



Australian Government

CPPSIS3019A Perform basic drafting

Release 1

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Modification History

Unit revised and not equivalent to CPPSIS3009A Perform basic drafting
Element structure, performance criteria, and critical aspects reviewed to reflect workplace requirements
Skills and knowledge requirements and the range statement updated

Unit Descriptor

This unit of competency specifies the outcomes required to use basic computer-aided design (CAD) program functions and features to produce drawings. It requires the ability to operate computer applications correctly in order to perform the required tasks of a spatial project. Functions would be carried out under supervision and within organisational guidelines.

Application of the Unit

This unit of competency supports the application of skills in supervised problem solving, teamwork and interpreting technical data, and the use of technology for data interpretation and collation. The skills and knowledge acquired upon completion of this unit would support the needs of employees in the surveying and spatial information services (SSIS) industry sector in positions such as field hands, field work coordinators and data collection officers.

Licensing/Regulatory Information

No licensing, legislative and regulatory requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

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|---|--|-----|--|
| 1 | Determine drafting requirements. | 1.1 | <i>Spatial data</i> updates are accessed, read and interpreted to prepare for basic drafting. |
| | | 1.2 | <i>Entities</i> and <i>attributes</i> are used to display <i>spatial information</i> assisting in the delivery of <i>surveying and spatial information services</i> . |
| | | 1.3 | Drafting requirements are confirmed and clarified with <i>relevant personnel</i> according to <i>organisational guidelines</i> . |
| | | 1.4 | <i>Hardware</i> and <i>software</i> are set up according to operating procedures. |
| | | 1.5 | Basic <i>digitised information</i> that is relevant to the project is identified and retrieved. |
| | | 1.6 | Computer hardware equipment is used to meet functional speed and accuracy requirements according to <i>OHS requirements</i> . |
| 2 | Gather object parameters and measurements. | 2.1 | Critical dimensions and data for the required design are established. |
| | | 2.2 | Requirements in relation to accuracy and tolerances are identified. |
| | | 2.3 | <i>Geospatial techniques</i> available within appropriate software are used to combine <i>spatial layers data</i> to highlight selected features and improve the visualisation and understanding of the project. |
| | | 2.4 | Spatial overlay techniques specified by relevant |

personnel are used to generate results pertaining to the *spatial project*.

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|---|--------------------------------|-----|--|
| 3 | Prepare plots or drawings. | 3.1 | Basic <i>CAD functions and features</i> are accessed according to operating instructions. |
| | | 3.2 | <i>Equipment</i> required for the project is accessed. |
| | | 3.3 | Preliminary drawings are reviewed with relevant personnel. |
| | | 3.4 | Legal and <i>ethical requirements</i> are adhered to according to organisational guidelines. |
| 4 | Check drawings and save files. | 4.1 | Designs are checked against project objectives and specifications. |
| | | 4.2 | Cartographic integrity is tested and <i>validated</i> to ensure accuracy and quality. |
| | | 4.3 | Adjustments to designs are made following consultation with relevant personnel. |
| | | 4.4 | Data files are stored according to organisational guidelines. |

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills

- analytical skills in relation to a limited range of routine areas
- combine spatial data layers (geoprocessing)
- communicate in a clear and concise manner in both written and verbal modes
- computer skills to perform basic drafting
- literacy skills to:
 - assess and use workplace information
 - conduct web-based searches and use digital techniques
 - make technical references
 - read and interpret datums and projections
 - research and access routine sources of spatial data
 - search databases and catalogues
 - use basic workplace documents and user manuals
- numeracy skills to:
 - accurately record and collate
 - conduct image analysis
 - interpret statistics
 - undertake basic computations
- organisational skills to:
 - load spatial data into a mapping application and perform spatial and attribute edits
 - manage files
- spatial skills to:
 - apply understanding of height, depth, breadth, dimension and position to actual operational activity and virtual representation
 - exercise precision and accuracy in relation to basic design application

Required knowledge

- cartographic design principles
- datums and projections
- key features of drafting within spatial information systems
- logging procedures relating to a personal computer
- OHS principles and responsibilities, such as ergonomic principles and practices to

avoid muscle strain

- operation of relevant software packages
- printing and image formats for map production
- procedures to use CAD applications
- security management guidelines
- spatial data storage technology
- technical terminology in relation to reading help files and prompts

