

APPLY GEOGRAPHIC INFORMATION SYSTEM

UNIT CODE: 0532 551 12A

TVET CDACC UNIT CODE: AGR/OS/AP/CC/06/6/MA

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

| ELEMENT | PERFORMANCE CRITERIA |
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| 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 <i>(Bold and italicized terms are elaborated in the range)</i> |
| 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 | 2.1 Digital maps developed to scale as per Open Geospatial Consortium 2.2 Digital maps presented to scale as per Open Geospatial Consortium 2.3 Graphs are generated as per Open Geospatial Consortium 2.4 Images are georeferenced and processed as per Open Geospatial Consortium. 2.5 Digital models are generated from raw data as per Open Geospatial Consortium |

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| 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> |
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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 |
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| 1. Collected may include but are not limited to: | <ul style="list-style-type: none"> • GNSS receivers • Aerial photography • Remote sensing |
| 2. Coordinate reference systems may include but are not limited to: | <ul style="list-style-type: none"> • Geographical coordinates • Projected Coordinate system |
| 3. Map projections may include but are not limited to: | <ul style="list-style-type: none"> • 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 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 required
- Geo-referencing
- Map design
- Reference systems

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

EVIDENCE GUIDE

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

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| <p>1. Critical aspects of Competency</p> | <p>Assessment requires evidence that the candidate:</p> <p>1.1 Collected data as per Open Geospatial Consortium.</p> <p>1.2 Processed data as per Open Geospatial Consortium.</p> <p>1.3 Mapped natural resources and agricultural facilities as per Open Geospatial Consortium</p> <p>1.4 Designed, developed and presented digital maps as per Federal Geographic Data Committee</p> <p>1.5 Georeferenced and processed images as per Federal Geographic Data Committee</p> <p>1.6 Generated digital models as per Federal Geographic Data Committee</p> |
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| 2. Resource Implications | <p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Access to relevant workplace or appropriately 2.2 simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks |
| 3. Methods of Assessment | <p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 practical 3.2 Oral questioning 3.2 Written test 3.4 direct instructions |
| 4. Context of Assessment | <p>Competency may be assessed:</p> <ul style="list-style-type: none"> 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment |
| 5. Guidance information for assessment | <p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p> |