with
- K14 suppliers' and manufacturers' instructions for the safe use of equipment, materials and products which you must follow
- K15 the importance of personal presentation in maintaining health and safety in your workplace
- K16 the importance of personal behaviour in maintaining the health and safety of you and others
- K17 the risks to the environment which may be present in your workplace and/or in your own job

COSGSSO02

Ensure your own actions reduce risks to health and safety in geomatics and site surveying



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Relevant occupations Building and civil engineering technicians; chartered surveyors (not quantity surveyors) managers; cartographers (digital)

Suite Geomatics and Site Surveying

Keywords Health and safety; risk; hazards

Overview

This unit is about preparing for and conducting surveys, and recording survey data. You will need to make necessary checks and arrangements prior to surveys.

Performance criteria

You must be able to:

Prepare for site surveying

- P1 confirm that the **site surveying, specification** and **site surveying method** statement are appropriate for the circumstances before starting the work
- P2 check and confirm, before starting work, that people who will be affected have given their **permission**
- P3 arrange for suitable **equipment** to be brought to the site and kept safely and securely
- P4 check **equipment** to ensure that it has been calibrated and adjusted for accuracy
- P5 check and confirm that **site surveying arrangements** and **safety arrangements, equipment** and site access conform to good practice, legislation and regulation

Observe and record site surveying data

You must be able to:

- P6 conduct and record the **site surveying** using a **method** which maintains the level of accuracy required, balances content and cost and keeps disruption to a minimum
- P7 conform to **safe working practices** when on the site
- P8 consult with experts when specialist information is needed which is relevant to the **site surveying method**
- P9 set appropriate horizontal and vertical controls and record them
- P10 adapt and record work procedures and practices to allow for different **circumstances and conditions**
- P11 record **site surveying** data clearly and appropriately and store it securely for later analysis
- P12 ensure that the **equipment** is operated, maintained, transported and stored in accordance with the manufacturer's recommendations and good practice

Knowledge and understanding

You need to know and understand:

Prepare for site surveying

- K1 how to confirm that the **site surveying, specification** and **site surveying method** statement are appropriate for the circumstances before starting the work (application)
- K2 how to check and confirm, before starting work, that people who will be affected have given their **permission** (application)
- K3 how to arrange for suitable **equipment** to be brought to the site and kept safely and securely (application)
- K4 how to check **equipment** (application)
- K5 how to check and confirm that **site surveying arrangements** and **safety arrangements, equipment** and site access conform to good practice, legislation and regulation (application)

Observe and record site surveying data

You need to know and understand:

- K6 how to conduct the **site surveying** using a **method** which maintains the level of accuracy required, balances content and cost and keeps disruption to a minimum (application)
- K7 how to record the **site surveying** using a **method** which maintains the level of accuracy required balances content and cost and keeps disruption to a minimum (application)
- K8 how to conform to **safe working practices** when on the site (application)
- K9 how to consult with experts when specialist information is needed which is relevant to the **site surveying method** (application)
- K10 how to set appropriate horizontal and vertical controls (application)
- K11 how and why to adapt and record work procedures and practices to allow for different **circumstances and conditions** (synthesis)
- K12 how to record and store **site surveying** data (application)
- K13 how to ensure that the **equipment** is operated, maintained, transported and stored in accordance with the manufacturer's recommendations and good practice (application)

Scope/range**Prepare for site surveying**

- 1 Site surveying:
 - 1.1 Geographical Information Systems
 - 1.2 measured building
 - 1.3 engineering
 - 1.4 topographical
 - 1.5 property boundary
 - 1.6 hydrographical
 - 1.7 geodetic
 - 1.8 photogrammetric
 - 1.9 underground utilities
 - 1.10 tunnelling and mining
 - 1.11 environmental
 - 1.12 monitoring/deformation
 - 1.13 setting out
- 2 Specification:
 - 2.1 required data
 - 2.2 data outputs
 - 2.3 order of accuracy
- 3 Site surveying - method:
 - 3.1 visual
 - 3.2 approximate measured
 - 3.3 detailed measurement of all specified features
 - 3.4 graphic
 - 3.5 instrumental
- 4 Permission from:
 - 4.1 client
 - 4.2 site owner and occupiers
 - 4.3 adjoining owners and occupiers
 - 4.4 notifiable authorities
- 5 Equipment:
 - 5.1 mechanical
 - 5.2 optical

