
VAC-140: ENVIRONMENTAL SCIENCE

(Contact Hours: 45, Credits:3)



Course Objective: To introduce the basic concepts of environment, natural resources, biodiversity and its conservation and concepts and components of environmental pollution and social issues.

Learning Outcomes: Student should be able to gain the knowledge about the environment, its component, natural resources, biodiversity conservation, environmental pollution and social issues pertaining to environmental pollution. (Contact hours: 15 hrs.)

Unit I: Environment: Definition, Components of Environment; Natural resources (Renewable and Non-renewable) their conservation and management: Forest resources, Water resources, Mineral resources, Energy resources, Land resources. Soil erosion and desertification. (Contact hours: 15 hrs.)

Unit II: Ecosystems: Concept, Structure and Functions. Food Chain and Food web. Energy flow in an ecosystem and biogeochemical cycle. Biodiversity: definition and concepts, biodiversity hot-spots. Conservation of biodiversity: *In-situ* and *ex-situ* conservation. (Contact hours: 15 hrs.)

Unit III: Environmental Pollution and Social Issues: Definition, causes, effects and control measures for Air pollution, Water pollution, Soil pollution, Noise pollution; Important issues of environmental pollution: Climate change (Greenhouse effect & Global warming), acid rain, ozone layer depletion; Environmental Legislation: Salient features of Environmental Protection Act, Air (Prevention & Control of Pollution) Act, Water (Prevention & Control of Pollution) Act; Sustainable development; Role of Information Technology in Environment, Environmental ethics and movements. (Contact hours: 15 hrs.)

Suggested Readings: (All latest edition)

- Botkin, D.B. and Keller, E.A. Environmental Science: Earth as a Living Planet. John Wiley and Sons, New Delhi.
- Chapin III, F.S., Matson, P.A. and Vitousek, P.M. Principles of Terrestrial Ecosystem Ecology. Springer, New Delhi.
- Purohit, S.S., Shammi, Q.J. and Agarwal, A.K.A Textbook of Environmental Science. Students Edition, Jodhpur.
- Sharma, P.D. Ecology and Environment. Thirteenth Edition. Rastogi Publication, Meerut.
- Odum, E.P. Fundamentals of Ecology. Nataraj Publisher, DehraDun.
- Rana, S.V.S. Essentials of Ecology and Environmental Science. Prentice Hall of India, New Delhi.
- De, A.K. Environmental Chemistry. New Age International Pvt. Ltd., New Delhi.
- Viswanatha, C.R., Hegadal, R.V. and Hegadal, S.V. Disaster Management. Himalaya Publishing House