



PRAGATI ENGINEERING COLLEGE

(Autonomous)

1-378, ADB Road, Surampalem – 533 437, Near Peddapuram, E.G. Dist., (A.P.)

(Approved by AICTE, New Delhi & Permanently Affiliated to JNTUK & Accredited by NAAC with A)

Composition of the Board of Studies Department of Environmental studies

S.No	Recommended Composition	Name
1	Head of the Department concerned (Chairman)	Dr.P.V.S.Machi Raju
2	The entire faculty of each specialization	1.Mrs.P.sravani 2.Mrs.N.Prasanthi 3.Mrs.S.Bhargavi
3	Two experts in the subject from outside the college to be nominated by the Academic Council.	1.Dr. K. Kameswara Rao Professor, Department of Environmental Sciences, Andhra University, Visakhapatnam Ph: 09440974032 2.Dr.T.Damodharam, Head & Assoc. professor, Department of Environmental Sciences, Sri Venkateswara University, Tirupati. Ph: 09290648816
4	One experts to be nominated by the vice-chancellor from a panel of Six recommended by the college principal.	1.Dr.K.V.S.G. Murali Krishna Professor, Department of Civil Engineereing, JNTUK ,Kakinada Ph:09849136135
5	One representative from industry/corporate sector/allied area relating to placement	1.Dr.N.Krishna Prakasam, Facility Manager, Sarchandra Environ Solutions Pvt. Ltd. Kakinada.
6	One postgraduate meritorious alumnus to be nominated by the principal.	-----



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REGULATION -16 COMMAN FOR ALL BRANCHES

Sub. Code: 16BHIT13

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UNIT – I

Course Learning Objectives:

- Basic understanding of the environment, global problems and ecosystems.

Course Outcomes:

- The importance of environment and global environmental problems.
- The concepts of the ecosystem and its function in the environment. The need for protecting the producers and consumers in various ecosystems and their role in the food web.

Multidisciplinary nature of Ecology and Environment: Definition, Scope and Importance – Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health.

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems-Estuaries and Mangroves.

UNIT – II

Course Learning Objectives:

- Overall understanding of the natural resources

Course Outcomes:

- The natural resources and their importance for the sustenance of the life and recognize the need to conserve the natural resources

Natural Resources: Natural resources and associated problems

Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people

Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, Sustainable mining of Granite, Lignite, Coal, Sea and River sands.

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity

Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction.

Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT – III

Course Learning Objectives:

- Basic understanding of Biodiversity.

Course Outcomes:

- The biodiversity of India and the threats to biodiversity, and conservation practices to protect the biodiversity

Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity-In situ and Ex situ conservation.

UNIT – IV

Course Learning Objectives:

- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities

Course Outcomes:

- Various attributes of the pollution and their impacts and measures to reduce or control the pollution along with waste management practices

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Waterpollution- Waste water treatment methods, Soil pollution, Noise pollution, Radioactive pollution: Sources and risks. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being.

Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solidwastes. Consumerism and waste products, Biomedical, Hazardous and e - waste management.

UNIT – V

Course Learning Objectives:

- Awareness on the social issues, environmental legislation and global treaties

Course Outcomes:

- Social issues both rural and urban environment and the possible means to combat the challenges
- The environmental legislations of India and the first global initiatives towards sustainable development.

Social Issues and the Environment: Urban problems related to energy -Water conservation- Coastal zone management, rainwater harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.

UNIT – VI

Course Learning Objectives:

- An understanding of the environmental impact of developmental activities

Course Outcomes:

- About environmental assessment and the stages involved in EIA and the environmental audit.
- Self Sustaining Green Campus with Environment Friendly aspect of – Energy, Water and Wastewater reuse Plantation, Rain water Harvesting, Parking Curriculum.

Environmental Management: Impact Assessment and its significance various stages of EIA,preparation of EMP and EIS, Environmental audit. Environmental Modeling. Ecotourism, Green Campus – Green business and Green politics.

Solid Waste Management: Sources, effects and control measures of urban and industrial waste.

LEARNING OUTCOMES Students will be able to

1. Understand Cause, effects and control measures of air pollution.
2. Explain the enforcement of Environmental legislation
3. Understand solid waste management.

UNIT-IV: Social Issues and the Environment: Air (Prevention and Control of Pollution) Act 1981. –Water (Prevention and control of Pollution) Act 1974, EPA act 1986 ,Issues involved in enforcement of environmental legislation, Rain water harvesting, Global Environmental challenges climate change and mitigations and Adaptations (Engineering technologies)

LEARNING OUTCOMES:

Students will be able to

1. Explain the enforcement of Environmental legislations
2. Acquire knowledge on various environmental challenges induced due to unplanned anthropogenic activities.

