# First Year B.Tech Medical Biotechnology Sem- II

Subject: ENVIRONMENTAL SCIENCE  
Course Code: BS 204  
Faculty: Dr Vrushali Gadekar

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
<th>No Of Lectures</th>
<th>Lecture Serial No</th>
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</thead>
</table>
| **Unit-1**  
**Natural Resources and associated problems** | 1. Natural Resource Land, it’s use, and over exploitation and conservation  
2. Natural Resource water, it’s use, and over exploitation and conservation  
3. Natural Resource food, it’s use, and over exploitation and conservation  
4. Natural Resource mineral, it’s use, and over exploitation and conservation  
5. Natural Resource forest, it’s use, and over exploitation and conservation  
6. Energy sources and it’s use  
7. Energy sources and it’s over exploitation and Energy conservation | -1  
-1  
-1  
-1  
-1  
-1  
-2 | 1  
2  
3  
4  
5  
6  
7-8 |
| **Unit-2**  
**Ecosystems** | 1. Concept, structure and function of ecosystem  
2. Producers, Consumers and decomposers of ecosystem  
3. Energy flow in ecosystem  
4. Ecological succession and pyramids  
5. Food chains, food webs and ecological pyramids.  
6. Characteristic features of Forest, Grassland, Desert and Aquatic ecosystems | -1  
-1  
-1  
-1  
-1  
-1 | 9  
10  
11  
12  
13  
14 |
| **Unit-3**  
**Environmental Pollution** | 1. Definition and Causes of pollution  
2. Effects of Environmental Pollution  
3. Control of Environmental Pollution  
4. Measures of Air, Water, Soil, Noise, thermal and Marine Pollution, Nuclear hazards  
5. Solid waste management.  
6. Role of an individual in prevention of Pollution  
7. Pollution case studies | -1  
-1  
-1  
-2 | 15  
16  
17  
18-19  
20  
21  
22 |
| **Unit-4**  
**Biodiversity and its Conservation** | 1. Genetic, species and ecosystem diversity  
2. Value of Biodiversity: social, ethical, aesthetic and option values.  
3. India as a mega diversity nation, Hotspots of Biodiversity. | -1  
-1  
-2 | 23  
24  
25-26 |
4. Threats to Biodiversity: Habitat loss, poaching of wildlife, man wild life conflicts.
5. Endangered and Endemic species of India.

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<tr>
<th>Unit-5 Social Issues and the Environment</th>
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<tbody>
<tr>
<td>1. Urban problems related to energy. Water conservation, Rain water harvesting, and watershed management.</td>
<td>-1</td>
<td>31</td>
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<tr>
<td>2. Resettlement and rehabilitation of people.</td>
<td>-1</td>
<td>32</td>
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<tr>
<td>3. Climate change, global warming, acid rain, ozone layer depletion</td>
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<td>33</td>
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<td>7. Environmental ethics: Issues and possible solutions. Public awareness</td>
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<thead>
<tr>
<th>Unit-6 Human Population and Environment</th>
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<tbody>
<tr>
<td>1. Population growth.</td>
<td>-1</td>
<td>38</td>
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<tr>
<td>2. Population explosion- family welfare programs.</td>
<td>-1</td>
<td>39</td>
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<tr>
<td>4. Role of Information and Technology in environment &amp; human health</td>
<td>-1</td>
<td>43</td>
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<tr>
<th>Unit-7 Field work</th>
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<tbody>
<tr>
<td>1. Visit to a local area to document environmental assets River/forest/grassland/hill/mountain</td>
<td>-1</td>
<td>44</td>
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<tr>
<td>2. Visit to local polluted site- Urban/Rural/Industrial</td>
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<td>45</td>
</tr>
<tr>
<td>3. Visit to local polluted site- Agricultural</td>
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<tr>
<td>4. Study of Common plants, insects, birds.</td>
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<tr>
<td>5. Study of simple ecosystems- pond, river, hill slopes, etc</td>
<td>-1</td>
<td>48</td>
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</table>

Books recommended:

- Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmedabad-380013, India, Email: mapin@icenet.net (R)
- Cark R.S., Marine Pollution, Clanderson press Oxford (TB)
- Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth M.T. 2001

Evaluation scheme
<table>
<thead>
<tr>
<th>S.No</th>
<th>Examination</th>
<th>Time</th>
<th>Marks</th>
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<tbody>
<tr>
<td>1</td>
<td>I Internal</td>
<td>45 minutes</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>II Internal</td>
<td>45 minutes</td>
<td>15</td>
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<tr>
<td>3</td>
<td>Teachers assessment</td>
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<tr>
<td>4</td>
<td>End Semester Exam</td>
<td>2 hours 30 minutes</td>
<td>60</td>
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