APPLY ENGINEERING SURVEY PRINCIPLES II

UNIT CODE: 0732 541 31A

TVET CDACC UNIT CODE: CON/OS/BUT/CC/11/6/MA

UNIT DESCRIPTION

This unit describes the competence in conducting engineering survey. It involves conducting levelling, setting out construction works, carrying out road surveys and performing earthworks

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
1. Carry Out Road Survey	1.1 Tachometry survey 1.2 Scaling of Survey maps and photographs 1.3 Setting Circular curves 1.4 Plotting Traverse details
2. Perform Earthworks	2.1 Earthwork working drawings 2.2 Site clearance works 2.3 Cross sections 2.4 Top soil removing 2.5 Excavation to formation level/reduced level 2.6 Formation of embankments per drawings 2.7 Compaction of formation level 2.8 Excess earthwork material disposal

RANGE

Variable	Range *May include but is not limited to:*
1. Site conditions	1.1 Bushy 1.2 Plain 1.3 Forest 1.4 Shrubs 1.5 Structures 1.6 Marshy
2. Nature of the ground	2.1 Slope 2.2 Flat

	2.3 Rock
3. Nature of the construction	3.1 Single storey 3.2 Multi storey 3.3 Basement 3.4 Irregular shaped 3.5 Regular shaped 3.6 Circular 3.7 Road works 3.8 Tunnels 3.9 Bridges 3.10 Sewers 3.11 Railway lines
4. Setting out methods	4.1 3-4-5 method/Pythagoras theorem 4.2 Builder's square method 4.3 Site square method

REQUIRED KNOWLEDGE

- Mathematics
- Measurements
- Surveying instruments
- Surveying methods
- Tabulation of data
- Site clearance methods
- Use of surveying instruments
- Plan interpretation
- Technical drawing
- Use of setting out equipment
- Construction
- Setting out methods
- Local authority by-laws
- Surveying
- Soil mechanics
- Waste disposal
- Land use

- Mapping
- Photogrammetry
- Data interpretation
- Civil engineering construction
- Building construction

SKILLS

- Surveying
- Masonry
- Technical drawing
- Analytical

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	Assessment requires evidence that the candidate: 1.1 Determined Reduced levels based on the nature of the ground 1.2 Interpreted Construction plan as per job requirements 1.3 Transferred construction dimensions to the ground as per work requirements 1.4 Erected profile boards as per work requirements 1.5 Carried out tacheometry survey as per working drawings 1.6 Set out cross sections based on the working drawings
2. Resource Implications	The following resources must be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed assessment activity or tasks
3. Methods of Assessment	Competency may be assessed through:

		3.1 Projects 3.2 Written test 3.3 Oral questioning 3.4 Practical test 3.5 Portfolio of evidence 3.6 Third party reports
4.	Context of Assessment	Assessment could be conducted: 4.1 Workplace 4.2 Simulated workplace
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.