

ENVIRONMENTAL WASTE MANAGEMENT

ISCED UNIT CODE: 0521 451 10A

TVETCDACC UNIT CODE: ENV/CU/ENT/CR/01/5/MA

UNIT DURATION: 150 HOURS

Relationship to Occupational Standards

This unit addresses the Unit of Competency: perform environmental waste management

Unit Description

This unit covers the competencies required to perform environmental waste management. It involves performing environmental waste segregation, performing environmental waste collection, performing environmental waste transportation, carrying out environmental waste treatment, carrying out environmental waste disposal and creating environmental waste management awareness

Summary of Learning Outcomes

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

| S/No | Learning Outcomes | Duration (Hours) |
|--------------|---|-------------------------|
| 1. | Perform environmental waste segregation | 25 |
| 2. | Perform environmental waste collection | 25 |
| 3. | Perform environmental waste transportation | 25 |
| 4. | Carry out environmental waste treatment | 25 |
| 5. | Carry out environmental waste disposal | 25 |
| 6. | Create environmental waste management awareness | 25 |
| Total | | 150 |

Learning Outcomes, Content and Suggested Assessment Methods

| Learning Outcomes | Content | Suggested Assessment Methods |
|--|---|--|
| 1. Perform environmental waste collection | <p>Theory</p> <p>1.1 Environmental waste collection</p> <ul style="list-style-type: none"> 1.1.1 Types of waste 1.1.2 Sources of waste 1.1.3 Waste composition and characteristics <p>1.2 Waste collection and storage bins</p> <ul style="list-style-type: none"> 1.2.1 Waste collection bins and Colour coding <p>1.3 Waste collection</p> <ul style="list-style-type: none"> 1.3.1 Waste collection points 1.3.2 Methods of waste collection 1.3.3 Procedure of waste collection 1.3.4 Types of waste collection vehicles 1.3.5 Waste collection scheduling routes 1.3.6 Importance of waste collection 1.3.7 Challenges facing waste collection 1.3.8 Mitigation measures <p>1.4 Waste collection safety</p> <p>Practice</p> <p>1.5 Carry out waste collection and color code</p> | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies |
| 1. Perform environmental waste segregation | <p>Theory</p> <p>2.1 Waste Segregation and Sorting</p> <ul style="list-style-type: none"> 2.1.1 Waste Segregation methods <ul style="list-style-type: none"> 2.1.1.1 Manual sorting 2.1.1.2 Automated sorting | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects |

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| | <p>2.1.2 Waste segregation process</p> <p>2.1.3 Benefits of waste segregation</p> <p>2.1.4 Waste segregation Challenges</p> <p>Practice</p> <p>2.2 Set up waste segregation station</p> | <ul style="list-style-type: none"> • Interviews/ Oral questions • Third party • Case Studies |
| 2. Perform Environmental waste transportation | <p>Theory</p> <p>1.1 Waste transportation</p> <p> 1.1.1 Waste transportation facilities</p> <p> 1.1.2 Transportation safety</p> <p> 1.1.3 Challenges facing waste transportation</p> <p>1.2 Environmental regulations SWMA 2022</p> <p> 1.2.1 Principles of transportation according to SWMA 2020</p> <p>Practice</p> <p>1.3 Transport waste to designated area</p> | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies |
| 4. Carry out environmental waste treatment | <p>Theory</p> <p>4.1 Environmental waste treatment</p> <p> 4.1.1 Waste treatment facilities</p> <p> 4.1.2 Waste treatment procedure</p> <p> 4.1.3 Safety measures</p> <p> 4.1.4 Importance of treating waste</p> <p> 4.1.5 Challenges facing waste treatments</p> <p>4.2 Methods of waste treatment</p> <p>4.3 Monitoring and evaluation</p> <p>4.4 Waste treatment policy and guidelines</p> <p>Practice</p> <p>4.5 Carry out waste treatment</p> | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies |

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| <p>5. Carry out environmental waste disposal</p> | <p>Theory</p> <p>5.1 Environmental waste disposal</p> <p>5.1.1 Waste disposal activities</p> <p>5.2 Waste Disposal Site Mapping</p> <p>5.2.1 Importance of mapping waste disposal sites</p> <p>5.2.2 Techniques and tools for site mapping</p> <p>5.2.2.1 Geographic Information Systems (GIS)</p> <p>5.2.3 Factors to consider when mapping disposal sites</p> <p>5.3 Environmental Impacts of Improper Waste Management</p> <p>5.4 Guidelines for safe environmental waste disposal</p> <p>Practice</p> <p>5.5 Carry out waste disposal.</p> | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies |
| <p>6. Create environmental waste management awareness</p> | <p>Theory</p> <p>6.1 Environmental Waste Management Awareness</p> <p>6.1.1 Types of waste management awareness activities</p> <p>6.1.2 Importance of community education and involvement</p> <p>6.2 Waste management tools and strategies for monitoring</p> <p>6.2.1 Importance of monitoring waste management performance</p> <p>6.3 Significance of waste management</p> | <ul style="list-style-type: none"> • Practical • Written tests • Individual/group assignment • Projects • Interviews/ Oral questions • Third party • Case Studies |

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| | <p>6.4 Waste management activities</p> <p> 6.4.1 Monitoring of waste management activities</p> <p>Practice</p> <p>6.5 Practice waste management awareness in schools and market place</p> | |
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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.) | Brooms | | 25pcs | 1:1 |
| 2.) | Bins | | 10 pcs | 1.5 |
| 3.) | PPEs | | 25 pcs | 1.1 |
| B | Learning Facilities & infrastructure | | | |
| 1.) | Lecture/theory room | | 1 | 1:25 |
| 2.) | Laboratory | | 1 | 1:25 |
| C | Tools and Equipment | | | |
| 1.) | Shovel | | 5 pcs | 1:5 |
| 2.) | Rakes | | 25pcs | 1:1 |

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|-----|--------------------------|--|--------|-----|
| 3.) | Dump trucks and trailers | | 25 pcs | 1:1 |
| 4.) | Waste compactor | | 5 Pcs | 1.5 |