Scope/range

- 5.3 electronic
- 5.4 geographical positioning systems
- 6 Site surveying arrangements:
 - 6.1 working responsibilities
 - 6.2 details of the survey method
 - 6.3 the site
- 7 Safety arrangements:
 - 7.1 personal safety
 - 7.2 equipment and clothing
 - 7.3 health and safety practice and regulations
 - 7.4 industry Codes of Practice
 - 7.5 regulations applying to the survey site
 - 7.6 signage

Observe and record site surveying data

- 8 Site surveying: (Candidates are required to cover two range items and have knowledge of four others)
 - 8.1 Geographical Information System
 - 8.2 measured building
 - 8.3 engineering
 - 8.4 topographical
 - 8.5 property boundary
 - 8.6 hydrographical
 - 8.7 geodetic
 - 8.8 photogrammetric
 - 8.9 underground utilities
 - 8.10 tunnelling and mining
 - 8.11 environmental
 - 8.12 monitoring/deformation
 - 8.13 setting out
- 9 Site surveying method:
 - 9.1 visual
 - 9.2 approximate measured
 - 9.3 detailed measurement of all specified features

Scope/range

- 9.4 graphic
- 9.5 instrumental
- 10 Safe working practices:
 - 10.1 personal safety
 - 10.2 equipment and clothing
 - 10.3 health and safety practice and regulations
 - 10.4 Industry Codes of Practice
 - 10.5 regulations applying to the survey site
- 11 Circumstances and conditions:
 - 11.1 topography
 - 11.2 water
 - 11.3 obstacles
 - 11.4 climatic variation
 - 11.5 live conditions (e.g. buildings and sites in use, roads, railways, runways)
 - 11.6 unforeseen circumstances
 - 11.7 planned circumstances
 - 11.8 emergency circumstances
- 12 Equipment:
 - 12.1 mechanical
 - 12.2 optical
 - 12.3 electronic
 - 12.4 geographical positioning systems

COSGSSO03

Prepare, observe and record survey data in geomatics
and site surveying



COSGSSO03

Prepare, observe and record survey data in geomatics and site surveying



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Suite Geomatics and Site Surveying

Keywords Site surveying; health and safety

Overview

This unit is about preparing and presenting technical and survey information and providing advice. To be of value drawings and schedules need to be complete, accurate and comply with the specification. You will need to demonstrate that you produce such drawings that are suitable for their intended purpose and that they have been subjected to all necessary checks and approvals. You will also need to keep drawings records. You will need to collect, check and verify that survey information conforms to the specification. You will also need to present it, including the provision of any commentary in a suitable format and also advise people how to interpret the data. It deals with obtaining and communicating technical information. You will need to present technical information and advice in an appropriate style and adapt and modify it where necessary. It is also about presenting technical recommendations.

Performance criteria

You must be able to:

Prepare drawings and associated information

- P1 produce **drawings** and associated information which are complete, accurate, and comply with the specification
- P2 use methods and **media** which are suitable for the **drawings** required, and which can be produced with the resources and time available
- P3 use standard **drawing conventions** and identify and justify any deviations from them
- P4 clarify any information to be included which is incomplete and inconsistent and make accurate amendments
- P5 keep **registers and records** of **drawings** which are complete, accurate, up-to-date and consistent with quality assurance procedures
- P6 obtain necessary **checks and approvals** for the content and presentation of **drawings** which are consistent with quality assurance procedures

Present survey information

You must be able to:

- P7 collect together enough **survey information** to allow processing to be carried out
- P8 check, analyse and verify that the **survey information** conforms to the specification
- P9 **present** the **survey information**, the commentary and any support **information** accurately, clearly and in a format which is suitable for those who need to use it

