

ENVIRONMENTAL ECOLOGY MAINTENANCE

ISCED UNIT CODE: 0521 451 12A

TVETCDACC UNIT CODE: ENV/CU/ENT/CR/03/5/MA

UNIT DURATION: 120 HOURS

Relationship to Occupational Standards

This unit addresses the Unit of Competency: **Perform environmental ecology maintenance**

Unit Description

This unit covers the competencies required to perform environmental ecology maintenance, it involves carrying out biological resource inventory, performing plant propagation, maintaining ecological wildlife sanctuary and performing ecological restoration.

Summary of Learning Outcomes

By the end of this unit the trainee should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Carry out biological resource inventory	30
2.	Perform plant propagation	40
3.	Maintain ecological wildlife sanctuary	40
4.	Perform ecological restoration	40
Total		150

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcomes	Content	Suggested Assessment Methods
1. Carry out biological	Theory 1.1 Resources for inventory	<ul style="list-style-type: none">• Practical• Written tests

resource inventory	<p>2.1.1. Define of terms</p> <p> 1.1.1.1 Resource</p> <p> 1.1.1.2 Resource inventory</p> <p> 1.1.2 Resource mapping techniques</p> <p> 1.1.2.1 Geographic Information System (GIS) tools and techniques</p> <p> 1.1.2.2 Field mapping methods</p> <p>1.2 Inventory data collection tools</p> <p> 1.2.1 Types of Data Collection Tools:</p> <p> 1.2.1.1 Digital tools</p> <p> 1.2.1.2 Manual tools</p> <p> 1.2.2 Data collection techniques</p> <p> 1.2.2.1 Random</p> <p> 1.2.2.2 Systematic</p> <p> 1.2.2.3 Stratified</p> <p> 1.2.3 Safety and compliance</p> <p>Practice</p> <p>1.3 Carry Mapping Exercises</p> <p> 1.3.1 Using GIS tools for resource mapping</p> <p> 1.3.2 Creating and interpreting resource maps</p> <p>1.4 Data Collection Simulations</p> <p> 1.4.1 Conducting mock field data collection</p> <p> 1.4.2 Practicing with various data collection tools</p>	<ul style="list-style-type: none"> • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies
2. Perform plant	<p>Theory</p> <p>2.1 Plant propagation</p>	<ul style="list-style-type: none"> • Practical • Written tests

propagation	<p>2.1.1 Definition and importance of plant propagation</p> <p>2.1.2 Types of plant propagation</p> <ul style="list-style-type: none"> 2.1.2.1 Sexual 2.1.2.2 Asexual <p>2.1.3 Plant propagation tools</p> <p>2.1.4 Tool preparation and maintenance</p> <p>2.2 Plant Species Identification:</p> <ul style="list-style-type: none"> 2.2.1 Characteristics of different plant species 2.2.2 Tools for species identification <p>2.3 Monitoring Plant growth</p> <ul style="list-style-type: none"> 2.3.1 Growth Monitoring Techniques 2.3.2 Data Collection and Analysis <p>Practice</p> <p>2.4 Propagation Simulations</p> <ul style="list-style-type: none"> 2.4.1 Conducting mock propagation using various methods <p>2.5 Growth Monitoring Drills</p> <ul style="list-style-type: none"> 2.5.1 Practicing growth monitoring techniques and recording data 	<ul style="list-style-type: none"> • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies
3.Maintain ecological wildlife sanctuary	<p>3.1 Wildlife sanctuary</p> <ul style="list-style-type: none"> 3.1.1 Definition of wildlife sanctuary 3.1.2 Types of wildlife sanctuary 3.1.3 Importance of wildlife sanctuary <p>3.2 Wildlife identification</p> <ul style="list-style-type: none"> 3.2.1 Characteristics of various species 3.2.2 Tools for species identification <p>3.3 Wildlife sanctuary data collection</p> <ul style="list-style-type: none"> 3.3.1 Types of data collection tools <ul style="list-style-type: none"> 3.3.1.1 GPS tracking 	<ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies

	<p>3.3.1.2 Direct observation</p> <p>3.4 Wildlife sanctuary maintenance</p> <p> 3.4.1 Ecosystem Management Practices</p> <p> 3.4.2 Monitoring and Evaluation</p> <p> 3.4.3 Community Involvement</p> <p>Practice</p> <p>3.5 Mapping Exercise</p> <p>3.6 Data Collection Simulations</p> <p>3.7 Ecosystem Management Drills</p>	
4 Perform ecological restoration	<p>Theory</p> <p>4.1 Degraded ecology</p> <p> 4.1.1 Criteria for identifying degradation</p> <p> 4.1.2 Ecological degradation indicators</p> <p> 4.1.3 Types of restoration tools</p> <p> 4.1.3.1 Soil stabilization tools</p> <p> 4.1.3.2 Planting equipment</p> <p> 4.1.3.3 Erosion control materials</p> <p>4.2 Ecological restoration</p> <p> 4.2.1 Definition and significance of ecological restoration</p> <p> 4.2.2 Goals and objectives of restoration projects</p> <p> 4.2.3 Restoration techniques</p> <p> 4.2.4 Restoration process</p> <p> 4.2.5 Monitoring and evaluation</p> <p> 4.2.6 Challenges in ecological restoration</p>	<ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies

	<p>Practice</p> <p>4.3 Identify and map degraded ecological areas in the field</p> <p>4.4 Conduct mock restoration activities using various techniques</p>	
--	---	--

Suggested Methods of Instruction

- Demonstration
- Role playing
- Group discussion
- Direct instruction

Recommended Resources for 25 trainees

S/No.	Category/Item	Description/Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			
1.)	Books and Manuals		25pcs	1:1
B	Learning Facilities & infrastructure			
1.)	Lecture/theory room		1	1:25
C	Tools and Equipment			
1.)	Camera Traps		5 pcs	1:5
2.)	Data Loggers		25pcs	1:1
3.)	GPS Devices		25 pcs	1:1