

PLANNING AND DESIGN OF GREEN BUILDINGS

Paper Code: ETEN-419

Paper: Planning and design of Green buildings

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INSTRUCTIONS TO PAPER SETTERS:

MAXIMUM MARKS: 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks

Objective:

1. To introduce the key concept, requirements and important issues of Designs Construction and Commissioning of green buildings.
2. To develop practical skills for planning and designing sustainable building projects.

UNIT – I

Green building concept- History, Increased public focus on Sustainability and Energy Efficiency, Supportive Framework and general condition, Green Home Certifications, CO₂ Emission Trade, High Performance Building Characteristic, the LEED rating system, Rating system for Sustainable Building.

An integrated view of green building- Lifecycle engineering, Barriers to green building growth.

[T1,T2][No. of Hours: 11]

UNIT – II

Green Building Requirements : Principles of Energy, Heat Flow, Fuel Types, Air Flow, Moisture Flow, Condensation and Dew Point, Relative Humidity, Concept of Earth air Tunnel System for moderating air temperature.

Design, construction, commissioning and monitoring for green building- Urban development and infrastructure, building shape and orientation, building envelope, building materials and furnishing, natural resources.

[T1,T2][No. of Hours: 12]

UNIT – III

Planning of Green From Start- Traditional Design, Integrated Design, Site Selection , Site Development, House Design, Construction and Planning, Construction Waste, Remodeling

Structural System- Types of Foundation, Foundation Selection, Materials required, Soil Gas, Tree Protection, Pest Control, Floors and Exterior walls, Roofs, Landscaping.

[T1,T2][No. of Hours: 11]

UNIT – IV

Sustainable building procedure requirement, Blower door test, Thermography, Indoor Comfort, Air Quality, Noise Protection, Day light Performance and Non-Glaring, Emulation, Monitoring and Energy Management, Conscious handling of resources- Energy benchmark as target values for design, regenerative energy resources, primary energy demand for indoor climate conditioning, Energy demand for Lifecycle of a building, Water requirement, Case study.

[T1,T2][No. of Hours: 10]

Text Books:

[T1] Yudelson J, “The Green Building Revolution”, Island Press, New York.

[T2] Kibert C.J., “Sustainable Construction - Green Building Design and Delivery” John Wiley and Sons, New York

Reference Books:

[R1] Edward B., “Guide to Sustainability: A Design Primer”, RIBA Publishing, U.K.

[R2] Sassi P., “Strategies for Sustainable Architecture”, Taylor and Francis, New York.

[R3] Wines J., “Green Architecture”, Taschen, New York.