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Overview of assessment	This unit of competency could be assessed on its own or in combination with other units relevant to the job function.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>A person who demonstrates competency in this unit must be able to provide evidence of:</p> <ul style="list-style-type: none">• knowledge of CAD functions and geospatial techniques• using basic features of a CAD program to produce drawing features, such as points• using a variety of desktop applications• using a variety of features available within a spatial information system.
Specific resources for assessment	<p>Resource implications for assessment include access to:</p> <ul style="list-style-type: none">• assessment instruments, including personal planner and assessment record book• assignment instructions, work plans and schedules, policy documents and duty statements• registered training provider of assessment services• relevant guidelines, regulations and codes of practice• suitable venue and equipment. <p>Access must be provided to appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.</p>
Context of assessment	Holistic: based on the performance criteria, evidence guide, range statement, and required skills and knowledge.
Method of assessment	<p>Demonstrated over a period of time and observed by the assessor (or assessment team working together to conduct the assessment).</p> <p>Demonstrated competency in a range of situations, that may include customer/workplace interruptions and involvement in related activities normally experienced in the workplace.</p>

Guidance information for assessment Assessment requires that the clients' objectives and industry expectations are met. If the clients' objectives are narrowly defined or not representative of industry needs, it may be necessary to refer to portfolio case studies of a variety of SIS requirements to assess competency.

Oral questioning or written assessment and hypothetical situations (scenarios) may be used to assess underpinning knowledge (in assessment situations where the candidate is offered a preference between oral questioning or written assessment, questions are to be identical).

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

All practical demonstration must adhere to the safety and environmental regulations relevant to each State or Territory.

Where assessment is for the purpose of recognition (recognition of current competencies [RCC] or recognition of prior learning [RPL]), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time.

In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge.

Assessment processes will be appropriate to the language and literacy levels of the candidate and any cultural issues that may affect responses to the questions, and will reflect the requirements of the competency and the work being performed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the performance criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Spatial data may include:

- digital
- hard copy
- image

- text
- raster
- vector.

- Entities*** may include:
- single items created on the screen such as:
 - arcs
 - circles
 - dimensions
 - hatch
 - lines
 - points
 - text.
- Attributes*** may include:
- properties associated with an entity such as:
 - colour
 - layer or level
 - line type
 - line width
 - text.
- Spatial information*** refers to:
- virtual data related to the location of objects on the earth.
- Surveying and spatial information services*** involve:
- virtual data that is:
 - analysed
 - collected
 - displayed
 - manipulated
 - stored
 - virtual images used for planning and implementing the efficient administration and development of natural and built resources.
- Relevant personnel*** may include:
- colleagues
 - staff or employee representatives
 - supervisors or line managers
 - suppliers
 - users.
- Organisational guidelines*** may include:
- code of ethics
 - company policy
 - legislation relevant to the work or service function
 - manuals
 - OHS policy and procedures
 - personnel practices and guidelines outlining work roles, responsibilities and delegations.
- Hardware*** may include:
- mobile devices such as personal digital assistants (PDAs) or data loggers
 - multi-media devices and peripherals

- networked systems
- personal computers
- printers
- scanners.

- Software** may include:
- commercial software application
 - communication packages and presentation functions
 - CAD
 - databases
 - geographic information services (GIS)
 - graphic
 - internet
 - organisational
 - presentation applications
 - remote sensing
 - surveying.
- Digitised information** may include:
- creative objectives
 - scope for making adjustments
 - technical objectives.
- OHS requirements** may include:
- Australian standards
 - identification of potential hazards
 - safety plan
 - safe use of:
 - computing equipment
 - mobile equipment
 - regulated equipment
 - screen-based equipment
 - workstations.
- Geospatial techniques** may include geoprocessing spatial data such as:
- clip
 - dissolve
 - intersect
 - merge
 - union.
- Spatial layers data** may include:
- raster, including aerial photography and/or satellite imagery in digital format
 - vector overlay, geoprocessing and the incorporation of other spatial information.
- Spatial project** may include:
- administration (e.g. postcodes, suburbs, and federal and state electoral counties)
 - analysis of environmental, land and geographic information
 - asset management
 - cartographic services
 - civil engineering
 - digital imagery
 - electricity

- emergency services management
- environmental datasets
- GIS
- global positioning
- hydrography
- integrated services – environmental, land and geographic related datasets
- land ownership tenure system
- local government
- location-based services
- mapping facilities
- photogrammetry
- remote sensing
- site analysis
- survey marks
- sewerage
- telecommunications
- terrestrial survey
- town planning
- utility services such as water
- water catchment.

CAD functions and features may include:

- drawing features such as:
 - polylines
 - texts
- drawing tools
- edit functions
- isometrics and perspectives
- instructions as to how CAD works in an integrated environment
- macros
- plotting and printing
- 3-D techniques, including:
 - displaying 3-D views
 - entering coordinates
- use of attributes to make project reports
- working with layers.

Equipment may include:

- plotters
- printers
- scanners.

Ethical requirements may include:

- access to personnel records
- confidentiality
- privacy.

Validated means reflecting the true state of a test result, including tests for systematic distortions such as:

- confounding bias
- information/data bias
- observational bias
- recall bias
- selection bias.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.