MAULANA AZAD NATIONAL URDU UNIVERSITY

(A Central University established by an Act of Parliament in 1998)
(Accredited with 'A+' Grade by NAAC)

Botany Section, School of Sciences

Syllabus of Value Addition Course: Environmental Education

Subject Offering Department: BOTANY

(AS PER NEP 2020 GUIDELINES)

2024 – 2025 onwards

Approved in BOS meeting on 26th November 2024

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Scheme & Syllabus for UG VAC - 1/2

Environmental Education

Preamble:

Global attention to the deteriorating condition of our environment was drawn in the Conference on Environment and Development held in Rio de Janeiro in 1992 and the World Summit on Sustainable Development at Johannesburg in 2002. Continuing problems of pollution, loss of forests, solid waste disposal, degradation of the environment, issues like economic productivity and national security, global warming, the depletion of the ozone layer, and loss of biodiversity have made everyone aware of environmental issues.

The course on "Environmental Education" aims to provide a comprehensive understanding of the interrelationship between the natural world and human activities. It covers fundamental concepts, from ecosystem dynamics to biodiversity, emphasizing their significance and the threats they face. Additionally, the course delves into natural resources, environmental pollution, and pressing environmental problems.

It also addresses policies, laws, and movements geared towards environmental studies, and emphasizes the role of individuals and communities in protecting our planet. This structured approach ensures that students gain theoretical insights and are actively engaged in environmental studies efforts.

As per NEP 2020, in compliance with the mandate of the Hon'ble Supreme Court of India and UGC new Guidelines and Curriculum Framework, Environmental Studies was renamed as “Environmental Education” and also included topics such as waste management, biodiversity conservation & sustainable development.

This module, comprising 2 units and 24 classroom-based lecture hours, aims to create awareness, enhance knowledge, and develop the skills and attitudes necessary to comprehensively understand the environment. It empowers students to proactively engage in environmental conservation and protection efforts.

Course Objectives:

1. To make students realize the importance of a healthy environment and understand the various aspects of ecosystems.
2. To enable students to grasp the significance and issues related to biodiversity and natural resources, and ways of conservation.
3. To enable students to have a nuanced understanding of environmental pollution, solid waste management and climate change and to act with concern on environmental issues.
4. To raise awareness of environmental policies and conservation efforts, and encourage public awareness and individual roles in protecting the environment through sustainable practices.

Course Outcomes:

Upon successful completion of the course, students will be able to:

CO 1. Understand Environmental Significance: Comprehend the critical importance of the environment in our lives and gain a thorough understanding of various aspects of ecosystems.

CO 2. Engage in Conservation Efforts: Develop confidence and skills to actively participate in the conservation of water, soil, and biodiversity. Mitigate Climate Change and Pollution: Initiate and adopt eco-friendly practices in daily life to contribute to climate change mitigation and pollution prevention.

CO 3. Promote Sustainable Development: Acquire knowledge about sustainable development and learn how to contribute effectively to the nation's progress.

CO 4. Appreciate concerns of environmental movements: Become aware and appreciate the values and concerns of environmental movements and policies, and act responsibly on environment-related issues.

Course Structure

Sl. No.	Course Type	Course Name	Credits	Theory Credits	Teaching hours per week	IA	Sem End Exam	Exam hour
1	VAC	Environmental Education	02	02	02	15	35	02

Undergraduate Program: Semester I/II
Value Addition Course (VAC) (2 Credits: Theory - 2hr)
Course Title: Environmental Education

Unit - I: Environment, Ecosystems, Natural Resources & Sustainable Development

Multidisciplinary nature of Environmental Studies, scope, and importance. Ecosystem structure and function. Energy flow, Food Chain, and Food Web.

A detailed study of Forest, Aquatic, and Grassland ecosystems.

Natural Resources: Definition and Classification of Natural Resources.

Biotic Resources: Major types of Biotic Resources.

Soil and Mineral Resources: Mineral exploitation; Environmental Problems due to extraction.

Soil as a resource and its degradation, including soil erosion.

