CPPSIS4021A Maintain spatial systems

Release 1

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Modification History

Unit revised and not equivalent to CPPSIS4001A Maintain spatial systems
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 apply the cycle of spatial systems maintenance, including updating, backing up, recovering and archiving data. It requires the ability to perform a range of basic activities within a spatial information handling framework. Functions would be carried out under supervision and within organisational guidelines.

Application of the Unit

This unit of competency supports the application of self-management and technological skills, planning and organising data management, and data manipulation. The skills and knowledge acquired upon completion of this unit would apply to the needs of employees in supporting positions for surveying, town planning, cartography, mapping and 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	Confirm reliability of the spatial systems.	1.1	***Spatial data*** updates are accessed from ***spatial systems*** to ensure currency and relevance.
		1.2	Spatial systems are checked to ensure they meet organisational requirements.
		1.3	***Updates*** are made in line with organisational guidelines and ***legislative requirements***.
		1.4	Integrity and consistency of systems and data are maintained.
		1.5	Correct **OHS** practices are adhered to.
2	Replace data in spatial systems.	2.1	Spatial data is amended and replaced according to changes identified, spatial systems and organisational requirements.
		2.2	Existing data is adjusted to integrate with new data as appropriate.
		2.3	Spatial datasets are tested and validated to ensure integrity and quality.
		2.4	***Documentation*** is amended and updated according to organisational standards.
3	Carry out data backup and recovery.	3.1	Data backups are implemented to ensure copies of data are accessible in contingency situations.
		3.2	Backup system is tested to ensure it can be retrieved.

4	Archive data.	4.1	Spatial dataset to be archived is ***manipulated*** where necessary to ensure completeness.
		4.2	***Metadata*** is created according to accepted industry standards.
		4.3	New and existing spatial data is stored in a secure environment and according to spatial systems and organisational guidelines.
		4.4	Archival details are recorded according to organisational guidelines.

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Required Skills and Knowledge

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

Required skills

- ability to develop basic policies and guidelines pertaining to spatial data systems
- ability to interpret technical manuals
- ability to verify data reliability
- administrative skills
- communication skills to:
  - discuss vocational issues effectively with colleagues
  - impart knowledge and ideas through oral, written and visual means
- computer skills to apply software and hardware
- literacy skills to:
  - assess and use workplace information
  - read and interpret datums and projections
  - read and record data and write routine reports
- numeracy skills to:
  - accurately record and collate
  - undertake computations
- organisational skills to:
  - manage information
  - prioritise activities to meet contractual requirements
  - prepare and administer documentation
- project management skills
- spatial skills to:
  - archive and retrieve spatial data
  - perform spatial data management and manipulation
  - manage files

Required knowledge

- computer operating systems
- coordinating reference systems
- industry metadata standards, including positional accuracy, currency, coordinate system, metric system, lineage and source
- map projections
- OHS guidelines

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- organisational policies and guidelines regarding spatial data maintenance
- relational database
- spatial data input technologies, including digitising, scanning, remote sensing and satellite imagery
- spatial data maintenance systems
- spatial data output and distribution technologies, including scripting, query language, macro development, graphic interfaces, networks and remote access
- spatial reference systems

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 CPPSIS4022A Store and retrieve spatial data, CPPSIS4024A Collect and set out spatial data, and CPPSIS4025A Collect basic GNSS 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: • knowledge of spatial data maintenance systems • making qualitative judgements about new and existing spatial data • undertaking the full cycle of spatial data maintenance, including updating, backing up, recovering and archiving data.
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

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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 data may include:	• digital • hard copy.
Spatial systems may include:	• database • global navigation satellite system (GNSS) • image data

	• mapping
	• reference systems.
Update may include:	• incremental or full updates
	• spatial or attribute or both
	• new information.
Legislative requirements may include:	• relevant state, territory and federal legislation affecting organisational operations, including:
	• anti-discrimination and diversity
	• industrial relations.
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 equipment and signage.
Documentation may include:	• metadata
	• organisational indexes
	• spatial data files.
Manipulation may include:	• addition
	• error tolerance testing
	• subtraction.
Metadata refers to summarised information about a spatial dataset that describes the characteristics of the dataset, including:	• availability
	• conditions of use
	• coordinate system
	• currency
	• spatial data acquisition methodologies
	• date of acquisition
	• quality
	• source
	• version control.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.