Communicate technical information

You must be able to:

- P10 **obtain information** which is sufficiently detailed for the technical problems for which it is to be used
- P11 provide **technical information and advice** which is complete, summarised accurately and clearly relevant to technical problems
- P12 **adapt and modify technical information** where people are having difficulties in understanding it
- P13 **present technical recommendations** which are clear, accurate and valid, and which represent the best advice possible given the information and resources available

Knowledge and understanding

You need to know and understand:

Prepare drawings and associated information

- K1 how to produce **drawings** and associated information using suitable methods, **media** and standard **drawing conventions** (application) (a,b,c)
- K2 what to identify as any deviations from **drawing conventions** (understanding)
- K3 how and why to justify any deviations from **drawing conventions** (evaluation)
- K4 how to clarify any information to be included which is incomplete and inconsistent, and make accurate amendments (application)
- K5 how and why to keep **registers and records** of **drawings** (application)
- K6 how to obtain necessary **checks and approvals** for the content and presentation of **drawings** (application)

Present survey information

You need to know and understand:

- K7 how to collect together enough **survey information** to allow processing to be carried out (application)
- K8 how to check and verify that the **survey information** conforms to the specification (application)
- K9 how to analyse that the **survey information** conforms to the specification (analysis)
- K10 how to **present** the **survey information**, the commentary and any support information (application)

Communicate technical information

You need to know and understand:

- K11 how to **obtain information** which is sufficiently detailed for the technical problems for which it is to be used (application)
- K12 how and why to provide **technical information and advice** (synthesis)
- K13 how to **adapt and modify technical information** where people are having difficulties in understanding it (application)
- K14 how to **present technical recommendations** (application)

Scope/range**Prepare drawings and associated information**

- 1 Drawings:
 - 1.1 sketches
 - 1.2 schedules
 - 1.3 presentation drawings
- 2 Media:
 - 2.1 hard copy
 - 2.2 digital
- 3 Drawing conventions:
 - 3.1 Codes of Practice
 - 3.2 current organisation practice
 - 3.3 current industry practice
 - 3.4 client requirements
- 4 Registers and records:
 - 4.1 incoming and outgoing drawing and document registers
 - 4.2 records of document approval and revision
- 5 Checks and approvals cover:
 - 5.1 format
 - 5.2 presentation
 - 5.3 accuracy
 - 5.4 technical content
 - 5.5 completeness
 - 5.6 drawing number and revision
 - 5.7 cross-referencing and correlation with associated documents
 - 5.8 status of drawings
 - 5.9 free from mistakes

Present survey information

- 6 Survey:
 - 6.1 Geographical Information Systems
 - 6.2 measured building
 - 6.3 engineering
 - 6.4 topographical

Scope/range

- 6.5 property boundary
- 6.6 hydrographical
- 6.7 geodetic
- 6.8 photogrammetric
- 6.9 underground utilities
- 6.10 tunnelling and mining
- 6.11 environmental
- 6.12 monitoring/deformation
- 6.13 setting out
- 7 Information:
 - 7.1 visual
 - 7.2 approximate measured
 - 7.3 detailed measurement of all specified features
 - 7.4 graphic
 - 7.5 instrumental
- 8 Present:
 - 8.1 in writing
 - 8.2 graphically
 - 8.3 digitally

Communicate technical information

- 9 Obtaining information:
 - 9.1 using discussion
 - 9.2 using questioning
- 10 Technical information and advice:
 - 10.1 sharing experience
 - 10.2 issuing instructions
 - 10.3 making decisions
 - 10.4 increasing understanding
 - 10.5 implementing a solution
 - 10.6 negotiation
- 11 Presenting:
 - 11.1 orally

Scope/range

- 11.2 in writing
- 11.3 graphically
- 11.4 electronically
- 12 Adapting and modifying technical information using:
 - 12.1 drawings and diagrams
 - 12.2 analogy, metaphors and examples
- 13 Technical recommendations include:
 - 13.1 clear descriptions of the information sources consulted
 - 13.2 the criteria used for making evaluations and reaching justifiable conclusions

