

## ENVIRONMENTAL SCIENCE

II Semester: MBA								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		C	CIA	SEE
CMBC26	Elective	3	-	-	3	30	70	100
		<b>Contact Classes: 45</b>		<b>Tutorial Classes: Nil</b>		<b>Practical Classes: Nil</b>		<b>Total Classes: 45</b>
<b>I. COURSE OVERVIEW:</b>								
The course is designed to create environmental awareness and consciousness among the present generation to become environmental responsible citizens. The course description is: multidisciplinary nature of environmental studies, natural resources: renewable and non-renewable resources; ecosystems; biodiversity and its conservation; environmental pollution; social issues and the environment; human population and the environment; pollution control acts.								
<b>II. COURSE OBJECTIVES:</b>								
<b>The students will try to learn:</b>								
I. The ecosystem's scope, importance, classification, structure, and function.								
II. Environmental issues and to comprehend the need to use renewable energy sources.								
III. The significance of biodiversity in ecological balance.								
IV. About various attributes of pollution management and waste management practices.								
V. The concept of environmental policies and regulations.								
<b>III. COURSE OUTCOMES:</b>								
<b>After successful completion of the course, students will be able to:</b>								
<b>CO 1:</b>	Summarize ecosystems and their functions to maintain a good balance among the ecosystem's many tropical levels.							
<b>CO 2:</b>	Analyze energy flow, biogeochemical cycles, bioaccumulation, and bio magnification in order to preserve ecological balance.							
<b>CO 3:</b>	Recognize the value of natural resources and resource management for providing basic life support in the form of both consumer and public-good services.							
<b>CO 4:</b>	Classify the various types of resources, such as land, water, minerals, and energy, as well as the consequences of the environment for making the manufacturing of commodities.							
<b>CO 5:</b>	Examine the value of biodiversity and its preservation to analyze economic growth and poverty reduction.							
<b>CO 6:</b>	Discuss potential risks to biodiversity in order to decrease degradation, habitat fragmentation, invasive species spread, and indiscriminate use of natural resources.							
<b>CO 7:</b>	Identify the many forms of pollution and the technology that can be used to regulate them in terms of human health and the environment.							
<b>CO 8:</b>	Evaluate pollution and management concerns in the environment in order to reduce global warming.							
<b>CO 9:</b>	Review environmental legislation in order to protect land, air, water, and soil.							
<b>CO 10:</b>	Demonstrate biological waste management and hazardous waste management in order to reduce major health consequences and aid in resource reuse or recycling.							
<b>IV. SYLLABUS:</b>								
<b>UNIT-I</b>	<b>ECOSYSTEMS</b>						<b>Classes: 08</b>	
Definition, Scope and Importance of ecosystem, Classification, structure and function of an ecosystem, Food chains, food web and ecological pyramids, Flow of energy, bio geochemical cycles, Bio accumulation, Bio magnification, ecosystem value, services and carrying capacity.								
<b>UNIT-II</b>	<b>NATURAL RESOURCES</b>						<b>Classes: 10</b>	
Classification of Resources: Living and Non-Living resources, water resources, use and over utilization of surface and ground water, floods and droughts, Dams benefits and problems. Mineral resources: use and exploitation, environmental effects of extracting and using mineral resources.								

