Australian Government

CPPSIS5032A Capture new spatial data

Release 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

CPPSIS5032A Capture new spatial data

Modification History

Unit revised and not equivalent to CPPSIS5002A Capture new 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 capture new data using a variety of methods. It requires the ability to plan and execute the data capture process in a supervisory capacity, incorporating technical problems and management requirements and applying appropriate solutions to a range of data collection situations. Functions would be carried out within organisational guidelines.

Application of the Unit

This unit of competency supports the application of theoretical and practical analysis; organisational, team leadership and sound problem-solving skills; the ability to demonstrate initiative and enterprise; and a sound understanding of technology. 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

Licensing, legislative, regulatory and certification requirements may impact on this unit. Incorporate these requirements according to state, territory and federal legislation.

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	Prepare for data collection.	1.1	Key activities and timelines are scheduled with full consideration given to specification, available resources and organisational requirements.
		1.2	***Administrative and legal requirements*** for data collection are complied with and recorded.
		1.3	***Appropriate persons or relevant personnel*** are informed about the project.
		1.4	***Equipment, supplies and spatial information services (SIS) technologies*** are selected according to the task requirements.
		1.5	Designated responsibilities are communicated to staff to ensure clarity of understanding of the work and provide a basis for ongoing assessment.
2	Gather data.	2.1	Equipment is operated according to ***manufacturer specifications***, and statutory and organisational guidelines.
		2.2	***Entities*** are related to a ***reference system*** based on the specifications.
		2.3	Data and ***attributes*** are collected using methodologies detailed in the ***data capture methodology***.
		2.4	***Metadata*** is documented according to accepted industry standards.
		2.5	Discrepancies between specifications and actual activities are identified, recorded and reported.

		2.6	Administrative and legal requirements for data collection are complied with and recorded.
		2.7	Guidance is given to staff assisting in the data collection process.
		2.8	***OHS requirements*** are planned for and adhered to.
3	Use equipment.	3.1	Appropriate equipment is selected.
		3.2	Equipment is operated according to the task requirements and manufacturer specifications.
		3.3	All safety requirements are adhered to.
4	Maintain equipment.	4.1	***Operational maintenance*** of equipment is undertaken according to organisational guidelines.
		4.2	***Contingencies*** that may affect equipment usage are reported.
		4.3	Unsafe or faulty equipment is reported and referred for repair.
		4.4	Tools and equipment are stored safely in appropriate locations and according to manufacturer specifications.
5	Finalise the collection process.	5.1	Attributes and ***topological structures*** are added to spatial data according to specifications.
		5.2	Data is recorded correctly and ***required documentation*** is completed according to specifications and organisational requirements.
		5.3	Data and documentation are stored according to organisational requirements.
		5.4	Data integrity is checked according to the validation plan.

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 theory, concepts and statistics
- communication skills to:
  - consult effectively with clients and colleagues
  - impart knowledge and ideas through oral, written and visual means
  - provide customer service
- computer skills to complete business documentation
- functional application of data capture techniques
- literacy skills to:
  - assess and use workplace information
  - read and write technical reports
  - research and evaluate
- numeracy skills to:
  - analyse errors
  - conduct image analysis
  - perform mental calculations
  - interpret and analyse statistics
  - record with accuracy and precision
  - undertake computations
- planning and organising skills to:
  - coordinate technical and human resource inputs to research activities
  - plan for equipment and supplies required to capture spatial data
  - prioritise activities to meet contractual requirements
- project management skills to provide guidance to staff and organise data capture operations
- spatial skills to:
  - display proficiency in the operation of spatial data capture equipment
  - exercise precision and accuracy in relation to spatial and aspatial data acquisition and the use of electronic equipment
  - archive and retrieve spatial data
  - manage and manipulate spatial data
  - manage files
- solve problems relating to height, depth, breadth, dimension, direction and position

in actual operational activity and virtual representation
- work effectively as part of a team

Required knowledge

- characteristics, capabilities and limitations of tools, technology and equipment used
- customer relations guidelines
- data collection techniques as applied to the use of:
  - data collection equipment for electronic and hard copy data
  - spatial data
  - topographical structures
- information management procedures
- OHS requirements relating to field activity and computer operations
- organisational policies and guidelines relating to spatial data capture techniques
- process improvement methods
- quality assurance principles to validate spatial data captured
- quality improvement tools
- reference systems and their relationship to each other
- relevant federal, state and local government laws which are applicable to the spatial data capture methodology used
- risk assessment principles relating to data capture operations
- safe work practices
- spatial data formats, handling and structure
- spatial information principles and their application
- SIS project contingencies
- spatial technologies

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 CPPSIS5031A Plan spatial data collection and validation, CPPSIS5035A Obtain and validate spatial data, CPPSIS5036A Integrate spatial datasets, 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 data collection methods to capture spatial data
- using and maintaining equipment used in the capture of spatial data
- operational knowledge in relevant data capture and validation methodologies.

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, 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.

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.

Administrative and legal requirements may include:

- access protocols and obligations
- Australian standards, quality assurance and certification requirements

- award and enterprise agreements
- company OHS guidelines
- licensing arrangements
- organisational protocols for accessing physical, financial and human resources
- reimbursements
- Indigenous considerations
- relevant codes of practice
- relevant state, territory or federal legislation that affects organisational operations, including:
  - anti-discrimination and diversity
  - copyright and digital copyright
  - industrial relations
- royalty obligations
- title search processes.

Appropriate persons or relevant personnel may include:	• administrative staff • assessors • colleagues • contractors • field survey staff • land occupiers • land owners • managers • supervisors • technicians • trainers.

Equipment, supplies and SIS technologies may include:	• data logger or other mobile computing device
	• data recording equipment
	• digital imagery
	• electronic theodolites
	• handheld global navigation satellite system (GNSS)
	• levels
	• maps (digital or hard copy)
	• measuring instruments
	• non-navigational aids relevant to duties, including:
	  • compass
	  • clinometer
	  • distance measuring wheel
	  • personal digital assistant
	• personal computer-based digitising boards
	• sonar
	• tide gauge
	• tools
	• total station
	• ultra high frequency (UHF) radio
	• vehicles.

Manufacturer specifications may be found in:	• electronic format • equipment specifications • operator manuals • printed product instructions and information • spatial database • warranty documents.
Entities may include:	• event • object.
Reference system may include coordinate systems	• global • local

that are:

- regional.

Attributes are properties associated with a dataset and may include:	• condition • date • size • type.
Data capture methodology may include:	• aerial • conversion or translation from existing information (hard copy or digital) • data logging • digitising theodolite • direct or indirect • field • GNSS scanning • manual entry • photogrammetry • remote sensing • sonar • survey • total station.

Metadata may include:	• summarised information about a spatial dataset that describes the characteristics of the dataset, including:
	  • availability
	  • conditions of use
	  • coordinate system
	  • currency
	  • date of acquisition
	  • quality
	  • source
	  • spatial data acquisition methodologies
	  • version control.

OHS requirements 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.
Operational maintenance tasks may include:	• adjusting • cleaning • lubricating • maintaining battery • simple repairs

	• tightening.
Contingencies may include:	• adverse weather • equipment failure.
Topological structures may include:	• relationship between entities.
Required documentation may include:	• accident and injury reports • authority/approval documentation • meeting reports • records and reports of communication • reimbursement documentation.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.