COSGSSO04

Prepare, present and advise on survey information in
geomatics and site surveying



COSGSSO04

Prepare, present and advise on survey information in
geomatics and site surveying



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Suite Geomatics and Site Surveying

Keywords Survey; technical information; specification; present; schedule

Overview

This unit is about obtaining and checking survey information, establishing grid systems, setting out reference markers, and recording and storing setting out information. It is about observing and measuring dimensional controls, identifying and correcting any deviations and revising work methods as necessary.

Performance criteria

You must be able to:

Establish dimensional control

- P1 obtain available survey information, checking that it is up to date and accurate and resolve any **problems**
- P2 correlate, check and calculate **information** on construction which is relevant to the **setting-out** of the project
- P3 identify **variations** between the specified and the actual site dimensions, record them accurately and circulate them to decision makers
- P4 identify, select and establish, as applicable, appropriate **grid systems** to be used on the project
- P5 set out **reference markers** which are suitably placed, accurate and clearly identified
- P6 set secure reference points which are accurate, identified clearly and protected from movement or removal
- P7 use appropriate **observation methods** which meet the specified accuracy criteria
- P8 use and check **measuring and recording equipment** which meets the specified accuracy criteria

Maintain the dimensional accuracy of projects

You must be able to:

- P9 provide the workforce with sufficient clear and accurate reference **marks** to enable them to accurately position, align and level the work
- P10 observe and measure **dimensional controls**, setting out points, lines and profiles accurately and record the results to meet quality standards
- P11 check **measuring and recording equipment**, and apply the manufacturers' tolerances to adjust them to maintain the specified accuracy
- P12 identify any **deviations** in position, alignment and level and correcting them promptly
- P13 revise work procedures and practices to minimise **deviations** and to allow for different **circumstances and conditions**
- P14 record any **set out information** which may be of later use, and storing it securely so that it is available when needed

Knowledge and understanding

You need to know and understand:

Establish dimensional control

- K1 how to obtain available survey information and check that it is up to date and accurate (application)
- K2 how and why to resolve any **problems** with survey information (synthesis)
- K3 how to record **variations** between the specified and the actual site dimensions (application)
- K4 how to check **information** on construction relevant to the **setting-out** of the project (application)
- K5 how and why to correlate **information** on construction relevant to the **setting-out** of the project (synthesis)
- K6 how to calculate **information** on construction relevant to the **setting-out** of the project (application)
- K7 what to identify as **variations** between the specified and the actual site dimensions (understanding)
- K8 which **grid systems** do you identify as appropriate to be used on the project (understanding)
- K9 how and why to select appropriate **grid systems** to be used on the project (evaluation)
- K10 how to establish, as applicable, appropriate **grid systems** to be used on the project (application)
- K11 how to set out **reference markers** which are suitably placed, accurate and clearly identified (application)
- K12 how to set secure reference points which are accurate, identified clearly and protected from movement or removal (application)
- K13 how to use applicable **observation methods** (application)
- K14 how to use **measuring and recording equipment** (application)
- K15 how to check **measuring and recording equipment** (application)

Maintain the dimensional accuracy of projects

You need to know and understand:

- K16 how to provide the workforce with sufficient clear and accurate reference **marks** to enable them to accurately position, align and level the work (application)
- K17 how to observe and measure **dimensional controls**, setting out points, lines and profiles and record the results of observations and measurements to meet quality standards (application)
- K18 how to check **measuring and recording equipment** and apply manufacturers' tolerances to adjust them to maintain the specified accuracy (application)
- K19 what to identify as any **deviations** in position, alignment and level (understanding)
- K20 how to correct any **deviations** in position, alignment and level (application)

Knowledge and understanding

- K21 how to revise work procedures and practices to minimise **deviations** and to allow for different **circumstances and conditions** (application)
- K22 how to record and store any **setting out information** which may be of later use (application)

