COURSE DESCRIPTION

Approval: 24th Senate Meeting

Course Name: Environmental Science
Course No.: IC 230
Credits: 3-0-0-3
Prerequisites: None
Intended for: UG
Distribution: IC (Science II)
Semester: Odd / Even
Comments: None

Preamble: This course explores the natural environment and the dynamic biological, physical and chemical interactions that characterize it. Environmental issues faced by the modern world will be discussed. The role of humans in altering the natural biogeochemical cycles will be explored through focused discussions of topics such as natural resource exploitation (forestry, agriculture, mining, oil & gas, alternative energies), pollution (waste management, soil and water contamination, atmospheric pollution and climate change), and land use changes (e.g., urbanization).

Course Outline:

1. Environment components and issues: Definition and Scope, Atmosphere, Hydrosphere, Lithosphere, Biosphere, Global, Regional and Local Issues, Major environmental issues faced by the world **(12 hours)**

2. Environmental systems: Characteristics and properties, biogeochemical cycles of carbon, nitrogen, phosphorous and water, Biotic and abiotic environment, Food chain and webs, Anthropogenic influence on food chain **(8 hours)**

3. Natural Resources: Forests, Energy resources, renewable and non-renewable energy, Mineral resources, Water resources **(6 hours)**

4. Environmental Pollution: Common pollutants and their spread, Air pollution, Water pollution, Soil pollution, Measurement of pollution, Environmental parameters and standards, Environmental impacts and assessment **(8 hours)**

5. Environmental Management: Monitoring and remediation, Reduction-reuse-recycling possibilities, Environmental policies, Case studies **(8 hours)**

Textbooks:

"Environmental Science", G. Tyler Miller and Scott Spoolman, CENGAGE Learning Custom Publishing, Canada, 16th edition (2017)

Reference Books:

"A Text Book of Environmental Science", Arvind Kumar, A P H Publishing Corporation, New Delhi, India (2008)

"Basics of Environmental Science", Michael Alleby, 2nd Edition, Routledge - Taylor & Francis Group, New York, USA (2000)