

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P/D	C	Sessional	End Semester Exam	Total	
2	2	0	3	40	60	100	3 hrs

COURSE CONTENTS:

Unit	Contents	No. of hours
I	<p>Ecosystems: Structure and function of an ecosystem–ecological succession–primary and secondary succession - ecological pyramids – pyramid of number, pyramid of energy and pyramid of biomass.</p> <p>Conventions on Climate Change: Origin of Conference of Parties (COPs), United Nations Framework Convention on Climate Change (UNFCCC) and Intergovernmental Panel on Climate Change (IPCC); Kyoto Protocol, Montreal Action Plan; Paris Agreement and post-Paris scenario.</p> <p>Environmental issues: Global Environmental crisis, Current global environment issues, Global Warming, Greenhouse Effect, role of Carbon Dioxide and Methane, Ozone Problem, CFC's and Alternatives, Causes of Climate change, Carbon footprint.</p>	8
II	<p>Air Pollution: Origin, sources, adverse effects and preventive measures related to air pollution. Case study for air pollution (London smog, Photochemical smog, Bhopal gas tragedy).</p> <p>Water Pollution: Origin, sources, adverse effects and preventive measures related to water pollution. Case study for air pollution (Minmata tragedy, Arsenic pollution at Punjab/UP, The Ganga river pollution).</p> <p>Noise Pollution: Origin, sources, adverse effects and preventive measures related to noise pollution.</p> <p>Nuclear pollution: Origin, sources, adverse effects and preventive measures related to radioactive pollution, Case study.</p> <p>Environmental protection acts: Important environmental protection acts in India – water, air (prevention and control of pollution) act, wild life conservation and forest act.</p>	8
III	<p>Renewable and non-renewable resources: Coal, Petroleum, Solar energy, wind energy, hydrothermal energy, nuclear energy, Tidal energy, Bioenergy etc. Role of individual in conservation of natural resources for sustainable life styles. Use and over exploitation of Forest resources, Deforestation, Timber extraction, Mining,</p>	8


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	Dams and their effects on forest and tribal people. Use and over exploitation of surface and ground water resources, Floods, Drought, Conflicts over water, Dams-benefits and problems. National green hydrogen mission. FAME India Scheme.	
IV	<p>Environment and Disaster: Introduction: Principles of Disaster Management. Natural Disasters such as Earthquake, Floods, Fire, Landslides, Tornado, Cyclones, Tsunamis, Nuclear and Chemical Terrorism. Hazards, Risks and Vulnerabilities, Vulnerability of a location and vulnerable groups, National policy on disaster Management.</p>	8

Text Books/References:

1. Moaveni, S., Energy, Environment and Sustainability, Cengage (2018)
2. Down to Earth, Environment Reader for Universities, CSE Publication (2018)
3. Chapman, J.L. and Reiss, M.J., Ecology Principles and Application, Cambridge University Press (LPE) (1999).
4. Eastop, T.P. and Croft, D.R., Energy Efficiency for Engineers and Technologists, Longman and Harrow (2006).
5. O'Callagan, P.W., Energy Management, Mc Graw Hill Book Co. Ltd. (1993).
6. Peavy H.S. and Rowe D.R. Environmental Engineering, McGraw Hill (2013)