

SARDAR PATEL UNIVERSITY
Programme: B.Sc (Environmental Science)
Semester: V
Syllabus with effect from: June 2013

Paper Code: US05CENV05	Total Credits: 3
Title Of Paper: Natural Resources	

Unit	Description in detail	Weightage (%)
I	<p>Natural Resources and Energy Resources Natural Resources: Definition, Various Classifications of Natural Resources with examples, Resources Utilization, Exhaustion of Resources, Conservation of Natural Resources Energy Resources: Growing energy needs</p> <ul style="list-style-type: none"> • Renewable or Inexhaustible Energy resources <p>Conventional resources - firewood, plant biomass, animal dung etc. Non conventional resources - solar energy, wind energy , water power, tidal energy, geothermal energy , dendrothermal energy</p> <ul style="list-style-type: none"> • Non Renewable or exhaustible energy sources <p>Conventional resources - Fossil fuel (coal, petroleum, natural gas) Nonconventional resources - Nuclear energy</p>	25%
II	<p>Land and Mineral Resources Land as resource, Land degradation, man induced landslides, mining, Desertification - causes, Soil erosion - kinds, agents of soil erosion, soil pollution - by plastic waste, fertilizers, pesticides, hazardous and toxic waste, Soil conservation practices, Management of urban waste, recycling of solid waste. Mineral Resources: Principle minerals with their estimated reserve and distribution [Bauxite, Coal and Lignite, Copper, Diamond, Dolomite, Gold, Gypsum, Graphite, Limonite, Iron Ore, Lead-Zinc, Limestone, Manganese, Mica, Nickel, Phosphate]</p> <ul style="list-style-type: none"> • Environmental problems created by extraction and mining, • Role of Public sector Mining Hindustan Zinc Ltd. (HZL), Hindustan Copper Ltd.(HCL) Bharat Gold Mines Ltd(BGML), Bharat Aluminium co. Ltd (BACLO), National Aluminium CO. Ltd (NALCO) 	25%
III	<p>Water Resources Functions of water as a resource, Distribution of water resources, Surface water resources, ground water resources, Use of surface and ground water, Water management. Water conservation, Conflicts over water, some significant Dams benefits and problems</p> <ul style="list-style-type: none"> • Water Quality measurement -Physical, Chemical and Biological parameters • Water conservation methods- Rain water harvesting, drip irrigation 	25%



IV	Food Resources World food problems, Sources of food: Crop as a food resource, Live stock as a food resource, Food from aquatic sources, Food crisis, Environmental reasons for food problems- Agriculture, soil and crops, Overgrazing, Desertification, Modern agriculture practices- Quantitative and Qualitative aspects, Distribution aspects, Economic aspects, changes caused by agriculture and over grazing, effects of modern Agriculture, fertilizer problems - beneficial effects and adverse effects, Pesticides-over use and problems created by pesticide application.	25%
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Basic Text & Reference Books:

- Non Convention Sources of Energy - G.D.Rai
- Minor Forest Products – T.N. Krishnamurty (1993) Oxford & IBN Publishing Co. Pvt.Ltd.- delhi
- Environmental Conservation : Fundamentals of Forestry Vol-5 S.S. Negi (1983) Bishen Singh Mahendra Pal Singh Dehradun
- Environmental Science – Nebel and Wright (1981) Prentice hall US.
- Environmental Studies – R.Rajagopalan
- Environmental Science – Y.K.Singh New Age International Pub. New delhi
- A Textbook of Environmental Studies – D.K.Asthana, Meera Asthana

