

## APPLY GEOGRAPHIC INFORMATION SYSTEMS

**ISCED UNIT CODE:** 0811 551 08

**TVETCDACC UNIT CODE:** AG/OS/PN/CC/01/6/MA

### **UNIT DESCRIPTION**

This unit covers the competencies required to apply information systems. It involves Applying GIS and remote sensing techniques, performing geo-graphic communication and producing geo-maps.

### **ELEMENTS AND PERFORMANCE CRITERIA**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements  (Bold and italicized terms are elaborated in the range)
1 Apply GIS and remote sensing techniques	1.1 objectives and guiding principles are determined as per national environment policy, 2013  1.2 management of ecosystems and sustainable natural resource use as per national environment policy, 2013  1.3 environmental stewardship as per national environment policy, 2013  1.4 environmental quality and health as per national environment policy, 2013  1.5 environmental governance laws are determined as per national environment policy, 2013

2. Perform geo-graphic communication	<p>2.1 Digital maps developed to scale as per Open Geospatial Consortium</p> <p>2.2 Digital maps presented to scale as per Open Geospatial Consortium</p> <p>2.3 Graphs are generated as per Open Geospatial Consortium</p> <p>2.4 Images are geo-referenced and processed as per Open Geospatial Consortium.</p> <p>2.5 Digital models are generated from raw data as per Open Geospatial Consortium</p>
3. Produce geo-maps	<p>3.1 Maps are generated as per Federal Geographic Data Committee</p> <p>3.2 Maps are designed and compiled as per Federal Geographic Data Committee</p> <p>3.3 Maps are projected Coordinate reference systems are applied a per Federal Geographic Data Committee</p>

## RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Collected includes but not limited to:	<ul style="list-style-type: none"> <li>• GNSS receivers</li> <li>• Aerial photography</li> <li>• Remote sensing</li> </ul>
2. Coordinate reference systems includes but not limited to:	<ul style="list-style-type: none"> <li>• Geographical coordinates</li> <li>• Projected Coordinate system</li> </ul>

3. Map projections includes but not limited to:

- UTM (Universal Transverse Mercator)
- · UPS (Universal Polar Stereographic)

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

### Required Skills

The individual needs to demonstrate the following skills:

- ICT skills
- Operating GNSS receivers
- Geo-referencing
- Collecting data
- Taking aerial photographs
- Scanning maps
- Layering features
- Interpretation
- Presentation
- Mathematical skills
- Designing maps

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### Required knowledge

The individual needs to demonstrate knowledge of:

- Map layout
- Geographical information systems
- Types of GNSS receivers
- Aerial photography
- Digital models
- Watershed delineation
- Remote sensing
- Data processing
- Data presentation
- Mapping scales
- Map projections
- Geo-referencing

- Map design
- Reference systems

### **EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Collected data</p> <p>1.2 Processed data</p> <p>1.3 Mapped natural resources</p> <p>1.4 Designed, developed and presented digital maps</p> <p>1.5 Generated graphs</p> <p>1.6 Geo-referenced and processed images</p> <p>1.7 Generated digital models</p>
2. Resource Implications	<p>2.1 Appropriately simulated environment where assessment can take place.</p> <p>2.2 Access to relevant work environments where assessment can take place.</p> <p>2.3 Resources relevant to the proposed activities or task.</p>

1. Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Practical</li> <li>3.2 Project</li> <li>3.3 Third party report</li> <li>3.4 Portfolio of evidence</li> <li>3.5 Written tests</li> <li>3.6 Oral questioning</li> </ul>
2. Context of Assessment	<p>4.1 This competency may be assessed in a work place or in a simulated work place.</p>