Draft 0.2

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

Changed PCs to active voice.

PC 1.4 inserted from Foundation Skills
PC 2.3 removed as it duplicates PC 2.2. PC 2.4 also removed as it was a replication
Changed 'person' to 'candidate' in PE.

Code changed to CPPSSI5054.

Range of Conditions added to Knowledge Evidence.

Unit of Competency

CPPSSI5054 Perform geodetic surveying computations

Modification history

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~~1~~	~~Replaces superseded equivalent CPPSIS5054A Perform geodetic surveying computations.~~ ~~This version first released with CPP Property Services Training Package Version 3.~~
	Replaces superseded equivalent CPPSIS5054 Perform geodetic surveying computations

Application

This unit specifies the skills and knowledge required to solve a range of problems using geodetic surveying computations. 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, and analysing data to comply with standards.

This unit is suitable for skilled surveying technicians and skilled spatial information system (SIS) technicians who use a broad range of cognitive, technical and communication skills to select and apply methods and technologies to analyse information and provide solutions to sometimes complex surveying/spatial information problems. Surveying and spatial information skills are applied in a range of industry contexts including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant State/Territory regulations that govern surveying work as well as work health and safety, regulations and legislation that apply to the workplace.

Cadastral surveying must be undertaken under the supervision of a registered surveyor. Users must check with the relevant regulatory state/territory authority before delivery.

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.
	1.2 Identify requirements for precision, accuracy and tolerances according to industry-accepted standards.
	1.3 Select computational equipment according to task and enterprise requirements.

	1.4 Interpret complex computational data provided in diagrammatic form.
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 Check computations and resolve problems according to task requirements. 2.4 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.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS5054 Perform geodetic surveying computations

Links

The Companion Volume Implementation Guide for the CPP Property Services Training Package is available at https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b

Assessment Requirements for CPPSSI5054 Perform geodetic surveying computations

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by accurately using a scientific or programmable calculator or a software application to perform geodetic surveying computations at least three times for each of the following:

- distances using latitude and longitude
- bearing and distance from latitude and longitude
- conversion from geographic to grid coordinates
- transformation of coordinates.

Knowledge Evidence

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

- terms used in geodetic surveying calculations
- calculations relating to shape and size of the earth
- data reduction techniques
- logical progression of calculations to solve geodetic surveying problems
- methods to perform projection plane computations relating to:
  - 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:
  - meridian convergence
  - point to point calculations
  - principle radii
  - spheroidal distance from observed distance.
- industry-accepted methods for validating data to identify errors and discrepancies
- industry standards relating geodetic surveying data.

Assessment Conditions

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

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:
- scientific or programmable calculator or a software application that includes surveying calculations.

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