**TCET/FRM/IP-02/10** **Semester Plan** **Revision: A**

**Semester: I** **Course:**

**Subject: FEC 106:Environmental Studies** **Class:**

| S. No. | Prerequisite/ Bridge course: | Duration (Week /Hrs) | Modes of Learning | Recommended Sources |
|---|---|---|---|---|
| 1 | Basic sciences such as Chemistry, Physics, Botony, Zoology, Geology | 2 hours | Self Learning/ Revision | 1. Environmental Studies by Benny Joseph, Tata McGraw Hill, 2. Environmental Studies by R. Rajagopalan, Oxford university Press 3. Environmental Studies Semester I Tech-Max Publications, Dr. (Mrs.) Jayshree A. Parikh |

## Class Room Teaching

| Sr.No | Module No. | Lesson No. | Topics Planned | Teaching Aids Required | Planned Date | Completion date | Recourse Book Reference |
|---|---|---|---|---|---|---|---|
| 1 | M1 | 1 | **Orientation of Subject EVS Overview of Environmental Aspects** Definition, Scope and Importance of Environmental Study, Need for Public awareness of environmental education | PPT | | | |
| 2 | M1 | 2 | Introduction to depletion of natural resources: Soil, Water, Minerals and Forests, Global crisis related to – Population, water, sanitation and Land. | Chalk Board, PPT | | | |
| 3 | M1 | 3 | Ecosystem: Study of ecosystems: Forest, desert and aquatic (in brief). Energy flow in Ecosystem, overview of Food Chain, Food Web and Ecological Pyramid. | Chalk Board, PPT | | | |

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| 4 | M1 | 4 | Concept of ecological succession and its impact on human beings (in brief). Case Study on Chipko Movement (Uttarakhand, India), (began in 1973). | Chalk Board, PPT | | | |
| 5 | M2 | 5 | **ASPECTS OF SUSTAINABLE DEVELOPMENT** Concept of sustainable development | Chalk Board, PPT | | | |
| 6 | M2 | 6 | Social, Economical and Environmental aspect of sustainable development.Numerical based on lime soda process | Chalk Board, PPT | | | |
| 7 | M2 | 7 | Control Measures: 3R (Reuse, Recovery, Recycle) | Chalk Board, PPT | | | |
| 8 | M2 | 8 | Appropriate Technology, Environmental education, Resource utilization as per the carrying capacity. Case Study on Narmada BachaoAndolan (Gujarat, India, in the mid and late 1980s). | Chalk Board, PPT | | | |
| 9 | M3 | 9 | **TYPES OF POLLUTION** Air Pollution: sources, effects with respect to global warming, ozone layer depletion | Chalk Board, PPT | | | |
| 10 | M3 | 10 | Acid rain, photochemical smog. Two control measures- Bag house filter, Venturi scrubber. Case study: Bhopal gas tragedy | Chalk Board, PPT | | | |
| 11 | M3 | 11 | Water Pollution: sources and treatment, concept of waste water- domestic & industrial treatment. | Chalk Board, PPT | | | |
| 12 | M3 | 12 | Land Pollution: Solid waste, solid waste management by land filling, composting. | Chalk Board, PPT | | | |
| 13 | M3 | 13 | Noise Pollution: sources and effects E-Pollution: sources and effects, Nuclear pollution: Sources and effects. | Chalk Board, PPT | | | |

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| 14 | M3 | 14 | Case study on Water Pollution of Ganga River.<br>Case study on London smog (U. K.)(December, 1952).<br>Case Study of Fukushima Disaster (March, 2011). | Chalk Board, PPT | | | |
| 15 | M4 | 15 | **POLLUTION CONTROL LEGISLATION**<br>Functions and powers of Central and State Control Pollution Board. | Chalk Board, PPT | | | |
| 16 | M4 | 16 | Environmental Clearance, Consent and Authorization Mechanism.<br>Environmental Protection Act | Chalk Board, PPT | | | |
| 17 | M4 | 17 | Case Study of Dombivali MIDC- Boiler Blast Tragedy (Thane, Maharashtra, India), (May 2016) | Chalk Board, PPT | | | |
| 18 | M5 | 18 | **Renewable Sources of Energy**<br>Limitations of conventional sources of Energy.<br>Various renewable energy sources. | Chalk Board, PPT | | | |
| 19 | M5 | 19 | Solar Energy: Principle, Working of Flat plate collector & Photovoltaic cell. | Chalk Board, PPT | | | |
| 20 | M5 | 20 | Wind Energy: Principle, Wind Turbines. | Chalk Board, PPT | | | |
| 21 | M5 | 21 | Generation of Hydropower Energy: Principle, Hydropower Geothermal Energy: Introduction, Steam Power Plant | Chalk Board, PPT | | | |
| 22 | M6 | 22 | TECHNOLOGICAL ADVANCES TO OVERCOME ENVIRONMENTAL PROBLEMS<br>Role of Technology in Environment and health, Concept of Green Buildings, Indoor air pollution | Chalk Board, PPT | | | |
| 23 | M6 | 23 | Carbon Credit: Introduction, General concept. | Chalk Board, PPT | | | |
| 24 | M6 | 24 | Disaster Management: Two Events: Floods and Earthquakes | Chalk Board, PPT | | | |

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| | M6 | 25 | Techniques of Disaster Management | Chalk Board, PPT | | | |
| 26 | M6 | 26 | Case Study on Earthquake in Latur (Maharashtra, India), (September, 1993).<br>Case Study on Cloudburst and Landslides at Kedarnath (Uttarakhand, India), (June, 2013). | Chalk Board, PPT | | | |

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| Remark:<br>Course: | Syllabus Coverage: | **Content Beyond Syllabus** |

No. of (lectures planned)/(lecture taken): 26

Miniproject/Paper presentation/Poster presentation

**Text Books:**

1. Environmental Studies Semester I Tech-Max Publications, Dr. (Mrs.) Jayshree A. Parikh

**Reference Books:**

1. Environmental Studies by Benny Joseph, TataMcGraw Hill.
2. Environmental Studies by R.Rajagopalan, Oxford University Press.
3. Environmental Studies by. AnanditaBasak, Pearson Education.
4. Essentials of Environmental Studies by Kurian Joseph &Nagendran, Pearson Education.
5. Fundamentals of Environmental Studies by Varadbal G. Mhatre, Himalaya Publication House.
6. Perspective of Environmental Studies, by Kaushik and Kaushik,New Age International.
7. Renewable Energy by Godfrey Boyle, Oxford Publications.
8. Textbook of Environmental Studies by Dave and Katewa, Cengage Learning.
9. Textbook of Environmental studies by ErachBharucha, University Press.
10. Environmental pollution control engineering by C.S. Rao, New Age International (P) Limited Publishers.

**Digital Reference:**

*3.1 www.nptel.ac.in*

Name & Signature of Faculty Signature of HOD Signature of Principal /Dean (Academics)

Date: Date: Date:

**Note:**

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 52 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.