

GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL (CONSTRUCTION ENGINEERING AND MANAGEMENT) (14)

ECO FRIENDLY CONSTRUCTION

SUBJECT CODE: 2741402

M.E. 4th SEMESTER

Type of course: Major elective

Prerequisite: Nil

Rationale: The course is design to provide fundamental knowledge of Eco Friendly Construction.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	2#	0	4	70	30	30	0	10	10	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Eco-friendly Planning: Energy Efficient Shelters, Housing Options Today, Site Planning and Use of On-Site Resources, Smaller Houses that Utilize Space and Materials More Efficiently, Working With Nature, Better Window Planning, Balancing Energy and Aesthetic Needs.	12	25
2	Eco-friendly Materials: Construction materials –locally available building materials- Soil, Fly ash, Ferrocement, Lime, Fibres, Stone Dust, Red mud, Gypsum, Alternate Wood, Polymer-ADOBE, Cob Rammed Earth, Light Clay, Straw-Bale, Bamboo, Agro-Industrial Waste, Innovative Materials Developed by CBRI, SERC, Structural Properties Of Alternate Building Materials	12	25
3	Cost Effective Construction Techniques: Construction Techniques- Innovative Techniques developed by CBRI, SERC for foundation, superstructure, roofing, pre-fabricated construction techniques, advantage of pre-fabrication areas where pre-fabrication can be introduced, modular contained earth, earth bag construction	12	25
4	Cost Effective Construction Equipments: Equipments-Brick moulding machine, Stabilised soil block making machine and plants for the manufacturing of concrete blocks, M.C.R. tile making machine, Ferrocement wall panel & Roofing channel making machine, R.C.C. Chaukhat making machine.	12	25

Reference Books:

- 1) 1. Lynne Elizabeth, Cassandra Adams “Alternative Construction : Contemporary Natural BuildingMethods ”, Softcover, Wiley & Sons Australia, Limited, John,2005
- 2) Givoni, “Man, Climate, Architecture”, Van Nostrand, New York, 1976.
- 3) Charles J. Kibert, Sustainable Construction: Green Building Design and Delivery,John Wiley & Sons,2005
- 4) Eugene Eccli- “Low Cost, Energy efficient shelter for owner & builder”, Rodale Press, 1976

Course Outcome:

After learning the course the students should be able to:

1. Understand The Function Of Materials Used For Eco- Friendly Constructions
2. Generate Substantial Cost Savings.

List of Tutorials:

Tutorials and assignments which cover all topics of syllabus.

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.