

Draft 0.1

This is a draft update to CPPSIS6036 Monitor engineering structures:

<https://training.gov.au/Training/Details/CPPSIS6036>.

Code changed to CPPSUR6036.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE for consistency.

Range of Conditions added to Knowledge Evidence.

I've added mapping info.

TAG will need to reassess this as unit is redeveloped.

Unit of Competency

CPPSUR6036 Monitor engineering structures

Modification history

Release	Comments
1	Replaces superseded equivalent CPPSIS6036A Monitor complex engineering surveying structures. This version first released with CPP Property Services Training Package Version 3.
	Replaces superseded equivalent CPPSIS6036 Monitor engineering structures

Application

This unit specifies the skills and knowledge required to monitor engineering structures using surveying methods. The unit covers analysing project specifications and design information to identify components to be measured and monitored, and planning monitoring activities. The unit also covers implementing project management mechanisms, including risk management, and reviewing work outcomes against specifications. It covers setting up and using surveying equipment to measure, record and reduce surveying data using spatial coordinate and reference systems. The unit requires the ability to validate the accuracy of data and identify and resolve discrepancies and non-conformities between specifications and activities.

The unit supports those who work in a technical management role in a surveying team.

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of publication.

Prerequisite Unit

None

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

1. Prepare to monitor engineering structure.	1.1 Interpret project specifications and engineering design information to identify components to be measured, and accuracy and precision tolerances to be applied in consultation with appropriate persons. 1.2 Identify characteristics of operating environment and any special equipment and resource requirements according to project specifications and organisational requirements. 1.3 Select and check equipment to be used to collect data to ensure correct operation and functionality according to manufacturer specifications. 1.4 Designate organisation of project resources, equipment, materials and transport to appropriate persons.
2. Develop project plan to monitor engineering structure.	2.1 Document project objectives, deliverables, constraints and principal work activities according to project specifications. 2.2 Include information in project plan relating to identified risks and contingencies, resources, technologies and techniques to be used to collect spatial data.

	<p>2.3 Devise and specify validation processes to verify integrity of required spatial data in project plan.</p> <p>2.4 Allocate work responsibilities and implement supervisory processes, checks and measures.</p>
3. Implement monitoring tasks.	<p>3.1 Implement project management mechanisms to schedule, measure, record and report progress of activities in relation to project plan.</p> <p>3.2 devise and follow risk management and contingency strategies to identify and control hazards and risks and ensure that monitoring activities comply with legal and statutory requirements.</p> <p>3.3 Use surveying equipment to measure identified spatial components according to project specifications.</p> <p>3.4 Reduce measured spatial data to project spatial reference system for comparison with design.</p> <p>3.5 Validate, record and process measurements according to project specifications.</p> <p>3.6 Identify, and resolve non-conformities between engineering structure and project specifications, and manage contingencies according to organisational requirements.</p>
4. Finalise and report monitoring results.	<p>4.1 Finalise monitoring and check results for compliance with project specifications and organisational requirements.</p> <p>4.2 Notify appropriate persons of monitoring results according to organisational requirements.</p> <p>4.3 Complete documentation and archive spatial data archived according to project and organisational requirements.</p> <p>4.4 Review monitoring results against project specifications and findings are reported to appropriate persons according to organisational requirements.</p>

Foundation Skills

Candidates require:

- planning and organising skills to:
 - prioritise work to meet contract and resource requirements and constraints
- numeracy skills to:
 - apply accuracy and precision tolerances to measurements and calculations
 - conduct precise measurements and calculations relating to height, depth, dimension, direction and position in actual operational activity and virtual representation
- oral communication skills to:
 - negotiate to meet client requirements
 - inform clients and other stakeholders of project progress
- reading skills to:
 - analyse graphical and technical information in engineering plans
- writing skills to:
 - record technical information in organisational documentation
- technology skills to:
 - connect equipment to coordinate systems
 - set up and calibrate surveying equipment
- problem-solving skills to:
 - select appropriate validation methods to verify accuracy of data.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS6036 Monitor engineering structures

Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSUR6036 Monitor engineering structures

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Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by:

- monitoring engineering structures for two projects.

While monitoring the above engineering structures, the candidate must:

- analyse surveying specifications, including:
 - cross-sections and plans
 - technical descriptions of surveying data and their collection and format requirements
- apply industry-accepted standards for performing surveying measurements and computations
- communicate clearly with others to clarify and report work information and negotiate task completion
- comply with industry-accepted standards for validating accuracy of surveying data and identifying errors and discrepancies
- comply with organisational, legal and statutory requirements for:
 - completing records and documentation
 - recording, storing and filing data
 - using, checking and storing surveying equipment
 - working safely and using personal protective equipment (PPE)
- conduct measurements and calculations to meet engineering specifications using two of the following pieces of surveying equipment:
 - current meter
 - global navigation satellite system (GNSS)
 - level
 - tape
 - theodolite
 - total station
- develop a project plan to monitor engineering structures, including detail of:
 - project objectives and deliverables
 - constraints
 - risk management and contingency strategies
 - work activities
 - technologies and techniques to be used
- identify site hazards and control risks
- implement project management mechanisms to ensure monitoring activities are completed within required timeframes and comply with specifications

- interpret engineering design information and specifications to identify components to be measured and accuracy and precision tolerances to be applied
- plan and document data collection methodologies that allow for contingencies
- review project outcomes against specifications and objectives
- schedule work tasks and organise resources and equipment
- supervise staff to complete work tasks on time.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- accuracy and precision requirements and tolerances for engineering structures
- data formatting, processing and reduction techniques
- industry-accepted methods for validating data to identify errors and discrepancies
- legislative, statutory and industry requirements, and standards relating to work tasks
- methods for calculating surveying data and verifying its accuracy using spatial reference systems
- methods for setting up, levelling and calibrating surveying equipment
- methods for identifying and reporting non-conformities
- organisational policies and procedures relating to:
 - health and safety relating to survey activities and work on construction sites
 - reporting and documentation
 - using and allocating resources
 - using the surveying equipment specified in the performance evidence
- processes to establish and use high-level survey control
- project management techniques for scheduling, measuring and monitoring work progress and planning for contingencies
- project zone design
- reference and coordinate systems for surveying data, including Australian Height Datum and Map Grid of Australia
- surveying data capture and set-out methodologies
- use and application of network and traverse adjustments
- appropriate persons:
 - client
 - colleague
 - end user
 - engineer
 - manager
 - registered or qualified surveyor
 - stakeholder
 - supplier.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- equipment:
 - as specified in the performance evidence
- specifications:
 - survey specifications, including relevant engineering plans and drawings
 - organisational policies, procedures and documentation relating to work health and safety
- relationships with team members and supervisor:
 - lead role in a team.

Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>