

**Draft 0.1**

This is a draft update to CPPSIS5054 Perform geodetic surveying computations:  
<https://training.gov.au/Training/Details/CPPSIS5054>.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE.

Code changed to CPPSUR5054.

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

### CPPSUR5054 Perform geodetic surveying computations

#### Modification history

Release	Comments
1	<del>Replaces superseded equivalent CPPSIS5054A Perform geodetic surveying computations.</del> <del>This version first released with CPP Property Services Training Package Version 3.</del>
	Replaces superseded equivalent CPPSIS5054 Perform geodetic surveying computations

#### Application

This unit specifies the skills and knowledge required to perform geodetic surveying computations to solve a range of geodetic surveying problems. The unit covers applying mathematical concepts and formulas to geodetic components and performing computations relating to reference surfaces and projection planes. It covers using techniques for data reduction and checking data. It requires the ability to analyse data to comply with standards, and to consult with others to clarify and report on work tasks.

The unit supports those who work under limited supervision 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 for geodetic surveying computations.	1.1 Identify task requirements and determine required geodetic computations in consultation with appropriate persons. 1.2 Identify industry-accepted standards relating to accuracy and tolerances according to organisational requirements. 1.3 Select computational equipment according to task and organisational requirements.
2. Perform computations on reference surface.	2.1 Select relevant reference surface according to required geodetic computations. 2.2 Reduce geodetic data to identified reference surface according to industry-accepted standards and using computational equipment. 2.3 Identify and compute geodetic components for reference surface according to industry-accepted standards. 2.4 Identify and perform computations on reference surface according to standards. 2.5 Check reference surface computations and resolve problems according to standards and organisational requirements. 2.6 Convert reference surface (spheroid) coordinates to projection plane coordinates according to standards.

3. Perform computations on projection plane.	3.1 Select relevant projection plane according to required geodetic computations. 3.2 Reduce data to required projection plane according to standards. 3.3 Identify and compute geodetic components for projection plane according to standards. 3.4 Convert projection plane coordinates are converted to reference surface (spheroid) coordinates according to standards.
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### Foundation Skills

Candidates require:

- numeracy skills to:
  - perform calculations relating to shape and size of the earth
- oral communication skills to:
  - ask questions to clarify client requirements
- reading skills to:
  - interpret complex computational data provided in diagrammatic form
- writing skills to:
  - record technical information in organisational documentation
- technology skills to:
  - use computing aids, including geodetic software.

### Unit Mapping Information

Supersedes and is equivalent to CPPSIS5054 Perform geodetic surveying computations

### Links

Companion Volume Implementation Guide:

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

## Assessment Requirements for CPPSUR5054 Perform geodetic surveying computations

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### Performance Evidence

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

- accurately performing geodetic surveying computations for two different surveying tasks.

While performing the above geodetic surveying computations, the candidate must:

- apply formulas to geodetic data and obtain correct results
- communicate clearly with others to clarify work tasks
- comply with organisational requirements and relevant standards essential to accuracy of:
  - calculating geodetic data
  - recording computations
- exercise precision and accuracy in geodetic computations
- perform calculations in a logical progression to solve geodetic surveying problems
- perform point to point calculations on:
  - projection plane
  - spheroid
- relate reference surfaces to geodetic components
- check accuracy of computations and resolve errors
- select and use the following computational equipment to perform geodetic surveying computations: scientific or programmable calculator or a software application that includes surveying calculations
- comply with organisational requirements relating to completing records and documentation.

### Knowledge Evidence

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

- industry-accepted standards relating to accuracy and precision for geodetic surveying data
- common terms used in geodetic surveying calculations
- computing aids and software used to perform geodetic computations
- data reduction techniques
- industry-accepted methods for validating data to identify errors and discrepancies
- methods to perform projection plane computations relating to the following:
  - angle or bearing calculations on Map Grid of Australia (MGA)
  - arc to chord corrections
  - grid bearings
  - grid convergence
  - latitude and longitude to grid coordinates
  - point and line scale factor

- point to point calculations
- project zone calculations
- transforming coordinate axes
- using MGA and Geocentric Datum of Australia software
- zone to zone transformations
- methods to perform reference surface computations relating to the following:
  - meridian convergence
  - point to point calculations
  - principle radii
  - spheroidal distance from observed distance
- appropriate persons:
  - client
  - colleague
  - end user
  - manager
  - registered or qualified surveyor.

### 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:
  - task requirements
- relationships with team members and supervisor:
  - working in a team.

### Links

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