Water Resources: Types of water resources, uses of water resources, impact of overexploitation issues, and challenges.

Energy Resources: Sources and classification, Implications of energy use on the environment.

Introduction to Sustainable Development: Sustainable Development Goals-2047 (SDGs); Targets & Indicators, Challenges and Strategies for SDGs.

Unit - II: Biodiversity, Pollution, Policies & Practices, and Human Communities

Levels and Types of Biological Diversity: Genetic, Species, and Ecosystem Diversity.

Biodiversity Hotspots; Threat Categories: Endangered and Endemic Species of India. Threats to Biodiversity.

Biodiversity Conservation: In-situ and ex-situ conservation, Community-based conservation with examples.

Environmental Pollution: Types, causes, effects, and control (Air, Water, and Soil Pollution).

Climate Change, Global Warming, Ozone Layer Depletion, Acid Rain, and Impact on Human Communities and Agriculture.

Environmental laws and regulations (Article 48A, 51A, and other environmental rights) (Pollution Control, Wildlife, and Forest Conservation Act).

Waste Management: Concept of 3R, Ecolabeling, and Ecomark scheme.

Disaster Management: Flood, Earthquakes, Cyclones, and Landslides.

Environmental Movements: Chipko Movement, Bishnoi Movement, Save Silent Valley Movement, and Silent Valley.

References:

1. Maqbool Ahmed, S. (2022). Environmental Studies. Kalyani Publishers, Hyderabad, India
2. Vasanti Reena Williams, Maruthi, K. R., and Shrisha Naik Bajpe. (2021). Environmental Studies. Himalaya Publishing House, Bengaluru. ISBN: 9789354997482
3. Allaby, M. (2002). Basics of Environmental Science. Routledge.
4. Chopra, K. (2017). Development and Environmental Policy in India: The Last Few Decades. Springer Singapore.
5. Divan, S., & Rosencranz, A. (2022). Environmental law and policy in India: Cases and materials. Oxford University Press.
6. Fisher, M. H. (2018). An Environmental History of India: From Earliest Times to the Twenty-First Century (Vol. 18). Cambridge University Press.
7. Ghosh, A. (2008). Environmental Conservation: Challenges & Actions. APH Publishing.
8. Joseph, B. (2018). Environmental Studies. McGraw-Hill Education.
9. Khanna, R., Bhutiani, R., & Matta, G. (2023). Biodiversity Conservation & Environmental Management. Biotech Books.
10. Vinayaka, K. S., Siddaraju, M. N., & Kiran. (2023). Environmental Studies. United Agencies, Mangalore.

Question Paper Pattern:

ہدایات:

یہ پرچۂ سوالات تین حصوں پر مشتمل ہے : حصہ اول ، حصہ دوم ، حصہ سوم- ہر جواب کے لیے لفظوں کی تعداد اشارۃً ہے - تمام حصوں سے سوالوں کا جواب دینا لازمی ہے-

1- حصہ اول میں 5 لازمی سوالات ہیں جو کہ معروضی سوالات/ خالی جگہ پُر کرنا/ مختصر جواب والے سوالات ہیں- ہر سوال کا جواب لازمی ہے- ہر سوال کے لیے 1 نمبر مختص ہے (5x1=5 Marks)

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2- حصہ دوم آٹھ سوالات پر مبنی ہیں، اور اس میں طالب علم کو کوئی پانچ سوالوں کے جواب دینے ہیں- ہر سوال کا جواب تقریباً سو (100) لفظوں پر مشتمل ہے- ہر سوال کے لیے 4 نمبرات مختص ہیں(5x4=20 Marks)

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3- حصہ سوم میں دو سوالات ہیں- اس میں سے طالب علم کو کوئی ایک سوال کا جواب دینا ہے- ہر سوال کا جواب تقریباً ڈھائی سو (250) لفظوں پر مشتمل ہے- ہر سوال کے لیے 10 نمبرات مختص ہیں (1x10=10Marks)

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حصہ اول

سوال-1

حصہ دوم