



Australian Government

CPPSIS5064A Manipulate and analyse GIS data

Release 1

CPPSIS5064A Manipulate and analyse GIS data

Modification History

Version	Comment
1	This version first released with CPP07 Property Services Training Package Version 12.

Unit Descriptor

This unit of competency specifies the outcomes required to manipulate and analyse data in geographic information systems (GIS).

Application of the Unit

This unit of competency supports the application of planning, organising, and error analysis; designing and interpreting technical documentation; and a practical understanding of technology. The skills and knowledge acquired on completion of this unit would support the needs of employees in surveying and spatial information services (SSIS).

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	Develop procedures for manipulating and analysing data.	1.1	Desired <i>data</i> format is specified, based on job and <i>client</i> requirements.
		1.2	<i>Parameters</i> are specified for <i>manipulating data sets</i> .
		1.3	New procedures for manipulating and analysing data are documented clearly, explaining the procedure and rationale for development.
2	Establish models required to provide outcome.	2.1	Applicability of existing tools, models, theories, applications and solutions is reviewed.
		2.2	Feasible parameters, equations and assumptions are specified.
		2.3	Models required to provide specified outcomes are established.
3	Analyse data.	3.1	Processes to be undertaken to analyse and manipulate data are specified.
		3.2	<i>Source data limitations</i> and other restricting factors are taken into account when selecting techniques for analysis to ensure <i>integrity of data</i> used.
		3.3	Data is isolated and retrieved from its source, <i>interrogated</i> to ensure reliability and prepared for presentation media to ensure that <i>required outcome</i> is achieved.

Required Skills and Knowledge

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

Required skills

- analytical skills to analyse data manipulation options
- communication skills to:
 - consult effectively with clients and colleagues
 - impart knowledge and ideas through oral, written and visual means
- initiative and enterprise skills to:
 - negotiate with clients
 - interpret project requirements
 - translate requirements into design
- literacy skills to:
 - assess, develop and use workplace information
 - read and write specification reports, including technical reports
 - research and access information in order to source geographic information
- numeracy skills to:
 - analyse errors
 - estimate costs
 - perform mental calculations
 - record with accuracy and precision
- planning and organising skills to:
 - plan and prioritise activities to meet contractual requirements
 - conduct project activity
 - manage information
- spatial skills to:
 - archive and retrieve spatial data
 - capture geographic information
 - manage and manipulate spatial data
 - read external data sets
- technology skills to use computers to develop business documentation

Required knowledge

- computer systems to manipulate GIS data
- data management processes
- data reduction and manipulation techniques

- database structures, including the relationship of spatial features of database
- geographic information systems software
- legislation relating to:
 - appropriate Acts
 - copyright
 - freedom of information
 - intellectual property
 - trade practices
- line instructions and programming
- organisational and industry policies and practices relating to:
 - custodianship of data
 - industry practices, policies and standards relating to manipulating GIS data
 - access to organisational and industry documentation
- potential inaccuracies and problems with GIS data
- requirements relevant to manipulating GIS data:
 - accuracy and precision requirements
 - data formats

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 CPPSIS5063A Produce GIS data.
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"> • producing geographic information data systems that meet the integrity of data standards and client needs • interrogating data to ensure reliability • knowledge of data systems and data capture and manipulation techniques.
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, which 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.</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.

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.

Data may include:

- computer records
- graphical
- user application programs, such as:
 - accounting packages
 - databases
 - spreadsheets
- hard copy documents, such as:
 - books
 - maps
 - plans
 - work registers
- information, such as:
 - census data
 - community facilities
 - demographic data
 - local government facilities
 - organisational locations
 - property classifications
 - property boundaries
 - property ownership

- transport routes
- utilities
- zonings
- spatial
- textual.

- 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.
- Parameters*** may include:
- customers with routine or special requests
 - command line operation
 - menu driver options
 - organisational processes and procedures
 - time available.
- Manipulating data sets*** may include:
- command lines
 - general query language, such as structured query language (SQL)
 - programming language
 - scripts.
- Source data limitations*** may include:
- accuracy
 - currency
 - source of data
 - structure.
- Integrity of data*** may include:
- accuracy
 - completeness
 - confidence limits
 - currency
 - quality depending on factors, such as:
 - age of hard copy
 - condition of hard copy
 - condition of photography
 - resolution
 - scale.
- Interrogation*** may include:
- command lines
 - general query language, such as SQL
 - programming language
 - scripts.
- Required outcome*** may include:
- building up elements of database
 - creating map layers
 - developing information for external or internal clients.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.