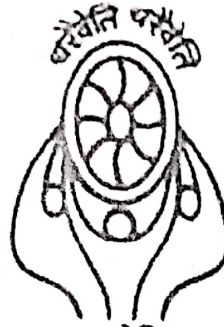


**SCHEME AND CURRICULUM**  
**Ph.D. Environmental Science**  
Effective from the session 2023



महात्मा ज्योतिबा फुले  
रुहेलखण्ड विश्वविद्यालय, बरेली

**Mahatma Jyotiba Phule Rohilkhand, University**  
**Bareilly - 243006**

*[Handwritten signatures]*

✓ Course: Fundamentals of Environmental Sciences

*Final*

Course Code:

**Course objective:**

To provide an advanced understanding of the core principles of Environmental Sciences.

**Learning outcomes:**

- Demonstrate principles of various basic and advanced techniques used in experiments of Environmental Sciences.
- Critically analyze and interpret the results obtained from experiments.

Credits: 4

Core Compulsory

Max. Marks: 100

Min. Pass Marks:55

Total No. of Lectures-Tutorial (in hours per week): L-T: 4-0-0

UNIT	TOPICS	No. of lectures 60
I	<b>Basics of Environmental Sciences:</b> Definition, Principles and Scope of Environmental Science. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Environmental education and awareness. Environmental ethics, Fundamentals of Environmental Chemistry Composition of air Inorganic and organic components of soils, Hydrological cycle	12
II	<b>Environmental Biology:</b> Ecology as an interdisciplinary science, Ecosystem Structure and functions, Basis of Ecosystem classification, Population & Community ecology, Environmental Biotechnology, Environmental Microbiology	12
III	<b>Environmental Pollution and Control:</b> Types of Pollution – Air, Noise, Water, Soil, Thermal, Marine Pollution and Radioactive, Sources and Types of Pollutants, eutrophication, global warming, ozone hole	12
IV	<b>Environmental Geosciences:</b> Origin of earth, Weathering including weathering reactions, erosion, transportation and deposition of sediments, Natural Hazards Natural resource exploration and exploitation and related environmental concerns, Geochemical classification of elements	12
V	<b>Tools and Techniques :</b> TLC, HPLC, GC-MS, LS-MS, Atomic Absorption spectroscopy, SEM, TEM.	12

*[Handwritten signatures and marks]*