



Australian Government

Department of Education, Employment and Workplace Relations

CPPSIS3009A Perform basic drafting

Release: 1

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Modification History

Not Applicable

Unit Descriptor

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

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 spatial information services (SIS) industry sector in positions such as field hands, field work coordinators and data collection officers.

While no licensing, legislative, regulatory or certification requirements apply holistically to this unit at the time of publication, relevant federal, and state or territory legislation, regulations and codes of practice impact upon this unit (see unit performance criteria and range statement).

Licensing/Regulatory Information

Refer to Application of the Unit

Pre-Requisites

Prerequisite units Nil

Employability Skills Information

Employability skills The required outcomes described in this unit of competency contain applicable facets of employability skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged, will assist in identifying employability skills requirements.

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

ELEMENT	PERFORMANCE CRITERIA
1 Determine drafting requirements.	1.1 Spatial data updates are accessed, read and interpreted to prepare for basic drafting. 1.2 Entities and attributes are used to display spatial information assisting in the delivery of spatial information services. 1.3 Drafting requirements are confirmed and clarified with relevant personnel according to organisational guidelines. 1.4 Hardware and software are set up according to operating procedures. 1.5 Basic digitised information 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 OHS requirements. 1.7 Skills and knowledge are updated to accommodate changes in drafting procedures.
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 Geospatial techniques available within appropriate software are used to combine spatial layers data 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. 2.5 Cartographic integrity is tested and validated to ensure accuracy and quality.
3 Prepare plots or drawings.	3.1 Basic CAD functions and features are accessed according to operating instructions. 3.2 Equipment required for the project is accessed. 3.3 Preliminary drawings are reviewed with relevant personnel. 3.4 Legal and ethical requirements 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 Adjustments to designs are made following

ELEMENT**PERFORMANCE CRITERIA**

- consultation with relevant personnel.
- 4.3 Data files are stored according to organisational guidelines.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills:

- ability to relate to people from a range of social, cultural and ethnic backgrounds and with a range of physical and mental abilities
- 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 (technical user level)
- literacy skills to:
 - assess and use workplace information
 - conduct web-based searches and use digital techniques
 - locate legislation and other written documentation
 - make technical references
 - research and access routine sources of spatial data
 - search databases and catalogues
 - use basic workplace documents and user manuals
- load spatial data into a mapping application and perform spatial and attribute edits
- low level decision making in relation to a limited range of routine areas
- manage files
- numeracy skills to:
 - accurately record and collate
 - conduct image analysis
 - interpret statistics
 - undertake basic computations
- problem solving (basic)
- 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 SKILLS AND KNOWLEDGE

Required knowledge and understanding:

- CAD applications (basic)
- cartographic design principles
- datums and projections
- 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
- organisational policies and guidelines (basic)
- printing and image formats for map production
- security management guidelines
- spatial database operation (basic)
- spatial data storage technology (basic)
- spatial information systems (basic)
- technical terminology in relation to reading help files and prompts.

Evidence Guide

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, for example unit CPPSIS3002A Store and retrieve basic spatial data.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • using basic features of a CAD program to produce drawing features such as points • organising own workload • team work • using a variety of desktop applications • using a variety of features available within a spatial information system.
Specific resources for assessment	Resource implications for assessment include access to: • 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.

Access must be provided to appropriate learning and assessment support when required.

Where applicable, physical resources should include equipment modified for people with disabilities.

Context of assessment

Holistic: based on the performance criteria, evidence guide, range statement, and required skills and knowledge.

Method of assessment

Demonstrated over a period of time and observed by the assessor (or assessment team working together to conduct the assessment).

Demonstrated competency in a range of situations, that may include customer/workplace interruptions and involvement in related activities normally experienced in the workplace.

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

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.
- 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, including equal employment opportunity (EEO)
 - 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:
 - Autodesk's AutoCAD
 - CivilCAD
 - ESRI's ArcView GIS and ArcGIS
 - ERDAS Imagine
 - FREEWARE or other similar applications
 - Intergraph GeoMedia
 - Manifold Professional
 - MapInfo Professional
 - remote sensing
 - surveying.
- Digitised information** may
- creative objectives

include:

- 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.
- Validated** means reflecting the true state of a test result, including tests for systematic distortions such as:
- CAD functions and features** may include:
- confounding bias
 - information/data bias
 - observational bias
 - recall bias
 - selection bias.
 - 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.

Unit Sector(s)

Unit sector Spatial information services

