

## 5.1. Training objectives



MINISTRY OF EDUCATION AND TRAINING

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### **TRAINING OBJECTIVES AND LEARNING OUTCOMES**

#### **ENVIRONMENTAL SCIENCE PROGRAM**

##### **1. General Objectives**

The Environmental Science program provides students with fundamental knowledge about the transformation of matter in the environment, and in-depth knowledge about the interactions between environmental components in natural and man-made environments. In addition to teaching the theoretical and practical aspects of the field, students have numerous opportunities to work in laboratories and conduct field research, allowing them to learn and practice key skills and enhance their employability.

##### **2. Specific Objectives**

###### **Specific Objective 1 – Professional Knowledge**

**PO1:** Equipping learners a solid and systematic knowledge base in natural sciences, social sciences and humanities, and environmental sciences, as a basis for Analyzing, explaining, and evaluating environmental processes, phenomena, and problems in natural and social systems.

*(Related to PLO1, PLO2, PLO3, PLO7, PLO10)*

###### **Specific Objective 2 – Professional and Practical Competencies**

**PO2:** Learner Development practical skills and application through conducting experiments, monitoring, processing, and analyzing environmental data; Operating wastewater treatment, solid waste treatment, air pollution control, and water supply systems., meeting the requirements current standards, regulations and technical requirements in the field of environment.

*(Related to PLO5, PLO7, PLO9)*

###### **Specific Objective 3 – Research, Management and Sustainable Development**

**PO3:** Forming for learners' scientific research capabilities, analytical and evaluative thinking, capable of applying knowledge about Laws, policies, planning, and resource management to participate in the development, implementation, and monitoring of environmental protection and sustainable development programs and projects.

*(Related to PLO4, PLO7, PLO10, PLO11)*

#### **Specific Objective 4 – Supplementary Skills and Career Development**

**PO4:** Equipping learners Soft skills, teamwork skills, communication skills, IT skills, and specialized English., together with career orientation, social responsibility, and lifelong learning capacity., meeting the requirements for employment and sustainable career development in the environmental field.

*(Related to PLO6, PLO8, PLO12)*

With the above training objectives, the program's learning outcomes and standards are developed. The relationship between current learning outcomes and training objectives is presented in the following table:

**Board** Relationship between current learning outcomes and training objectives

| STT | Output standard                                                                                                                                                                                                                                                                  | Specific objectives |     |     |     |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----|-----|-----|
|     |                                                                                                                                                                                                                                                                                  | PO1                 | PO2 | PO3 | PO4 |
| 1.  | <b>PLO1:</b> Applying fundamental knowledge of natural sciences and statistical mathematics to learn basic subjects in the field and calculate/solve problems related to Environmental Science.                                                                                  | X                   |     |     |     |
| 2.  | <b>PLO2:</b> Applying fundamental knowledge of social sciences and humanities, politics, law, foreign languages, and information technology to learn core subjects in the field and solve problems related to Environmental Science.                                             | X                   |     |     |     |
| 3.  | <b>PLO3:</b> Application foundational knowledge about ecology, biodiversity, biotechnology, and environmental chemistry to analysis and interpretation the basic environmental processes and issues in natural and social systems.                                               | X                   |     |     |     |
| 4.  | <b>PLO4:</b> Application knowledge about Laws, policies, planning, and management of natural resources to Participate in the development, implementation, and supervision. The sustainable development and environmental protection programs and plans in professional practice. |                     |     | X   |     |
| 5.  | <b>PLO5:</b> Operate the wastewater treatment system, solid waste treatment system, air pollution control system, and water supply system. correct technical procedures, Complies with current environmental standards and regulations.                                          |                     | X   |     |     |
| 6.  | <b>PLO6:</b> Accumulation and application experience Professional experience gained through specialized internships.; using specialized English to Read, understand, and utilize specialized environmental literature.                                                           |                     |     |     | X   |
| 7.  | <b>PLO7:</b> Manipulate knowledge about Applied environmental science, environmental toxicology, GIS, statistics, ISO 14000, and                                                                                                                                                 | X                   | X   | X   |     |

