

25PCEM02 GREEN ENGINEERING (3-1-0)

Module I

Concept of Green Buildings: Green building initiatives, its origin, characteristics of a green building, green buildings in India, certification of green buildings rating systems (BREEAM, USGBC, LEED, IGBC, TERI-GRIHA,) criteria for rating, sustainability. Sources of Energy: Renewable and non-renewable sources of energy; coal, petroleum, nuclear, wind, solar, hydro, geothermal sources; potential of these sources, hazards, pollution; global scenario with reference to demand and supply in India. Energy arises

Module II

Carbon Emission: Forecasting, control of carbon emission, air quality and its monitoring carbon foot print; environmental issues, minimizing carbon emission. Green Building Materials: Depleting natural resources of building materials; renewable and recyclable resources; energy efficient materials; green cement, biodegradable materials, smart materials, engineering evaluation of these materials.

Module III

Green Building Planning and Specifications for green buildings .Design of Green Buildings; Sustainable sites, impact of building on environment, life cycle assessment. Design on Bioclimatic and solar passive architecture, considerations of energy consumption, water use, and system reliability, indoor air quality, noise level, comfort, cost efficiency in building design

Module IV

Construction of Green Buildings: Energy efficient construction, practices for thermal efficiency and natural lighting. Eco- friendly water proofing; ECB codes building rating, maintenance of green buildings. 08 Hrs 8. Case studies of residential and commercial green buildings.

Text Books:

1. Tropical housing and buildings climate design (1973). By Koenig's Berger Ltd, ingeesle, T-G Alan
2. Mayhew, s zokoloyS.v University press (India) pot-Ltd Hyderabad.