



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

COURSE CONTENT

ENVIRONMENT SCIENCE								
II Semester: CSE								
III Semester: ECE / EEE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
25X0021	Mandatory	L	T	P	C	CIA	SEE	Total
		1	0	0	1	40	60	100
Contact Classes: 15	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 15			
Prerequisites: There are no prerequisites to take this course.								

Course Overview:

1. Environmental study is interconnected; interrelated and interdependent subject. Hence, it is multidisciplinary in nature. The present course is framed by expert committee of UGC under the direction of honorable Supreme Court to be as a core module syllabus for all branches of higher education and to be implemented in all universities over India. The course is designed to create environmental awareness and consciousness among the present generation to become environmental responsible citizens. The course description is multidisciplinary nature of environmental studies, natural resources: Renewable and non-renewable resources; Ecosystems; Biodiversity and its conservation; Environmental pollution; Social issues and the environment; Human population and the environment; Pollution control acts and field work. The course is divided into five chapters for convenience of academic teaching followed by field visits. To learn the fundamentals of computers. To understand the various steps in program development. To learn the syntax and semantics of the C programming language. To learn the usage of structured programming approaches in solving problems.

Course Outcomes: After Completion of the Course, Students should be able to

1. Illustrate the role of ecosystems in sustaining life on Earth, their contribution to environmental stability.
2. Summarize the role of environmental regulations in achieving sustainable development goals (SDGs).
3. Organize the key characteristics of renewable and non-renewable resources and their contribution in functioning of ecosystems.
4. Interpret how environmental regulations help decision-makers consider environmental factors in developing activities.
5. Identify the role of aesthetic, social and ethical values in environmental design.

UNIT - I: Ecosystems:

Definition, Scope, and Importance of ecosystem. Classification, structure, and function of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, Field visits.

UNIT - II: Natural Resources:

Classification of Resources: Living and Non-Living resources, water resources: use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems Mineral resources: use and exploitation, environmental effects of extracting and using mineral resources, Land resources: Forest resources, Energy resources: growing energy needs, renewable and non-renewable energy sources, use of alternate energy source, case studies.

UNIT - III: Biodiversity and Biotic Resources:

Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT - IV: Environmental Pollution and Control Technologies: Environmental Pollution:

Classification of pollution, Air Pollution: Primary and secondary pollutants, Automobile and Industrial Pollution, Ambient air quality standards. Water pollution: Sources and types of pollution, drinking water quality standards. Soil Pollution: Sources and types, Impacts of modern agriculture, degradation of soil.

Noise Pollution: Sources and Health hazards, standards, Solid waste: Municipal Solid Waste management, composition and characteristics of e-Waste and its management. Pollution control technologies: Waste water Treatment methods: Primary, secondary and Tertiary. Overview of air pollution technologies, Concepts of bioremediation. Global Environmental Issues and Global Efforts: Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances

(ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-GoI Initiatives.

UNIT - V: Environmental Policy, Legislation & EIA:

Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, bio medical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Concepts of Environmental Management Plan (EMP). Towards Sustainable Future:

Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building.

TEXT BOOKS:

1. Benny Joseph, "Environmental Studies", Tata Mc Graw Hill Publishing Co. Ltd, New Delhi, 1st Edition, 2006.
2. Erach Bharucha, "Textbook of Environmental Studies for Under Graduate Courses", Orient Black Swan, 2nd Edition, 2013.
3. Dr. P. D Sharma, "Ecology and Environment", Rastogi Publications, New Delhi, 12th Edition, 2015.

REFERENCE BOOKS:

1. Tyler Miller, Scott Spoolman, "Environmental Science", Cengage Learning, 14th Edition, 2012.
2. Anubha Kaushik, "Perspectives in Environmental Science", New Age International, New Delhi, 4th Edition, 2006.
3. Gilbert M. Masters, Wendell P. Ela, "Introduction to Environmental Engineering and Science, Pearson, 3rd Edition, 2007

ELECTRONIC RESOURCES:

1. <https://youtu.be/t9r5N7zyicY?si=pfG80cRCuWRXSVSa>
2. <https://youtu.be/t9r5N7zyicY?si=pfG80cRCuWRXSVSa>
3. <https://youtu.be/8TYHZ9pbNiU?si=ye0dkgvAZLFVXWRa>
4. <https://youtu.be/ztnex5Vesgw?si=0TSLXd06cFGuNWbL>
5. https://youtu.be/g5wCIS0I9lk?si=FGQdDn_WmDvG7aa4
6. <https://youtu.be/SO4Yw5sou6Q?si=3tLZOb5U3fA5M6iS>
7. https://youtu.be/zEwAlqP1yfU?si=4wrw_Bup6mWKKDcy
8. https://youtu.be/zEwAlqP1yfU?si=4wrw_Bup6mWKKDcy
9. <https://youtu.be/cC66kUmw6hA?si=UWvbL7SqPmBkTScg>
10. https://youtu.be/QnHNNzHCFL4?si=g2MJ_rxfXwgVVTBc

MATERIALS ONLINE:

1. Course template
2. ICT Video topics
3. Definitions and terminology
4. Assignments
5. Model question paper – I
6. Model question paper – II
7. Lecture notes
8. E-Learning Readiness Videos (ELRV)