



Australian Government

CPPSIS5040A Collate and interpret spatial data

Release 1

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Modification History

Unit revised and not equivalent to CPPSIS5010A Collate and interpret spatial data
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 collate and interpret spatial data to provide the dataset required for project deliverables, often in a supervisory capacity. It requires the ability to apply theoretical spatial concepts to a range of situations in order to identify and interpret the appropriate information, according to client requirements. Functions would be carried out within organisational guidelines.

Application of the Unit

This unit of competency supports the application of self-management and problem-solving skills; the use of technology; and planning and organising within data management and data manipulation. The skills and knowledge acquired upon completion of this unit would support the needs of employees in surveying, cartography, town planning, mapping or geographic information systems.

Licensing/Regulatory Information

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

Pre-Requisites

Nil

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

- | | | |
|---|---------------------------|--|
| 1 | Access data. | <p>1.1 <i>Spatial datasets</i> are retrieved from relevant data storage.</p> <p>1.2 Data is manipulated into an appropriate <i>format</i> to meet <i>client specifications</i>.</p> <p>1.3 Requirements for spatial data and <i>constraints</i> are identified through consultation with <i>client</i> or <i>relevant personnel</i> and outcomes are recorded according to <i>organisational guidelines</i>.</p> |
| 2 | Query and interpret data. | <p>2.1 Relevant sources and data are identified and accessed.</p> <p>2.2 Data is queried and <i>interpreted</i> using appropriate equipment or software package according to client requirements.</p> <p>2.3 Data is verified for relevance using <i>descriptive and analytical techniques</i>.</p> <p>2.4 Irregularities are resolved using initiative.</p> <p>2.5 Results are recorded and documented according to organisational and client requirements.</p> <p>2.6 <i>OHS</i> requirements are planned for and adhered to.</p> |
| 3 | Collate data. | <p>3.1 Spatial and <i>aspatial</i> requirements are collated to meet <i>organisational needs</i>.</p> <p>3.2 Most appropriate format and database are selected according to organisational requirements.</p> |

- 3.3 Legal and ***ethical requirements*** are addressed.
- 4 Test and validate collated spatial data.
 - 4.1 ***Tools*** for testing the ***validity*** of the information and data are identified and accessed or developed.
 - 4.2 Links with ***other functional areas and management systems*** are identified and facilitated to ensure comprehensive information and data collection.
 - 4.3 Quality and useability of data are ensured 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

- communication skills to:
 - consult effectively with clients and colleagues
 - impart knowledge and ideas through oral, written and visual means
 - make business presentations
- computer skills to complete business documentation
- initiative and enterprise skills to translate requirements into design
- literacy skills to:
 - assess and use workplace information
 - manage information
 - prepare and manage documentation
 - read and write technical reports
 - research and evaluate in order to assess sources of spatial data
- numeracy skills to:
 - analyse errors
 - conduct image analysis
 - interpret and analyse statistics
 - perform mental calculations
 - record with accuracy and precision
 - undertake computations
- organisational skills to:
 - coordinate technical and human resource inputs to research activities
 - prioritise activities to meet contractual requirements
- spatial skills to:
 - display proficiency in the operation of spatial data capture equipment
 - exercise precision and accuracy in relation to spatial and aspatial design
 - archive and retrieve spatial data
 - manage and manipulate spatial data
 - manage files

Required knowledge

- classification systems, processes and products
- computation methods

- coordinating reference systems
- key features of spatial data design methods
- methods to ensure the validity of spatial data
- operation of relevant software packages
- organisational policies and guidelines relating to spatial data collection and storage processes
- principles of data acquisition (e.g. photogrammetry, remote sensing, terrestrial survey and hydrography)
- business presentation methods
- reference systems and their relationship to each other
- security management guidelines
- spatial and attribute dataset structure and requirements
- spatial database operation
- spatial database structure requirements
- spatial data handling
- spatial data management practices
- spatial data storage technology

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 CPPSIS5037A Maintain complex spatial data systems, and CPPSIS5038A Develop a complex spatial and aspatial database.
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 relevant data by manipulating and analysing it to meet the client's requirements • applying operational knowledge in a broad range of areas relating to linking datasets and knowledge management • applying organisational skills and prioritising activity • examining suitability of existing arrangements • measuring outcomes against specifications.
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. Obtained by observing activities in the field and reviewing

induction information. If this is not practicable, observation in realistic simulated environments may be substituted.

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 surveying and spatial information services 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 dataset may include:

- digital
- hard copy
- image
- text
- raster
- vector.

- Format** may include:
- electronic information and data management systems (where system refers to computer software).
- Client specifications** refer to description of outputs and may be contained in:
- contracts
 - memos
 - tender briefs
 - verbal instructions
 - written instructions.
- Constraints** may include:
- coverage
 - datum
 - environmental factors
 - industry requirements
 - legal and statutory
 - financial
 - resource availability
 - time.
- Client** may include:
- customers with routine or special requests
 - external to organisation
 - internal to organisation
 - regular and new customers, including:
 - business enterprises
 - government agencies
 - members of the public
 - suppliers.
- 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 policies and procedures
 - personnel practices and guidelines outlining work roles and responsibilities.
- Interpreted** according to:
- equipment available
 - software packages
 - task required.
- Descriptive and analytical techniques** may include:
- statistical tests and methods such as:
 - broad analytical studies to determine estimates of risk

- making comparisons using basic tests of significance
- mean, standard deviation, regression analysis and percentage change.

OHS may include:

- Australian standards
- development of site safety plan
- identification of potential hazards
- inspection of work sites
- training staff in OHS requirements
- use of personal protective clothing
- use of safety equipment and signage.

Aspatial refers to:

- data without a spatial component.

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

Ethical requirements may include:

- confidentiality
- privacy.

Tools may include:

- model of questions with known answers
- pilot program
- prototype dataset
- survey (staff in client organisation).

Validity 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.

Other functional areas and management systems may include:

- engineering and maintenance
- environmental management
- finance and auditing
- information, data and records management
- human resource, industrial relations and personnel management, including payroll
- logistics
- purchasing, procuring and contracting
- quality management
- strategic planning.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.