<b>UNIT-III</b>	<b>BIODIVERSITY AND BIOTIC RESOURCES</b>	<b>Classes:09</b>
Introduction, Definition, genetic, species and ecosystem diversity, Value of biodiversity, consumptive use, productive use, social, ethical, aesthetic and optional values India as a mega diversity nation, Hot spots of biodiversity.		
Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation, National Biodiversity act.		
<b>UNIT-IV</b>	<b>ENVIRONMENTAL POLLUTION AND CONTROL TECHNOLOGIES</b>	<b>Classes:10</b>
Classification of pollution, Air Pollution: Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. Water pollution: Sources and types of pollution, drinking water quality standards. Soil Pollution: Sources and types, Impacts of modern agriculture. Noise Pollution: Sources and Health hazards, standards, Solid waste: Municipal Solid Waste management, composition and characteristics of e-Waste and its management. Pollution control technologies:		
<b>UNIT-V</b>	<b>ENVIRONMENTAL POLICY, LEGISLATION AND EIA</b>	<b>Classes:08</b>
Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste Management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition.		
<b>Text Books:</b>		
<ol style="list-style-type: none"> <li>1. Sinha, Deepika. "Principles of Environmental Science and Technology", 6<sup>th</sup>Edition, 2021.</li> <li>2. Kraft, Michael E. "Environmental policy and politics", Routledge, 2021.</li> <li>3. Magnus, B., Davidson, D.J. (Eds). "Environment and Society: Concepts and Challenges (Palgrave Studies in Environmental Sociology and Policy)", Palgrave Macmillan, 2018.</li> <li>4. Poonia, M. P., and S. C. Sharma. "Environmental Studies", Khanna Publishing, 7<sup>th</sup>Edition,2017.</li> <li>5. Miller, G. Tyler, and Scott Spoolman. "Environmental Science",Cengage Learning, 9<sup>th</sup>Edition, 2015.</li> <li>6. Richard T.Wright, "Environmental Science: towards a sustainable future ", PHL Learning Private Ltd. New Delhi, Revised 1<sup>st</sup>Edition,2008.</li> <li>7. Gilbert M.Masters and Wendell P. Ela, "Environmental Engineering and Science", PHI Learning Pvt. Ltd, Revised 1<sup>st</sup>Edition,2008.</li> </ol>		
<b>Reference Books:</b>		
<ol style="list-style-type: none"> <li>1. Daniel B.Botkinand Edward A.Keller, "Environmental Science ", Wiley INDIA, 9<sup>th</sup>Edition,2010.</li> <li>2. Environmental Studies by AnubhaKaushik, New age international publishers, 4<sup>th</sup>Edition,2010.</li> <li>3. Dr. M. Anji Reddy, "Text book of Environmental Science and Technology", BS Publications, 4<sup>th</sup>Edition, 2007.</li> </ol>		
<b>Web References:</b>		
<ol style="list-style-type: none"> <li>1. <a href="http://mft.info/core/uploads/sites/32/2016/04/ENVIRONMENTAL-SCIENCE.pdf">http://mft.info/core/uploads/sites/32/2016/04/ENVIRONMENTAL-SCIENCE.pdf</a></li> <li>2. <a href="http://collegesat.du.ac.in/UG/Envinromental%20Studies_ebook.pdf">http://collegesat.du.ac.in/UG/Envinromental%20Studies_ebook.pdf</a></li> </ol>		
<b>E-Text Books:</b>		
<ol style="list-style-type: none"> <li>1. <a href="http://www.ed.gov.nl.ca/edu/k12/curriculum/documents/science/highschool/ES3205_student_text_chapter_1.pdf">http://www.ed.gov.nl.ca/edu/k12/curriculum/documents/science/highschool/ES3205_student_text_chapter_1.pdf</a></li> <li>2. <a href="https://www.taylorfrancis.com/books/mono/10.4324/9780203974988/environmental-management-geoff-wilson-raymond-bryant">https://www.taylorfrancis.com/books/mono/10.4324/9780203974988/environmental-management-geoff-wilson-raymond-bryant</a></li> <li>3. <a href="https://open.umn.edu/opentextbooks/textbooks/562">https://open.umn.edu/opentextbooks/textbooks/562</a></li> <li>4. <a href="https://www.textbooks.com/Environmental-Science-16th-Edition/9781337569613/G-Tyler-Miller-and-Scott-Spoolman.php?CSID=2CUAZAZWO3J3SMTTCOAUCTSOB">https://www.textbooks.com/Environmental-Science-16th-Edition/9781337569613/G-Tyler-Miller-and-Scott-Spoolman.php?CSID=2CUAZAZWO3J3SMTTCOAUCTSOB</a></li> </ol>		