ENVIRONMENTAL SCIENCES

Course Code	19MC1301	**Year**	II	**Semester**	I
Course Category	Mandatory course	**Branch**	CE	**Course Type**	Theory
Credits	0	**L-T-P**	3-0-0	**Prerequisites**	Nil
Continuous Internal Evaluation:	100	**Semester End Evaluation:**	00	**Total Marks:**	100

Course Outcomes

After successful completion of the course, the student will be able to

CO1	Develop an awareness and knowledge on natural resource protection.
CO2	Compile for the better future of environment in India which is based on many positive factors like Biodiversity and ecosystems.
CO3	Apply knowledge how to manage the harmful pollutants
CO4	Identify solutions for global environmental problems for sustainable environment.
CO5	Create awareness among the youth on environmental acts; take part in Environment impact assessment and management plans.

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3						2						3	
CO2	3						2						3	
CO3	3						2						3	
CO4	3						2						3	
CO5	3						2						3	

UNIT NO	Contents	Mapped COs
I	**INTRODUCTION TO ENVIRONMENT AND NATURAL RESOURCES** Introduction to environment: Definition scope importance need for public awareness. Natural resources: Renewable and non renewable resources, natural resources and associated problems. Forest resources: Uses, Reasons for over-exploitation, deforestation effects case studies. Water resources: Use and over – utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems. Mineral resources: Uses, environmental effects of extracting and using mineral resources, case studies. Food resources: World food problems, Impacts of overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, use of renewable and non renewable energy sources, case studies.	CO1
II	**ECOSYSTEMS AND BIODIVERSITY** Structure components of ecosystem: Biotic and Abiotic components. Functional	CO2

	components of an ecosystem: Food chains, Food webs, Ecological pyramids, Energy flow in the ecosystem, Ecological succession. Biogeochemical cycle: Nitrogen, carbon, Phosphorus cycle. Biodiversity: Definition, Levels of biodiversity: genetic, species and ecosystem diversity. Bio-geographical classification of India, Values of biodiversity: consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega – diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Conservation of biodiversity: In– situ and Ex-situ conservation of biodiversity.	
III	**ENVIRONMENTAL POLLUTION AND CONTROL** Environmental Pollution: Definition, causes, effects and control measures: Air Pollution, Water pollution, Soil pollution, Marine pollution, Thermal pollution, Nuclear hazards, Solid waste Management, e-waste, Pollution case studies.	CO3
IV	**SOCIAL ISSUES AND GLOBAL ENVIRONMENT PROBLEMS AND EFFORTS** From Unsustainable to Sustainable development. Urban problems related to energy. Water conservation, rain water harvesting, watershed management, Remote sensing and GIS methods. Environmental ethics: Issues and possible solutions. Green building concept, Environmental Impact Assessment Environmental Management Plan, Climate change: global warming, acid rain, ozone layer depletion.	CO4
V	**HUMAN POPULATION AND ENVIRONMENT LEGISLATION** Population growth,. Environment and human health. HIV/AIDS,. Value Education. Women and Child Welfare. Role of Information Technology in Environment and human health. Environment Legislation. Air (Prevention and Control of Pollution) Act. Water (Prevention and Control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Environmental Protection Act.	CO5

Learning Recourses

Text Books

1. Anubha Kaushik and C.P. Kaushik, Text book of environmental studies New Age International Publisher (2014).
2. Erach Barucha, Text book of environmental studies for undergraduates courses, published by – University Grants Commission, University Press (2005)
3. Anindita Basak, Environmental Studies. Pearson (2009)

Reference Books

1. D.K. Asthana and Meera Asthana, A Text book of Environmental Studies, S. Chand (2010).
2. P.M Cherry Solid and Hazardous waste Management, CBS Publisher (2016).
3. Charles H. Ecclestion, Environmental Impact Assessment, CRC Press (2011).