



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi
Accredited by NAAC with "A" Grade
Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK,
Kakinada
SEETHARAMPURAM, W.G.DT., NARSAPUR-534280, (Andhra Pradesh)

DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
24BC2T02	ENVIRONMENTAL SCIENCE	II	BCA (Honors)	3	2024-25	17.02.2025

COURSE OUTCOMES

- CO1:** Interpret the scope, importance, and associated problems of natural resources, including renewable and non-renewable resources, and their impact on the environment. (K2).
- CO2:** Summarize the structure and function of different ecosystems and the importance of biodiversity, including conservation strategies and threats to biodiversity (K2).
- CO3:** Predict the causes, effects, and control measures of various types of environmental pollution and solid waste management. (K3).
- CO4:** Analyze social issues related to environmental sustainability, including urban problems, climate change, and the enforcement of environmental legislation. (K4)
- CO5:** Compute the impact of human population dynamics on the environment and health, and explore the role of technology in addressing these issues. (K3).

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Hour	Delivery Method
I - Multidisciplinary Nature Of Environmental Studies	1 / K2	1.1	Definition, Scope and Importance, Need for Public Awareness. Natural Resources: Renewable and non-renewable resources.	T2, T4, R3, W1, T1	1	Lecture / Assignment / Interaction
	1 / K2	1.2	Natural resources and associated problems. Forest resources, Use and over, exploitation, Deforestation	T1, R1, T1, R1,	1	
	1 / K2	1.3	Case studies – Timber extraction – Mining, dams and other effects on forest and tribal people	T2, R3, W1	1	
	1 / K2	1.4	Water resources, Use and over utilization of surface and ground water.	T2, R3, W1	1	
	1 / K2	1.5	Floods, drought, conflicts over water, dams–benefits and problems.	T1, R3	1	



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	1 / K2	1.6	Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. Mineral resources -Case studies:	T2, T2, R1	1	
	1 / K2	1.7	Food resources: World food problems.	T1, R1	1	
	1 / K2	1.8	Changes caused by agriculture and overgrazing.	T2, R1, W1	1	
	1 / K2	1.9	Effects of modern agriculture, fertilizer-pesticide problems.	T1, R2	1	
	1 / K2	1.10	Water logging, salinity, case studies: Energy resources. Case studies: Energy resources.	T1, R1, W1	1	
Total					10	
II - Ecosystems	2 / K2	2.1	Concept of an ecosystem. Structure and function of an ecosystem, Producers, consumers and decomposers.	T1, R2, W2, T2, R3	1	Lecture / Assignment / Interaction
	2 / K2	2.2	Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids	T1, R1	1	
	2 / K2	2.3	Introduction, types, characteristic features, structure and function- Forest Ecosystem	T2, R1	1	
	2 / K2	2.4	Introduction, types, characteristic features, structure and function – Grass land ecosystem	T1, R1, W2	1	
	2 / K2	2.5	Introduction, types, characteristic features, structure and function - Desert ecosystem	T1, R1	1	
	2 / K2	2.6	Introduction, types, characteristic features, structure and function - Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	T1, R1	1	
	2 / K2	2.7	Biodiversity And Its Conservation: Introduction Definition: genetic, species and ecosystem diversity	T1, R1, W2	1	
	2 / K2	2.8	Biogeographical classification of India, Value of biodiversity: consumptive use, Productive use, social, ethical, aesthetic and option values,	T1, R1	1	
	2 / K2	2.9	Biodiversity at global, National and local levels, India as a mega	T1, R3,	1	



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			Biodiversity at global, National and local levels, India as a mega diversity nation.	W2 T1, R3		
	2 / K2	2.10	Hot-spots of biodiversity, Threats to biodiversity: habitat loss Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	T2, R3, R1, W2, T4	1	
Total						10
MID II EXAMINATION DURING NINTH WEEK						
III- Environm ental Pollution & Solid Waste Managem ent	3 / K3	3.1	Definition, Cause, effects and control measures-General Overview Definition, Cause, effects and control measures-Air Pollution	T2, R3, W3, T4	1	Lecture / Assignment / Interaction
	3 / K3	3.2	Definition, Cause, effects and control measures-Water pollution Definition, Cause, effects and control measures-Marine pollution	T1, R2 T2, R1	1	
	3 / K3	3.3	Definition, Cause, effects and control measures-Noise pollution Definition, Cause, effects and control measures-Thermal pollution	T2, R3, T2, R1	1	
	3 / K3	3.4	Definition, Cause, effects and control measures-. Nuclear hazards	T1, R2, W3	1	
	3 / K3	3.5	Solid Waste Management: Causes, effects and control measures-General Overview	T1, R2, W3	1	
	3 / K3	3.6	Urban and Industrial wastes reference to 3.8	T4, T2	1	
	3 / K3	3.7	Role of an individual in prevention of pollution-Pollution case studies,	T1, R1, W3	1	
	3 / K3	3.8	Disaster management: floods, earthquake, cyclone and landslides.	T2,T4, R1, W3	1	
Total						8
IV- Social Issues and the Environme n	4 / K4	4.1	Unsustainable & Sustainable development- general overview Urban problems related to energy	T2, R1 T2, R3	1	
	4 / K4	4.2	Water conservation, rain water harvesting, watershed	T2, R3	1	



