

GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for B. Arch
EIGHTH SEMESTER

SUBJECT NAME – GREEN ARCHITECTURE
SUBJECT CODE – 1085011

FOCUS: To sensitize the students to the various aspects of sustainable and green building design in the context of global warming and climate change and to address the very process and tools of design to enable architecture that is environmentally friendly and sustainable

CONTENT

INTRODUCTION -Attitudes to architecture: a historical perspective- General premises and strategies for sustainable and green design- objectives and basis- Eco-mimicry as a design tool based on ecosystem analogy- theoretical basis for a sustainable and eco friendly design

ECO HOUSE - The form of the house: the building as an analogy- design from first principles: conserving energy; working with climate: passive solar design; minimizing new resources; respect for users; respect for site and holism- photovoltaic and solar hot water systems; water usage; small scale wind systems and hydro power; Case studies- design of eco houses: context specific

ENVIRONMENTAL IMPACT OF BUILDING MATERIALS - Measuring the impact of building materials- calculating - recycling - processing - time and embodied energy- embodied energy of different building materials- low energy building and masonry materials- life cycle analysis- Case studies and analysis

GREEN CONSTRUCTION AND ENVIRONMENTAL QUALITY - Sustainable architecture and Green Building: definition- Green building Evaluation Systems; LEED Certification and Gritta; Green Globe Certification; Case studies which look at the environmental approach- renewable energy- controlling the water cycle- impact of materials on the environment – optimizing construction- site management- environmental management of buildings

SUSTAINABLE AND GREEN BUILDING DESIGN CASE STUDIES - Instrument and natural case studies to investigate and apply various studio exercises on Green Building Design.

SUGGESTED BOOKS

1. Brenda and Robert Vale; Green Architecture- Design for a Sustainable Future; Thames and Hudson; 1996

2. Daniel Vallero and Chris Brasier; Sustainable Design- The science of sustainability and Green Engineering; Wiley; 2008
3. Catherine Slessor; Sustainable Architecture and High Technology- Eco Tech; Thames and Hudson; 1997
4. Dominique Gauzin- Muller; Sustainable architecture and Urbanism; Birkhauser; 2002
5. Ken Yeang; Eco design - A Manual for Ecological design, Wiley- Academy; 2006
6. Sue Roaf et al; Ecohouse: A design Guide; Elsevier Architectural Press; 2007