Scope/range

Establish dimensional control

- 1 Problems:
 - 1.1 unclear and missing information
 - 1.2 inconsistencies between documents
 - 1.3 errors
- 2 Setting out information:
 - 2.1 dimensions
 - 2.2 locations
 - 2.3 levels (including inaccuracies and deviations)
- 3 Variations:
 - 3.1 boundaries
 - 3.2 levels
 - 3.3 locations
- 4 Grid systems:
 - 4.1 national grid
 - 4.2 local grid
 - 4.3 site grid
 - 4.4 structural grid
- 5 Reference markers:
 - 5.1 ground stations
 - 5.2 base lines
 - 5.3 benchmarks
 - 5.4 elevated target positions
- 6 Observation methods:
 - 6.1 graphical
 - 6.2 measured
 - 6.3 instrumental
- 7 Measuring and recording equipment:
 - 7.1 mechanical
 - 7.2 optical
 - 7.3 electronic
 - 7.4 field book
 - 7.5 global positioning system

Scope/range**Maintain the dimensional accuracy of projects**

- 8 Marks:
 - 8.1 pegs
 - 8.2 nails
 - 8.3 lines (on floors and walls)
 - 8.4 plumb lines
 - 8.5 laser lines
- 9 Dimensional controls:
 - 9.1 lines
 - 9.2 levels
 - 9.3 angles
 - 9.4 distances
- 10 Measuring and recording equipment:
 - 10.1 mechanical
 - 10.2 optical
 - 10.3 electronic
- 11 Deviations - arising from:
 - 11.1 transfer of lines and levels
 - 11.2 use of wrong lines and levels
 - 11.3 calculations
- 12 Circumstances and conditions:
 - 12.1 unforeseen circumstances
 - 12.2 planned circumstances
 - 12.3 emergency circumstances
- 13 Setting out information:
 - 13.1 dimensions
 - 13.2 locations
 - 13.3 levels (including inaccuracies and deviations)

COSGSSO05

Establish and maintain the dimensional control and setting out of construction projects in geomatics and site surveying



COSGSSO05

Establish and maintain the dimensional control and setting out of construction projects in geomatics and site surveying



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Relevant occupations Building and civil engineering technicians; chartered surveyors (not quantity surveyors) managers; cartographers (digital)

Suite Geomatics and Site Surveying

Keywords Survey; dimensional control; setting out; measuring; grid systems

Overview

This unit covers your key responsibilities for checking, compiling and communicating spatial data and associated information. These responsibilities can be interpreted very widely, so that candidates can produce evidence of competence from a broad range of survey data management functions. It is about checking spatial data and putting it into a format for presentation. It also deals with the storage and dissemination of information.

Performance criteria

You must be able to:

Compile, check and process spatial data

- P1 confirm that the **spatial data** is appropriate for the project as defined in the project specification
- P2 check data selected from all the specified **sources** and rejecting invalid data
- P3 implement data security requirements for various applications and types of data
- P4 implement appropriate data quality assurance procedures and rejection criteria
- P5 confirm terms for permission to use data, including copyright
- P6 confirm the requirements for **spatial data** compilation material and maintain complete and accurate compilation records and histories throughout the project
- P7 interpret, analyse, extract, and compile computing data accurately and in a suitable form for processing and presentation
- P8 use the materials, equipment and software which will be needed to process the **spatial data** and to set up databases
- P9 **present** the information clearly, accurately and in formats which are suitable for the intended use

Operate technical information systems

You must be able to:

- P10 collate **information** and organise it into a suitable form for display and **use**
- P11 **classify** stored **information** so that it can be quickly identified and retrieved when needed
- P12 advise and offer guidance to people who are unable to find the **information** they need and suggest alternative sources
- P13 control the **use** of the **technical information systems** by using procedures which have been agreed so that the **technical information systems** remain reliable and useful
- P14 set up and operate appropriate and valid procedures for maintaining up to date **information**, removing **information** which is not needed and archive redundant **information** needed for future reference
- P15 identify, summarise and issue **information** which might be of **use** to other people