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			management, Resettlement and rehabilitation of people			Lecture / Assignment / Interaction
	4 / K4	4.3	Problems and concerns. Case studies with reference to 4.2	T2,R3	1	
	4 / K4	4.4	Environmental ethics: Issues and possible solutions	T2, R2, W4	1	
	4 / K4	4.5	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies: Waste and reclamation	T2, R2, T1, R1, W4	1	
	4 / K4	4.6	Consumerism and waste products Environment Protection Act, Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution)	T2, R3, T2, R3	1	
	4 / K4	4.7	Wild life Protection Act	T2, R3	1	
	4 / K4	4.8	Conducting polymers-polyaniline Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness.	T1, R1, W4	1	
Total						8
V- Human Population and the Environment	5 / K3	5.1	Population growth, variation among nations. Population explosion, Family Welfare Programmes.	T4, T2, T1, R2, W5	1	Lecture / Assignment / Interaction
	5 / K3	5.2	Environment and human health, Human Rights Value Education, HIV/AIDS, Women and Child Welfare	T1, R2, T2, R3, W5	1	
	5 / K3	5.3	Role of information Technology in Environment and human health- Case studies	T1,T2, W5	1	
	5 / K3	5.4	Field Work: Any one of the following. 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, and birds- river, hills lopes, etc.	Shall explore the areas in due course along with students with acad	1	



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		mic conve nience	
Total			4
CUMULATIVE PROPOSED PERIODS			40
MID II EXAMINATION DURING EIGHTEENTH WEEK			
END EXAMINATIONS			
Text Books:			
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION		
1.	Text book of Environmental Studies for Undergraduate Courses Erach Bharucha for University Grants Commission, Universities Press, 2005.		
2.	Palaniswamy, "Environmental Studies", Pearson education, 2014		
3.	S. Azcem Unnisa, " Environmental Studies" Academic Publishing Company		
4.	K. RaghavanNambiar, " Text book of Environmental Studies for Undergraduate Courses as per UGC model syllabus", Scitech Publications (India), Pvt. Ltd. 2010.		
Reference Books:			
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION		
1.	Decksha Dave and E. Sai Baba Reddy, "Text book of Environmental Science", Cengage Publications. 2012		
2.	M. Anji Reddy, "Text book of Environmental Sciences and Technology", B S Publication, 2014.		
3.	J.P.Sharma, Comprehensive Environmental studies, Laxmi publications.		
4.	J.Glynn Henry and Gary W. Heinke, "Environmental Sciences and Engineering", Prentice Hall of India Private limited		
5.	G.R.Chatwal, "A Text Book of Environmental Studies "Himalaya Publishing House, 2015.		
6.	Gilbert M. Masters and Wendell P.Ela, "Introduction to Environmental Engineering and Science, Prentice, 2008.		
Web Details			
1.	Unit I: Multidisciplinary Nature of Environmental Studies <ul style="list-style-type: none"> • NPTEL Course on Environmental Studies: NPTEL Environmental Studies • United Nations Sustainable Development Goals (SDGs): UN SDGs https://sdgs.un.org/goals 		
2.	Unit II: Ecosystems & Biodiversity <ul style="list-style-type: none"> • National Biodiversity Authority, India: NBA India http://nbaindia.org/ • Convention on Biological Diversity: CBD https://www.cbd.int/ 		
3.	Unit III: Environmental Pollution & Disaster Management <ul style="list-style-type: none"> • Pollution Control Board of India: CPCB https://cpcb.nic.in/ • Disaster Management Resources (NDMA, India): NDMA https://ndma.gov.in/ • World Health Organization - Air Pollution: WHO Air Pollution https://www.who.int/health-topics/air-pollution 		
4.	Unit IV: Social Issues & Environmental Legislation <ul style="list-style-type: none"> • Ministry of Environment, Forest and Climate Change (MoEFCC), India: MoEFCC https://moef.gov.in/ • Environmental Laws in India: Legal Services India https://www.legalservicesindia.com/ • Global Climate Change - NASA: NASA Climate https://science.nasa.gov/climate-change/ 		
5.	Unit V: Human Population & Environment <ul style="list-style-type: none"> • United Nations Population Fund (UNFPA): UNFPA https://www.unfpa.org/ • World Health Organization - Environmental Health: WHO Environmental Health https://www.who.int/health-topics/environmental-health#tab=tab_1 • National Institute of Health - Population Studies: NIH Population Research https://www.nichd.nih.gov/research/supported/population 		



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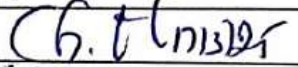

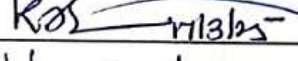

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		Faculty Name	Signature with Date
i.	Faculty I (for common Course)	Dr. Ch. Venkateswara Rao	 17/3/25
ii.	Faculty II (for common Course)	Mr. K. Srinivasa Rao	 17/3/25
iii.	Course Coordinator	Mr. K. Srinivasa Rao	 17/3/25
iv.	Programme Coordinator	Dr. V. Swaminadham	 17/3/25


Principal