

Environment and Sustainability

(12 Core + 3 Optional = 15 Courses = 60Cr)

Major in 'Environment and Sustainability' will enable the student to tackle the cutting-edge issues of the environment in the present scenario by adopting the conceptual framework of sustainable development. The major in this course will take the students to new dimensions in exploring the endless possibilities for their future career in Environmental Sciences and Sustainability Studies. The course is designed with a vision to open multifaceted avenues for higher studies in the field of environmental sciences, technologies, policy and law, impact assessment and auditing, etc., or supporting the non-governmental organizations actively working for climate change mitigation.

A set of twelve core courses will be offered to the students who are opting this major for Years II and III of their Bachelor's programme. Each semester would consist of four compulsory courses until the third semester along with a participatory and community project in the third and fourth semesters. Moreover, the fourth semester will also be enriched by four specialized electives and two generic cross-disciplinary electives out of which the students pursuing a major have freedom to choose any one under each mentioned elective.

First semester of the major will be initiated by providing the fundamental principles, concepts and issues of ecological, environmental and sustainability sciences along with the profuse elaborations of natural resources and its management under the burgeoning era of Air pollution, global warming and Climate Change. Under the second semester, follow-ups of air pollution will be dealt with illustrating the wisdom about different cutting-edge Control Technologies. A lab course of Air Quality Analysis will also be offered to understand the techniques associated with measurements and mechanisms. Courses related to Water Pollution and Treatment Technologies, and Solid Waste Management would introduce students to other facets of pollution and treatment systems. Energy, Environment, Legislation and Impact Assessment are other core courses that enlighten the students with intricate relationship between energy and environment along with fundamental knowhow to assess the environmental impacts, and the laws and legislation associated with the pollution and treatment. Course on Agriculture and Land Resources management will introduce students to land use patterns, agricultural practices, land resource conflicts and land reclamation concepts. Besides these, the students will further be offered to choose a cross-disciplinary generic elective offered by TIET or a global virtual course on Food-Water-Energy Nexus offered by Cornell University, USA with engagement of faculty from TIET, TISS-Mumbai, CAU-China, University of Arkansas-USA, and many more.

Students will further learn about essential requirements to upgrade their current knowledge gathered in the previous three semesters of their major by choosing a course among the variety of major specific electives in the fourth semester, which are specifically meant to provide an in-depth solution to achieve sustainable development in future. These courses are: Cleaner Production and Sustainable Technologies; Restoration Ecology and Indigenous Technologies; Smart Cities and Urban Planning; Sustainable Biodiversity Management. In purview of this, students will get an exposure to understand and develop a participatory and community project, which will be conducted parallel across the third and fourth semester. A lab course related to

Soil and Water Quality analyses provides a major insight to the students to develop a strong academic understanding as well as the essential laboratory skills, which will enable them to develop critical thinking and attain their future goals of career.

The layout of the semester wise course plan is as follow:

The following courses will comprise the Environment and Sustainability Module

Core Courses: Year II – Sem I	Credits
1. Elements of Environmental Sciences 2. Natural Resource Management: Physical and Biotic 3. Sustainable Development: Issues and Challenges 4. Air Pollution and Climate Change	04 Cr x 4 = 16 Credits
Core Courses: Year II – Sem II	
5. Water Pollution and Treatment Technologies 6. Air Pollution Control Technologies 7. Solid Waste Management 8. Air Quality Analyses (Lab Course)	04 Cr x 4 = 16 Credits
Core Courses: Year III – Sem I	
9. Energy and Environment 10. Environmental Legislation and Impact Assessment 11. Agriculture and Land Resource Management	04 Cr x 3 = 12 Credits
12. Generic Elective Basket – Any one of the cross-disciplinary generic electives offered across the TIET (or) Food-Energy-Water Nexus Course – Hosted by Cornell University, USA with engagement of faculty from TIET, TISS-Mumbai, CAU-China, Univ. Arkansas-USA, etc.	02 Cr x 1 = 02 Credits
Core Courses: Year III – Sem II	
13. Soil and Water Quality Analyses (Lab Course)	04 Cr x 1 = 04 Credits
14. Elective Basket – Major specific (Any one of the following)	04 Cr x 1 = 04 Credits
<ul style="list-style-type: none"> ● <i>Cleaner Production and Sustainable Technologies</i> ● <i>Restoration Ecology and Indigenous Technologies</i> ● <i>Smart Cities and Urban Planning</i> ● <i>Sustainable Biodiversity Management</i> 	
15. Participatory and Community Project Course (Start) -Year III-Sem I (03 Credits)	03 Cr x 2 = 06 Credits
Participatory and Community Project Course (End) -Year III-Sem II (03 Credits)	
15 Courses: 60 Credits	

Environment and Sustainability Minor Courses

1. Elements of Environmental Sciences
2. Sustainable Development: Issues and Challenges
3. Energy and Environment
4. Environmental Legislation and Impact Assessment
5. Restoration Ecology and Indigenous Technologies
6. Smart Cities and Urban Planning