Knowledge and understanding

You need to know and understand:

Compile, check and process spatial data

- K1 how to confirm that the **spatial data** is appropriate for the project (application)
- K2 how to check data selected from all the specified **sources** (application)
- K3 how and why to reject invalid data (evaluation)
- K4 how to implement data security requirements for various applications and types of data (application)
- K5 how to implement appropriate data quality assurance procedures and rejection criteria (application)
- K6 how to confirm terms of permission to use data, including copyright (application)
- K7 how to confirm the requirements for **spatial data** compilation material (application)
- K8 how to maintain complete and accurate compilation records and histories throughout the project (application)
- K9 how to extract and compile data (application)
- K10 how and why to interpret, analyse and compute data (analysis)
- K11 how to use the materials, equipment and software which will be needed to process the **spatial data** and to set up databases (application)
- K12 how to **present** the information (application)

Operate technical information systems

You need to know and understand:

- K13 how to collate **information** (application)
- K14 how and why to organise **information** into a form for display and **use** (synthesis)
- K15 how to **classify** stored **information** for identification and retrieval (application)
- K16 how and why to advise and offer guidance to people who are unable to find the **information** they need, and suggest alternative sources (synthesis)
- K17 how and why to control the **use** of the **technical information systems** (evaluation)
- K18 how to set up appropriate and valid procedures for maintaining up to date **information**, removing **information** which is not needed and archiving redundant **information** for future reference (synthesis)
- K19 how to operate appropriate and valid procedures for maintaining up to date **information**, removing **information** which is not needed and archiving redundant **information** for future reference (application)
- K20 what to identify as **information** which might be of **use** to others (understanding)
- K21 how to summarise and issue **information** which might be of **use** to other people (application)

Scope/range**Compile, check and process spatial data**

- 1 Spatial data:
 - 1.1 geographic information data
 - 1.2 thematic
 - 1.3 statistical
 - 1.4 maps
 - 1.5 charts
 - 1.6 plans
 - 1.7 photographs
 - 1.8 digital information
 - 1.9 archive records
 - 1.10 legal documents
- 2 Sources:
 - 2.1 internal
 - 2.2 private
 - 2.3 public
- 3 Present:
 - 3.1 drawings
 - 3.2 plans
 - 3.3 maps
 - 3.4 charts
 - 3.5 photographs
 - 3.6 digital data
 - 3.7 written reports

Operate technical information systems

- 4 Information:
 - 4.1 product documentation
 - 4.2 specifications
 - 4.3 published information
 - 4.4 approved providers
- 5 Use (of information):
 - 5.1 technical reference

Scope/range

- 5.2 current record
- 5.3 archive record
- 6 Classifying by:
 - 6.1 project file
 - 6.2 organisational system
 - 6.3 alphanumeric
- 7 Technical information systems:
 - 7.1 paper based (e.g. manual files, technical library)
 - 7.2 electronic (e.g. computer database, CD ROM, on-line)

COSGSSO06

Establish and operate spatial and operational information systems in geomatics and site surveying



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Suite Geomatics and Site Surveying

Keywords Spatial data; communicating; storing; presenting information

Overview

This unit is about making the best use of your team so that they can achieve the organisation's objectives. It also involves monitoring and evaluating the work of your team and providing feedback on their performance. You will need to demonstrate that the allocation of work to team members is appropriate and agreed; also that it meets related objectives and that you update the allocation appropriately. It involves using your work related knowledge and experience to enable others to learn from it.

