

SUBJECT NAME – ENVIRONMENTAL SCIENCE AND ECOLOGY

SUBJECT CODE – 3356204

FOCUS:

To develop the knowledge required for understanding the influence of climate on architecture. Understanding Environmental issues, ecology and ecosystem. Environment design as a domain of architects /designers/planners, with an understanding of anthropogenic activities as the determinants of environmental quality.

CONTENTS:

- Environment, ecology, ecosystem with cardinal principles, natural cycles, Resources, causes of resource exhaustion and resource pollution,
- Urbanization and impacts
- Introduction – Elements of climate, measurement and representations of climate data. Classifications of tropical climates, Major climatic Zones of India.
- Thermal comfort: Effect of climatic elements on thermal comfort environment. Body's heat exchange with surrounding environment.
- Principles of thermal design and means of thermal control.
- Natural ventilation: functions of natural ventilation, Design consideration and effects of openings and external features on internal airflow.
- Site Climate: Effect of landscape elements on site / microclimate.
- Day lighting: Advantages and limitations, components of Day light factor, Shading devices – Sun – Path diagram, use of solar charts in climatic design. Types of shading devices. Procedure of designing shading devices.
- Design considerations for buildings in tropical climates with special reference to hot – dry, warm – humid and composite climates.
- Energy conservation with respect to hot - dry climate.
- Projects on Ecosystem, resources and pollution study of some live example, Sun path study with identified locations, Study of vernacular architecture.
- Study of Passive Solar Architecture

SUGGESTED BOOKS

- Manual of Tropical Housing & Building (Part-II) by Koenigsberger
- Housing Climate and Comfort by Martin Evans
- Buildings in the tropics by Maxwell fry
- Climate Responsive Architecture by ArvindKishan, Baker & Szokolay
- Environment and Ecology by Norman Kormandy