

SCHEME OF COURSE WORK

CourseDetails:

CourseTitle	GREENBUILDINGSANDINFRASTRUCTURE
CourseCode	15CE1166
Program:	B.Tech.
Specialization:	Information Technology
Semester	8th
Prerequisites	None
Courses to which it is a prerequisite	None

CourseOutcomes(COs):At the endof theCourse, Student will be able to:

1	Impartknowledge onGreen Buildingobjectives,climate andenvironment
2	Apply the knowledge in developmentof greenfieldinfrastructure in relationto sustainableenvironment
3	Demonstrate thepassiveenergysystemandcomponents of buildingfabrics and materials
4	Impart theknowledgeonactive energysystems, utilities and services andO&M
5	Impart theknowledgeonindoor air qualityand buildingratingsystems

Course Outcome versusProgramOutcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	3	3	2	3	2	2	2	2	2	3	2	3
CO-2	2	2	3	2	3	3	3	2	3	3	3	2
CO-3	2	2	3	3	3	2	2	3	3	3	3	2
CO-4	2	2	2	2	2	2	3	3	2	2	2	2
CO-5	2	2	2	3	2	3	3	2	2	2	2	2

S -Stronglycorrelated,M-Moderatelycorrelated,Blank-No correlation

AssessmentMethods	Assignment / Quiz/ Seminar / CaseStudy/ Mid-Test / End Exam			
	✓	✓	✓	✓
Marksallocation	5 marks	5 marks	20 marks	70 marks

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	Teaching-learning strategy	Assessment Method & Schedule
1	Introduction to Green Buildings, Elements of climate, Weather, Water	CO-1	What is climate change? Discuss the causes and effects	Presentations and Discussions	Assignment
2	Environmental quality, Deforestation, Climatic change, Ozone depletion and implications. Natural environment vis-à-vis built	CO-1	What is deforestation? What are its causes and effects?	Presentations and Discussions	Assignment
3	Living environment characteristics and components of Urban Ecosystem, solar radiation, heat flow, air-movement, Land use, drainage and sanitation	CO-1	<ol style="list-style-type: none"> 1. Write a short note on Natural Environment vs Built environment? 2. Write a note on living environment characteristics and Components 	Presentations and Discussions	Assignment
4	Brownfield development, environmental impact and ecological balance	CO-2	Explain in detail about Greenfield development?	Presentations and Discussions	Case Study
5	FAR, layouts, sustainable site development, vegetation, landscape elements	CO-2	Briefly explain the terms sustainable site development? What is the Floor Area Ratio (FAR) and how it is calculated? What are the issues with respect to FAR vis-à-vis the buyer? What are the implications	Presentations and Discussions	Case Study
6	Alternative services and technologies, rain water harvesting, on site sewerage retention, treatment, recycle and reuse	CO-2	Write a note on rain water harvesting technologies	Presentations and Discussions	Case Study
7	Passive energy system design, Building envelope, orientation	CO-3	Write a note on the passive heating and cooling strategies for	Presentations and Discussions	Assignment

	components of building fabric and shading, Highrise buildings, modular building		building? Write a note on building envelope and factors affecting the same?		
8	Construction of curtain walls, Sourcing and recycling of building materials, alternative calcareous, metallic and non metallic materials	CO-3	Discuss in brief the energy management system of a green building? Write a note on the sources of sustainable building materials?	Presentations and Discussions	Assignment
9	Test 1				Mid-I
10	Active Energy Systems in buildings	CO-4	Write notes on Active energy systems in buildings? Explain using examples?	Presentations and Discussions	Assignment
11	Utilities and services, building automation	CO-4	What is building automation? What are the typical elements and components frequently used in building automation and what are the cardinal elements of an intelligent building?	Presentations and Discussions	Case Study
12	Electro-mechanical systems, lifts	CO-4	Write a note on Electro-Mechanical systems in Green buildings?	Presentations and Discussions	Assignment
13	Captive power plant and equipment, operation & maintenance	CO-4	Explain in detail about captive power plant operation and its maintenance?	Presentations and Discussion	Case Study
14	Fresh air requirements, standards	CO-5	How to achieve fresh indoor air in Green buildings? Write the standard of air	Presentations and Discussion	Case Study
15	Sick Building Syndrome and pollutants.	CO-5	What is Sick building syndrome? Briefly explain the causes and remedies of sick	Presentations and Discussion	Case Study
16	Building auditing, point system, component and weightage	CO-5	Discuss the procedure for the Green building auditing system?	Presentations and Discussion	Assignment
17	Building Rating agencies in India	CO-5	Explain in detail rating systems	Presentations and Discussion	Assignment
18	Test 2 : MID-2				
19/20	END EXAM				