MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL – 624 101

COMMON PAPER FOR UG

<table>
<tr><td>Course Title &Code</td><td colspan="3">ENVIRONMENTAL STUDIES - U21EVS11</td></tr>
<tr><td>Semester</td><td>Semester I</td><td>Credits:2</td><td>Hours/Week:2</td></tr>
<tr><td>Cognitive Level</td><td colspan="3">K1:Recall
K2:Understand
K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="3">➢ To understand the concept and structure of environment.
➢ To know the significance of environmental science
➢ To learn the various natural resources and its significance
➢ To know the important environmental issues and the factors responsible for their cause.
➢ To have knowledge on the principles of bio diversity and the various threats disturbing them.</td></tr>
<tr><td>Course out come</td><td colspan="3">Upon completion of this course, the students will be able to
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<tr><th>CO</th><th>Course Outcomes</th><th>Knowledge Level</th></tr>
<tr><td>CO1</td><td>understand the concept and structure of environment need for public awareness</td><td>K1,K2</td></tr>
<tr><td>CO2</td><td>learn the importance of natural sources and concept of ecosystem</td><td>K2</td></tr>
<tr><td>CO3</td><td>gain knowledge of biodiversity and its conservation methods and also able to understand global environmental issues and mitigation measures</td><td>K2,K3</td></tr>
<tr><td>CO4</td><td>realize importance of environment and biodiversity and human rights.</td><td>K1,K2,</td></tr>
<tr><td>CO5</td><td>understand environmental health is vital for life through case studies and visit to a local area to document environment assets</td><td>K2,K3</td></tr>
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<tr><td>Unit I</td><td colspan="3">• Multidisciplinary nature of environmental studies; components of environment –atmosphere, hydrosphere, lithosphere and biosphere.
• Scope and importance; Concept of sustainability and sustainable development.
(2 Lectures)</td></tr>
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Unit II	**Ecosystems** • What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 Lectures)
Unit III	**Natural Resources: Renewable and Non-renewable Resources** • Land Resources and land use change; Land degradation, soil erosion anddesertification. • Deforestation: Causes and impacts due to mining, dam building on environment,forests, biodiversity and tribal populations. • Water: Use and over-exploitation of surface and ground water, floods, droughts,conflicts over water (international & inter-state). • Heating of earth and circulation of air; air mass formation and precipitation. • Energy resources: Renewable and non-renewable energy sources, use of alternateenergy sources, growing energy needs, case studies. (8 Lectures)
Unit IV	**Biodiversity and Conservation** • Levels of biological diversity :genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots • India as a mega-biodiversity nation; Endangered and endemic species of India • Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. • Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. (8 Lectures)

Unit V	**Environmental Pollution** • Environmental pollution : types, causes, effects and controls; Air, water, soil,chemical and noise pollution • Nuclear hazards and human health risks • Solid waste management: Control measures of urban and industrial waste. • Pollution case studies. (8 Lectures)
Unit VI	**Environmental Policies & Practices** • Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. • Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC). • Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context (7 Lectures)
Unit VII	**Human Communities and the Environment** • Human population and growth: Impacts on environment, human health and welfares. • Carbon foot-print. • Resettlement and rehabilitation of project affected persons; case studies. • Disaster management: floods, earthquakes, cyclones and landslides. • Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan. • Environmental ethics: Role of Indian and other religions and cultures inenvironmental conservation. • Environmental communication and public awareness, case studies (e.g., CNGvehicles in Delhi). (6 Lectures)
Unit VIII	**Field work** • Visit to an area to document environmental assets; river/forest/flora/fauna, etc. • Visit to a local polluted site – Urban/Rural/Industrial/Agricultural. • Study of common plants, insects, birds and basic principles of identification. • Study of simple ecosystems-pond, river, Delhi Ridge, etc. (Equal to 5 Lectures)

Text Books	1. Sharma, P.D, Ecology and Environment, Rastogi Publications. 2010. 2. Shukla, R.S and Chander I.P.S. Plant Ecology and Soil Science, S. Chand & Co Ltd. 2009. 3. Agarwal, K.C. Environmental Biology, Nidi Publ Ltd, Bikaner.2001.
Reference Books	1. Inyinbor Adejumoke A., Adebesin Babatunde O., Oluyori Abimbola P., Adelani-Akande Tabitha A., Dada Adewumi O. and Oreofe Toyin A. Water Pollution: Effects, Prevention and Climatic impact. 2018. 2. B.K.Sharma. Environmental Chemistry, Krishna Prakashan Media (P)Limited. 2019. 3. Pramod Kumar, Vipin Kumar, Pravin Kumar Sachan, Environmental Biotechnology, Publisher WPI Publishing,2019. 4. Cunningham, W.P Cooper, T.H Gorhani, E & Hepworth, M.T Environmental Encylopedia, Jaico Publ House, Mumbai 1196p.2001.
E-References	1. www.nacwc.nic.in 2. www.opcw.org

Mapping of CO with PO &PSO:

CO	**PO**								**PSO**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	M	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	M	S	S	S	M	S	S
CO3	S	S	M	S	M	S	M	S	S	S	S	S	M
CO4	S	M	S	S	S	M	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark