Australian Government

Department of Education, Employment and Workplace Relations

CPPSIS5013A Design a spatial data storage system

Release: 1

CPPSIS5013A Design a spatial data storage system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to design a spatial data storage system. It requires the ability to apply theoretical spatial concepts to a range of situations in order to determine, create and facilitate acceptance by users of a suitable spatial data and attribute storage system. Functions would be carried out within organisational guidelines.

Application of the Unit

Application of the unit

This unit of competency supports the application of self-management 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.

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
1Determine functional requirements.	1.1 User needs are determined according to organisational requirements. 1.2 An audit of ***existing spatial data sources*** is conducted to determine their suitability, useability, ***spatial data dependencies*** and adaptability. 1.3 Requirements are recorded according to ***organisational guidelines***. 1.4 Feasibility of requirements is assessed against organisational budget, resources and priorities.
2Create and test system design.	2.1 A plan is developed based on ***functional requirements*** detailing ***spatial data flow*** dependencies. 2.2 Appropriate ***spatial data storage environment*** is determined according to spatial data requirements and organisational resources. 2.3 A schedule for the introduction of the system is developed and communicated to users. 2.4 A prototype is created and tested or a standard format adopted to confirm that design meets functional requirements. 2.5 Skills and knowledge are updated to accommodate changes in operating environment and equipment.
3Formalise design acceptance.	3.1 All ***relevant personnel*** are consulted and negotiated with to determine ***final design documentation***. 3.2 Final design documentation is created according to organisational guidelines. 3.3 ***Acceptance*** is obtained from all stakeholders as appropriate.
4Review the suitability of the spatial data storage system.	4.1 Users are canvassed regarding the effectiveness of the ***spatial data storage system*** to identify changes needed. 4.2 Feedback is analysed and appropriate changes are implemented.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE

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
- ability to translate requirements into design
- analytical skills, including systems analysis
- communication skills to:
  - consult effectively with clients and colleagues
  - impart knowledge and ideas through oral, written and visual means
- computer skills (high technical user level) to complete business documentation and apply software and hardware
- information management
- literacy skills to:
  - assess and use workplace information
  - locate and interpret legislation and other written documentation
  - prepare and manage documentation
  - read and write technical reports
  - research and evaluate
- negotiation skills
- 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:
  - exercise precision and accuracy in relation to spatial and aspatial data documentation and storage
  - perform spatial data archival and retrieval and train others in this task
  - perform spatial data management and manipulation and train others in this task
  - perform file management and train others in this task
  - solve problems relating to height, depth, breadth, dimension, direction and position in actual operational activity and virtual representation
  - understand implications of height, depth, breadth, dimension and position to

REQUIRED SKILLS AND KNOWLEDGE

actual operational activity and virtual representation.

Required knowledge and understanding:

- classification systems, processes and products
- coordinating reference systems
- document storage and retrieval techniques
- high-level computer knowledge
- industry standards
- legal framework for archiving
- legislative requirements
- OHS
- organisational policies and guidelines
- ownership requirements and constraints of spatial data
- precision and accuracy in relation to spatial information
- reference systems and their relationship to each other
- relevant spatial data storage design tools
- risk management
- security management guidelines
- spatial database operation
- spatial data format and handling
- spatial data management practices
- spatial data storage technology
- spatial data structure requirements.

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 CPPSIS5008A 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: • applying solutions to a range of problems • assessing requirements • devising and implementing a cost-effective, functional

solution
- examining suitability of existing arrangements
- operational knowledge in a broad range of areas relating to data storage and knowledge management
- organising and prioritising activity
- performing a range of tasks where choice between a substantial range of options is required
- taking responsibility for own outputs in work and learning.

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 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

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.

Existing spatial data sources may include:	• custom made • external • internal • off the shelf.
Spatial data dependencies may include:	• attribute-related spatial datasets • coordinate system • datum • hardware.
Organisational guidelines may include:	• code of ethics • company policy • legislation relevant to the work or service function, including equal employment opportunity (EEO) • manuals • OHS policies and procedures • personnel practices and guidelines outlining work roles and responsibilities.
Functional requirements refer to:	• system deliverables.
Spatial data flow may include:	• objective description of the business guidelines relating to functional requirements.
Spatial data storage environment may include:	• electronic spatial databases • field book • hard copy • map repositories.
Relevant personnel may include:	• managers • supervisors • technical staff • users.
Final design documentation may include:	• digital • hard copy.

Acceptance may include:	• contract • exchange of letters • memorandum of understanding • signed copy of report • verbal confirmation.
Spatial data storage system may include:	• digital • hard copy.

Unit Sector(s)

Unit sector	Spatial information services