|     |                                                                                                                                                                                                                                                                     |   |   |   |   |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
|     | environmental auditing to analyze, evaluate, and propose effective management solutions. give environmental projects and activities.                                                                                                                                |   |   |   |   |
| 8.  | <b>PLO8:</b> Planning and implementation activities scientific research and career guidance, response recruitment requirements and sustainable career development in environmental sector.                                                                          |   |   |   | X |
| 9.  | <b>PLO9:</b> Perform the environmental experiment in a safe and proper procedures; collect, process, interpret, and evaluate scientific data; Simultaneously. applying soft skills like teamwork, negotiation, and sociological research in a professional context. |   | X |   |   |
| 10. | <b>PLO10:</b> Analysis and evaluation issues related to natural resources, climate change, and sustainable development to Proposing integrated management solutions and efficient utilization of natural resources.                                                 | X |   | X |   |
| 11. | <b>PLO11:</b> Applying comprehensive knowledge of the environment. to perform independently one scientific research topic (thesis or essay), meeting the requirements academic requirements and research methods.                                                   |   |   | X |   |
| 12. | <b>PLO12:</b> Applying knowledge of physical education and national defense and security education to cultivate mental and physical health, and a sense of responsibility in building and protecting the community, locality, and nation.                           |   |   |   | X |

Note: Instead of the (x) mark, you can use the L (low) or H (high) level.

| VQF code   | Describe                                                                                   | Corresponding PLO            |
|------------|--------------------------------------------------------------------------------------------|------------------------------|
| <b>KT1</b> | Solid practical knowledge, deep and broad theoretical knowledge within the field of study. | PLO1, PLO3, PLO9, PLO5, PLO7 |
| <b>KT2</b> | Basic knowledge of social sciences, political science, and law.                            | PLO2, PLO4, PLO12            |

| <b>VQF<br/>code</b> | <b>Describe</b>                                                                                  | <b>Corresponding PLO</b> |
|---------------------|--------------------------------------------------------------------------------------------------|--------------------------|
| <b>KT3</b>          | Knowledge of information technology that meets job requirements                                  | PLO2, PLO6, PLO5         |
| <b>KT4</b>          | Knowledge of planning, organizing, and monitoring processes within a specific area of operation. | PLO4, PLO9, PLO10        |
| <b>KT5</b>          | Basic knowledge of managing and operating professional activities.                               | PLO4, PLO10              |
| <b>VQF<br/>code</b> | Describe                                                                                         | corresponding PLO        |
| <b>TCTN1</b>        | Work independently or in teams under changing conditions; take personal and team responsibility. | PLO6, PLO8, PLO11, PLO10 |
| <b>TCTN2</b>        | Instructing and supervising others to perform specific tasks.                                    | PLO4, PLO10              |
| <b>TCTN3</b>        | Self-direction, drawing professional conclusions, and defending personal viewpoints.             | PLO9, PLO7               |
| <b>TCTN4</b>        | Planning, coordinating, managing resources, and improving operational efficiency.                | PLO4, PLO10              |
| <b>VQF<br/>code</b> | Describe                                                                                         | Corresponding PLO        |
| <b>TCTN1</b>        | Work independently or in teams under changing conditions; take personal and team responsibility. | PLO6, PLO8, PLO11, PLO10 |
| <b>TCTN2</b>        | Instructing and supervising others to perform specific tasks.                                    | PLO4, PLO10              |
| <b>TCTN3</b>        | Self-direction, drawing professional conclusions, and defending personal viewpoints.             | PLO9, PLO7               |
| <b>TCTN4</b>        | Planning, coordinating, managing resources, and improving operational efficiency.                | PLO4, PLO10              |

**DEAN OF FACULTY**