Uka Tarsadia University

B. Tech
Fundamentals of Environmental Engineering
(030040505)
5th Semester
EFFECTIVE FROM June-2012
A. **Prerequisite:** Fundamentals of Civil Engineering and Environmental Studies

B. **Aim and Objective:** To study the concepts of environmental engineering and the effect of technological advances on the environment

C. **Subject Code:** 030040505  
**Subject:** Fundamentals of Environmental Engineering

D. **Total:** 65 Hrs.  
[Lecture: 3  
Tutorial: 0  
Practical: 2]

E. **Detailed Syllabus:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Topic Name</th>
<th>Weightage (%)</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Introduction</strong></td>
<td>10</td>
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<tr>
<td>1.1</td>
<td>Scope and importance of environmental engineering and management</td>
<td></td>
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<tr>
<td>1.2</td>
<td>Components of environment, types of microbes, growth and their role in environment</td>
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<td>2.</td>
<td><strong>Demand and sources of water</strong></td>
<td>15</td>
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<tr>
<td>2.1</td>
<td>Water demand, population forecast, water quantity Requirements and Sources of water, drinking water standards, and impurities.</td>
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<td>2.2</td>
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<td>3.</td>
<td><strong>Characteristics of water and waste water</strong></td>
<td>35</td>
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<tr>
<td>3.1</td>
<td>Physical, chemical and biological characteristics: Ph, turbidity, solids, alkalinity, hardness, chlorides, COD, BOD etc</td>
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<tr>
<td>3.2</td>
<td>Industrial waste water: Indian standard for effluent disposal and receiving water body, typical industry Characteristics, disposal of treated wastewater. Effect of organic pollution on river water quality, self purification. DO sag curve.</td>
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<td>4.</td>
<td><strong>Pollution</strong></td>
<td>20</td>
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<tr>
<td>4.1</td>
<td>Introduction to environmental pollution, types of pollution, air pollution: definition, classification, sources, composition of atmospheric air, effects of air pollution, air pollution control method. Noise pollution: definition, measurement, sources, effects and control.</td>
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<td>5.</td>
<td><strong>Solid waste management</strong></td>
<td>10</td>
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<tr>
<td>5.1</td>
<td>Quantity, composition and Characteristics, methods of collection, conveyance, treatment and disposal</td>
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<td>6.</td>
<td><strong>House drainage</strong></td>
<td>10</td>
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F. Modes of Transaction (i.e. Delivery)
   1. Lectures /discussion method shall be fruitful. It should be supplemented with various appropriate audio-visual aids.
   2. Activity assignment or presentation shall be given to students.

G. Teachers Activities/Practicum
The following activities should be carried out by the teachers:
   1. Demonstration of various laboratory experiments
   2. Conduction of presentation for the practical approach

H. Student Activities/Practicum
The following activities may be carried out by the students:
   1. Study and analysis of characteristics of water and waste water

I. Text Books
   1. Water supply engineering by B.C. Punmia
   2. Waste Water Engineering by B.C. Punmia

J. Reference Books
   6. J.A. Salvato, Environmental Sanitation, Wiley Interscience
   9. Metcalf and Eddy (Revised by G. Tchobanogloous Wastewater Engineering: Treatment, disposal Reuse, Tata-McGraw Hill, New Delhi