

SKILL ENHANCEMENT COURSE (SEC-II)

Semester - II				
Course code:	ENVIRONMENTAL STUDIES	T/P	C	H/ W
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Objectives	➤ To understand the multidisciplinary nature of environmental studies such as forest, water, mineral and energy and land resources. ➤ To portray the eco system bio diversity and its conservation. ➤ To impart the knowledge of environmental pollution ➤ To know the importance of field work to study common plants, insects and birds and visit local areas to document environmental assets.			
Unit -I	The Multidisciplinary Nature of Environmental Studies: Definition, Scope and importance - Need for public awareness			
Unit-II	Natural Resources: Renewable and non-renewable resources A). Forest Resources: Use and Over-Exploitation, Deforestation, Case Studies, Timber Extraction, Mining, Dams and Their Effect on Forests and Tribal People. B). Water Resources: Use and Over-Utilization of Surface and Ground Water, Floods, Drought, Conflicts over Water, Dams- Benefits and Problems. C). Mineral Resources: Use and Exploitation, Experimental Effects of Extracting and Using Mineral Resources, Case Studies. D). Food Resources: World Food Problems, Changes Caused by Agriculture and Overgrazing, Effects of Modern Agriculture, Fertilizer-Pesticide Problems, Water Logging, Salinity, Case Studies. E). Energy Resources: Growing Energy Needs, Renewable and Non-Renewable Energy Sources, Use of Alternate Energy Resources, Case Studies. F). Land Resources: Land as a Resource, Land Degradation, Main Induced Landsides, Soil-Erosion and Desertification. ➤ Role of Individual in Conservation of Natural Resources ➤ Equitable Use of Resources for Sustainable Lifestyle			
Unit- III	ECOSYSTEMS, BIO-DIVERSITY AND ITS CONSERVATION Ecosystems: Concept of an Ecosystem, Structure and Function of an Ecosystem, Energy Flow in The Ecosystem, Food Chains, Food Webs and Ecological Pyramids. Biodiversity and Its Conservation: Introduction- Definition: Genetic, Species and Ecosystem Diversity, Bio-Geographical Classification of India, Value of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetic and Option Values. Biodiversity at Global, National and Local Levels, India as a Mega-Diversity Nation, Hot Spots of Biodiversity, Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlife Conflicts, Endangered and Endemic Species of India, Conservation of Biodiversity: In-Situ And Ex-Situ Conservation of Biodiversity.			
Unit -IV	Environmental Pollution: Causes, Effects And Control Measures of: A). Air Pollution, B). Water Pollution, C). Soil Pollution, D). Marine Pollution, E). Noise Pollution, F). Thermal Pollution, G). Nuclear Hazards.			
Unit -V	Field Work ➤ Visit to a Local Area to Document Environmental Assets–River/ Forest/ Grassland/ Hill/ Mountain ➤ Visit to a Local Polluted Site- Urban/Rural/Industrial/Agricultural ➤ Study of Common Plants, Insects, Birds ➤ Study of Simple Ecosystem-Pond, River, Hill Slopes, etc.,			

Reference and Textbooks: -

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- Bharucha, E. (2002). *The Biodiversity of India* (Vol. 1). Mapin Publishing Pvt Ltd, Ahamedabad, India.
- Brunner, C. R. (1993). *Hazardous waste incineration*. McGraw Hill Inc.
- Clark, R. B., Frid, C., & Attrill, M. (2001). *Marine pollution* (Vol. 5). Oxford: Oxford university press.
- Cunningham, W. P., Cooper, T. H., Gorham, E., & Hepworth, M. T. (1998). *Environmental encyclopedia*.
- De, A.K. (1990). *Environmental Chemistry*. Wiley Eastern Ltd.
- Gleick, H.P.(1993). *Water In Crisis, Pacific Institute For Studies In Dev, Environment & Security*. Stockholm Env. Institute, Oxford University Press.
- Goel, P. K., & Trivedi, R. K. (1998). *An introduction to air pollution*. Technoscience Publication, India.
- Hawkins, R. E. *Encyclopedia of Indian Natural History*. Bombay Natural History Society, Bombay.
- Heywood, V. H., & Watson, R. T. (1995). *Global biodiversity assessment* (Vol. 1140). Cambridge: Cambridge university press.
- Jadhav, H. V., & Bhosale, V. M. (2006). *Environmental Protection and laws*. Himalaya Publishing House.
- McKinney, M. L., & Schoch, R. M. (1996). *Environmental Science: Systems and Solutions* (St. Paul, MN).
- Mhaskar, A. K. *Matter Hazardous*. Techno-Science Publications.
- Miller, T. G. (1989). *Environmental Science: Working with the earth (2 nd)*. Wadsworth Publicing Co.
- Narain, S., Mahapatra, R., Das, S., Misra, A., Parrey, A. A., Pandey, K., & Banerjee, S. (2014). *Down to Earth*. Centre for Science and Environment.
- Odum, E. P., & Barrett, G. W. (1971). *Fundamentals of ecology* (Vol. 3, p. 5). Philadelphia: Saunders.
- Rao, M.N., & Datta, A.K. (1987). *Waste Water Treatment*. Oxford & Ibh Publ, Co.Pvt. Ltd.
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- Townsend, C.R., Begon, M., & Harper, J.L. (2008). *Essentials of Ecology* (3rd edition). Oxford: Blackwell Publishing.
- Trivedi, R. K. (2010). *Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards. Vol. I and II, Enviro Media*.
- Wanger, K.D. (1998). *Environmental Management*. Saunders Co. Philadelphia, USA.

Outcomes	On successful completion of the subject, the students acquired knowledge about: ➤ Renewable and non-renewable resources. ➤ Species and Ecosystem Diversity, Bio-Geographical Classification of India, Value of Biodiversity: ➤ Causes, Effects and Control Measures of environmental pollution ➤ Field work knowledge of studying eco system pond, river, hill and common plants, insects and birds ➤ Documentation of environmental assets
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