



Dr. Bhimrao Ambedkar University Agra

Department of Environmental Studies
School of Life Sciences, Khandari Campus

Value Added Course

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| Course Name | Water Testing and Analysis |
| Course Code | Env.Sc-VAC-01 |
| Duration | 30 Hrs. |
| Course Coordinator | Prof. Bhupendra Swarup Shrama |
| Organized by | Department of Environmental Studies, School of Life Sciences, Khandari Campus, Agra |
| Credits | 02 |
| Evaluation | Done by the Coordinator |

Course Description: Objective of this course is to determine the physical and chemical properties of water sample and to understand the basic concept of water testing and its analysis.

Syllabus

UNIT I

- 1) Understanding the Basic Aspect of Water Sampling.
- 2) Physical, Chemical and Biological Parameters of Water.
- 3) Different Methods of Sample Collection, Sample Holding and Preservation.
- 4) Water Sampling Equipment.

UNIT II

- 1) Determination of pH and Electrical Conductivity (EC).
- 2) Determination of Total Alkalinity and Acidity.
- 3) Determination of Turbidity, TDS, TS and TSS in water sample.
- 4) Determination of Hardness, Free CO₂ and Chloride in water sample.

UNIT III

- 1) Determination of Dissolved Oxygen.
- 2) Determination of Biochemical Oxygen Demand.
- 3) Determination of Chemical Oxygen Demand
- 4) Determination of Oil and Grease in waste water sample.

Suggested Readings: Environmental Biology - Mike Calver, Alan Lymbery, Jennifer McComb and Mike Bamford, Elements of Environmental Chemistry – J. Hussain, APHA, AWWA, WEF (1998). Standard Methods of water and waste water. APHA (20th Edition)

Course Outcome:

CO1: Student will be able to determine the quality of water sample.

CO2: Will have understanding about the chemical properties of waste water.

CO3: Will be able to understand about the oxygen demand of water.



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School of Life Sciences, Khandari Campus

Value Added Course

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|--------------------|---|
| Course Name | Environmental Education |
| Course Code | Env.Sc.-VAC -02 |
| Duration | 30Hrs |
| Course Coordinator | Prof. Bhupendra Swarup Sharma |
| Organized by | Department of Environmental Studies, School of Life Sciences, Khandari Campus, Agra |
| Credits | 02 |
| Evaluation | Done by the Coordinator |

Course Description: Objective of this course is to create pro-environment attitude and a behavioral pattern in student community and society that attaches importance and priority to create sustainable life style and awareness on various environmental issues.

Syllabus

UNIT I

- 1) Concept of Environment, Its Importance and Different Components of Environment.
- 2) Scope and Multidisciplinary Nature of Environmental Science.
- 3) Ecosystem: Structure And Function (Food Chain, Food Web, Ecological Pyramids and Energy Flow)
- 4) Concept of Environmental Education, Environmental Ethics.

UNIT II

- 1) Natural Resources: Renewable and Non-Renewable.
- 2) Air and Water Pollution: Causes, Consequences and Control.
- 3) Noise and Soil Pollution: Causes, Consequences and Control.
- 4) Global Warming: Causes and Consequences.

UNIT III

- 1) Solid Waste Management: Collection, Segregation, Transportation and Disposal.
- 2) Concept of 6R.
- 3) Basics of Biodiversity and Hotspot of Biodiversity
- 4) Biodiversity Loss : Causes and Effects

Suggested Readings: Basu, M. and Xavier, S. 2018. Fundamental of Environmental Studies. Cambridge University Press, Kolkata.

Vanramliana *et al.*, 2015. A Text book of Environmental Science. Scientific Book Centre, Guwahati.

Daniel, D. C. 2014. Environmental Science. Jones and Bartlett Publishers, London.

Prasad, G. 2018. Handbook of Environmental Science. Discovery Publishing House, New Delhi

Course Outcomes:

CO1: Student will learn about the basic concept of environment and ecosystem.

CO2: Will be able to understand various natural resource and get insight about the climate change and its effect on different aspect of environment.

CO3: Develop understanding about concept of waste management and basics of biodiversity.