SCIENTIFIC RESEARCH PRINCIPLES

ISCED UNIT CODE: 0811 511 10A

TVET CDACC UNIT CODE: DA/CU/PM/CC/04/6/MA

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Applied Research

Duration: 120 Hours

Unit Description

This unit specifies the competencies required to apply research. It involves preparing scientific research proposals, applying scientific research methods and analyzing scientific research findings.

Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Prepare scientific research proposal	20
2.	Apply scientific research methods	40
3.	Analyze Scientific research findings	40
Total		**100**

Learning Outcomes	Content	Suggested Assessment Methods
1. Prepare scientific research proposal	1.1 Introduction to sscientific Research Proposal 1.2 Scientific research problem 1.3 Research objectives 1.4 Research questions/ hypothesis 1.4.1 Types of hypotheses 1.4.2 Hypothesis formulation 1.5 Scientific research proposal 1.6 Components of research proposals 1.7 Format of research proposal	• Project • Portfolio of evidence. • Third party report. • Written tests. • Oral questioning

		1.8 Approval of research proposals		
2.	Apply scientific research methods	2.1 Scientific research methods 2.2 Scientific study design 2.2.1 Qualitative designs 2.2.2 Quantitative designs 2.3 Sample size 2.4 Sampling techniques 2.4.1 Probability 2.4.2 Non probability 2.5 Ethical consideration 2.6 Research materials 2.7 Data collection	• Project. • Portfolio of evidence. • Third party report. • Written tests . • Oral questioning
3.	Analyse Scientific research findings	3.1 Data analysis technique 3.2 ANOVA 3.3 Measures of central tendency 3.4 Measures of dispersal 3.5 Components of a research report 3.6 Formats of research report 3.7 Dissemination methods 3.8 Result finding 3.9 Publishing	• Project. • Portfolio of evidence. • Third party report. • Written tests. • Oral questioning

Suggested Methods of Instruction

- Project

- Demonstrations

- Group discussion

- Direct instruction

Recommended Resources for 25 Trainees

Tools and equipment

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Textbooks		5 pcs	1:5

2.	Production Manuals			5	1;5
3.	PowerPoint presentations	For trainer's use			
4.	Projector			1	1;25
5.	Assorted Flash Cards			5	1;5
6.	Whiteboard			1	1;25
7.	Rolls flip charts			1	1;25
8.	Assorted color of whiteboard markers	For trainers Use			
B	**Learning Facilities & infrastructure**				
9	Lecture/theory room			1	1:25
10	Workshop			1	1:25
11	Laboratory			1	1:25