UNIT-V: Human population and the Environment:

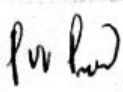
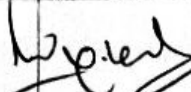
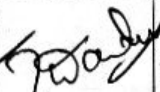
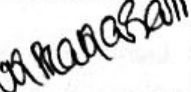


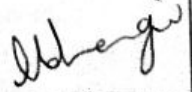
Population growth, Women and child welfare, Role of Information technology in environment and human health Awareness to Environmental Assessment & clearance ,Audit .Environmental Governance in india E-Waste management Rules (Biomedical Waste, Solid Waste) **Field work:** A mini project related to Environmental issues / To visit a local polluted site (Submission of project by every student)

LEARNING OUTCOMES Students will have

1. Explain various types of information technologies
2. Explain the theories of population explosion

TEXT BOOKS	
1.	Environmental Studies for undergraduate courses by ErachBharucha,UGC.
2.	A Textbook of Environmental Studies by Dr.S.AzeemUnnisa,Academic publishing company.
3.	Environmental Studies by P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai
4.	A Textbook EIA Notification 2006(2019)
REFERENCE BOOKS	
1.	Text Book of Environmental Studies by Deeshita Dave & P. UdayaBhaskar, Cengage learning.
2.	Glimpses of Environment by K.V.S.G. Murali Krishna Published by Environmental Protection Society, Kakinada, A.P.
3.	Environmental Studies by Benny Joseph, Tata McGraw Hill Co, New Delhi
WEB RESOURCES	
1.	UNIT-1: MULTI DISPLINARY NATURE OF ENVIRONMENT and NATURAL RESOURCES http://www.defra.gov.uk/environment/climatechange
2.	UNIT-2: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION http://conbio.net/vl/ and www.biodiversitya-z.org/content/biodiversity
3.	UNIT-3: ENVIRONMENTAL POLLUTION https://www.omicsonline.org/environment-pollution-climate-change.php and
4.	UNIT-4: Social Issues and the Environment http://www.publichealthnotes.com/solid-waste-management/
5.	UNIT-5: HUMAN POPULATION AND THE NVIRONMENT http://IPCC.com

Signatures of Members of BOS

University Nominee	Expert	Expert	Industry Personnel	BOS Chairman	Member	Member
						

5. Mapping CO with PO/PSO, Course with PO/PSO

CO#	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C125.1						1	2	1						
C125.2							2	1						
C125.3							2	2						
C125.4						1	2	2				1		
C125.5						3	1	2						
C125.6						2	2	1		2				

Note: Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

If there is no correlation, put "0"

DEPARTMENT OF BASIC SCIENCES & HUMANITIES
BOARD OF STUDIES ENVIRONMENTAL STUDIES (R16)

Date: 10-07-2016

Minutes of meeting of UG & PG Board of Studies (BOS) of Environmental Studies conducted on 9th July and 10th July 2016 for approval/ratification of I Year I & II Semesters R16 regulation Environmental studies Subjects.

Members Present:

- Dr.P.V.S.Machi Raju - Chairman BoS
- Dr.K.V.S.G. Murali Krishna - University Nominee
- Dr. K. Kameswara Rao - External Expert Nominee
- Dr.T.Damodharam, - External Expert Nominee
- Mrs.P.sravani - Faculty Member
- Mrs.N.Prasanthi - Faculty Member
- Mrs S.Bhargavi. - Faculty Member

Agenda:

1. Welcome Address by Chairman-BOS
2. Discussion on proposed course structure and ratification of the same.
3. Discussion on proposed B.Tech First Year courses syllabus and ratification of the same.
4. Ratification of the proposed modal papers for internal and external examinations of theory
5. Finalization of names of faculty for setting question paper and valuation of answer scripts.
6. Finalization of text books and reference books.
7. Any other item

Proceedings:

- The meeting began at 10.00AM in the R&D Chamber .The Chairman of the Board Dr.P.V.S.Machi Raju welcomed all the members for the meeting.
- With respect to point 2 & 3 of agenda, the following changes were suggested in B.Tech syllabi:

Environmental Studies:

Resolutions:

1. Resolution on Sl.No.2 of the agenda; The course structure proposed by the department of Environmental studies in respect of I B.Tech Environmental studies (Civil& Mechanical and EEE branches) for semester –I and ECE,CSE and It branches) for II semester have been ratified unanimously by the members of the Board of studies.
2. Resolution on Sl. No3 of the agenda; The proposed B.Tech First year course syllabi (Draft copy submitted by the department to BOS members) have been ratified by Board of studies of Environmental studies with the following modifications as suggested by the members in the syllabus.

Unit-I : Multi Disciplinary nature of Environment and Ecology

(a) Inclusion of topic on "Introduction of Brief works of noted Environmentalists and Naturalists (Wangari Mathai, Salim Ali and Sunderlal Bahuguna)

(b) Unit-IV: Environmental Pollution

- The proposed topic on waste water treatment (Primary and Secondary) has been dropped from the syllabus and instead of this topic Heavy Metal Pollution is introduced