Performance criteria

You must be able to:

Allocate and check work in your team

- P1 confirm the work required of the team with your manager and seek clarification, where necessary, on any outstanding points and issues
- P2 plan how the team will undertake its work, identify any priorities or critical activities and make best use of the available resources
- P3 allocate work to team members on a fair basis taking account of their skills, knowledge and understanding, experience and workloads and the opportunity for development
- P4 brief team members on the work they have been allocated and the standard or level of expected performance
- P5 encourage team members to ask questions, make suggestions and seek clarification in relation to the work they have been allocated
- P6 check the progress and quality of the work of team members on a regular and fair basis against the standard or level of expected performance and provide prompt and constructive feedback
- P7 support team members in identifying and dealing with problems and unforeseen events
- P8 motivate team members to complete the work they have been allocated and provide, where requested and where possible, any additional support and/or resources to help completion
- P9 monitor the team for conflict, identifying the cause when it occurs and deal with it promptly and effectively
- P10 identify unacceptable or poor performance, discussing the cause and agree ways of improving performance with team members
- P11 recognise successful completion of significant pieces of work or work activities by team members and the overall team and advising your manager
- P12 use information collected on the performance of team members in any formal appraisal of performance

Enable people to learn from experience

You must be able to:

- P13 select and summarise relevant information about knowledge and practice
- P14 use appropriate **learning techniques and methods**
- P15 present information to other **people** in an appropriate style and encouraging **people** to ask questions

Knowledge and understanding

You need to know and understand:

Allocate and check work in your team (Imported Standard based on MSC D5)

- K1 different ways of communicating effectively with members of a team
- K2 the importance of confirming/clarifying the work required of the team with your manager and how to do this effectively
- K3 how to plan the work of a team, including how to identify any priorities or critical activities and the available resources
- K4 how to identify and take due account of health and safety issues in the planning, allocation and checking of work
- K5 why it is important to allocate work across the team on a fair basis and how to do so
- K6 why it is important to brief team members on the work they have been allocated and the standard or level of expected performance and how to do so
- K7 ways of encouraging team members to ask questions and/or seek clarification and make suggestions in relation to the work which they have been allocated
- K8 effective ways of regularly and fairly checking the progress and quality of the work of team members
- K9 how to provide prompt and constructive feedback to team members
- K10 how to select and apply a limited range of different methods for motivating, supporting and encouraging team members to complete the work they have been allocated, improve their performance and for recognising their achievements
- K11 the additional support and/or resources which team members might require to help them complete their work and how to assist in providing this
- K12 why it is important to monitor the team for conflict and how to identify the cause of conflict when it occurs and deal with it promptly and effectively
- K13 why it is important to identify unacceptable or poor performance by members of the team and how to discuss the cause and agree ways of improving performance with team members
- K14 the type of problems and unforeseen events that may occur and how to support team members in dealing with them
- K15 how to log information on the on-going performance of team members and use this information for performance appraisal purposes
- K16 industry/sector specific legislation, regulations, guidelines, codes of practice relating to carrying out work
- K17 industry/sector requirements for the development or maintenance of knowledge, understanding and skills
- K18 the members', purpose and objectives of your team
- K19 the work required of your team
- K20 the available resources for undertaking the required work

Knowledge and understanding

- K21 the organisation's written health and safety policy statement and associated information and requirements
- K22 your team's plan for undertaking the required work
- K23 the skills, knowledge and understanding, experience and workloads of team members
- K24 your organisation's policy and procedures in terms of personal development
- K25 reporting lines in the organisation and the limits of your authority.
- K26 organisational standards or levels of expected performance.
- K27 organisational policies and procedures for dealing with poor performance.
- K28 organisational grievance and disciplinary policies and procedures.
- K29 organisational performance appraisal systems.

Enable people to learn from experience

You need to know and understand:

- K30 how to select relevant information about knowledge and practice (evaluation)
- K31 how to summarise relevant information about knowledge and practice (application)
- K32 how to present information to other **people** and encourage **people** to ask questions (application)
- K33 how to use appropriate **learning techniques and methods** (application)

Scope/range

- 1 People:
 - 1.1 survey assistant
 - 1.2 trainees entering the industry
 - 1.3 potential entrants to the industry
- 2 Learning techniques and methods:
 - 2.1 coaching
 - 2.2 mentoring
 - 2.3 instructing

COSGSSO07

Allocate and monitor team work in geomatics and site surveying



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Suite Geomatics and Site Surveying

Keywords Teams; team work, monitoring, evaluation, feedback
