

Draft 0.1

This is a draft update to CPPSIS5053 Perform advanced surveying computations:
<https://training.gov.au/Training/Details/CPPSIS5053>.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE.

Code changed to CPPSUR5053 Perform advanced surveying computations.

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

CPPSUR5053 Perform advanced surveying computations

Modification history

Release	Comments
1	Replaces superseded equivalent CPPSIS5053A Perform advanced surveying computations. This version first released with CPP Property Services Training Package Version 3.
	Replaces superseded equivalent CPPSIS5053 Perform advanced surveying computations

Application

This unit specifies the skills and knowledge required to perform advanced surveying computations to solve from a range of surveying and basic engineering-related problems. The unit covers applying mathematical concepts, computations and conversions relating to algebra, statistics, geometry and trigonometry. It also covers solving a range of surveying problems to identify errors and missing elements, and make necessary adjustments to computations. It requires the ability to analyse and evaluate spatial data as the basis for performing computations.

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 surveying computations.	1.1 Identify task requirements in consultation with appropriate persons. 1.2 Identify standards in relation to accuracy and tolerances according to organisational requirements. 1.3 Select computational equipment according to task and organisational requirements.
2. Solve advanced computation problems.	2.1 Performed computations on the coordinates of a traverse using computational equipment and adjust and compute missing elements and coordinates. 2.2 Reduce traverse information according to standards and task requirements. 2.3 Identified and solve problems involving linear figures of parallel, constant or different width according to standards. 2.4 Solve road intersections involving different road widths according to standards. 2.5 Perform computations to maintain areas of closed figures according to industry-accepted standards. 2.6 Perform computations on all elements of complex circular and reverse curves and solve missing elements according to industry-accepted standards.

3. Finalise computations.	3.1 Checked measurements and computations to ensure accuracy according to industry-accepted standards and task requirements and adjust as required. 3.2 Finalise and record computations according to organisational requirements.
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Foundation Skills

Candidates require:

- numeracy skills to:
 - apply the principles of algebra, geometry and trigonometry to calculate area, height and missing lines
 - calculate linear, angular and height measurements
- oral communication skills to:
 - ask questions to clarify work task requirements and computational formulas
 - discuss solutions to advanced computational problems
- reading skills to:
 - interpret complex computational data provided in diagrammatic form
- writing skills to:
 - record computations and results using industry-accepted templates and formats
- problem-solving skills to:
 - identify errors with computational results by applying rigorous checking procedures.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS5053 Perform advanced surveying computations

Links

Companion Volume Implementation Guide:

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

Assessment Requirements for CPPSUR5053 Perform advanced surveying computations

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Performance Evidence

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

- accurately performing advanced computations for two different surveying tasks.

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

- communicate clearly with others to clarify work tasks
- comply with organisational requirements and relevant standards essential to the accuracy of:
 - measurement, including circular geometry and trigonometry
 - calculating horizontal and vertical information
 - recorded computations
- exercise precision and accuracy in performing advanced surveying computations
- interpret statistics from adjustments relating to normal curve and distributions, and standard deviations and errors
- select and use the computational equipment specified in the assessment conditions, to perform advanced surveying computations
- solve computational problems relating to angular, linear and height observations
- transform east and north coordinates from one system to another
- check accuracy of computations and make necessary adjustments
- 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 tolerances for surveying computations
- methods for performing the following:
- computing data from supplied field information
- solving complex surveying computations
- checking accuracy of computations to identify errors and solve problems
- organisational policies and guidelines relating to completing records and documentation
- appropriate persons:
 - client
 - experienced surveying colleague
 - manager
 - 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:
 - scientific or programmable calculator or a software application that includes surveying calculations
- specifications:
 - task requirements
- relationships with team members and supervisor:
 - working in a team.

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