

GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL (CONSTRUCTION ENGINEERING AND MANAGEMENT) (14)

ADVANCED CIVIL ENGINEERING MATERIALS

SUBJECT CODE: 2721401

SEMESTER: II

Type of course: CORE

Prerequisite: NA

Rationale: NA

Teaching and Examination Scheme:

Teaching Scheme			Credits C	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	Classification, specification, properties, tests as per IS for various civil engineering materials	08	
2	Walling units, binding materials and additives, aggregates, gypsum products, wood base products, ferrous and non-ferrous metal products, concrete and its various varieties, fly-ash bricks.	10	
3	Concretes - High Strength and High Performance Concrete – Fibre Reinforced Concrete, Self compacting concrete, Alternate Materials to concrete	10	
4	Steels - New Alloy Steels – Aluminum and its Products –Coatings to reinforcement –Applications. Plastics –Reinforced Polymers – FRP – Applications	10	
5	. Durability, mechanical, deformational behaviour and thermo physical properties for thermal insulation, sound insulation and damp prevention application materials, Adhesives and sealants.	08	
6	Recent developments and market awareness regarding applications, varieties, sizes and specification for various materials	08	

Reference Books:

- (i) Materials of Construction by D.N. Ghose - Tata Mc Graw Hill
- (ii) Building materials by S.K. Duggal – new age international publishers.
- (iii) Shan Somayaji, Civil Engineering Materials, Prentice Hall Inc.
- (iv) Mamlouk, M.S. and Zaniewski, J.P., Materials for Civil and Construction Engineers, Prentice Hall Inc.,
- (v) Civil Engineering Materials by Jackson N. Ed. - ELBS, London.

- (vi) Material of Construction by S.Z. Haider - Oxford University Press
- (vii) Building Materials by BRE Digest - The Construction Press, London.
- (viii) Building Materials and Components by CBRI - Tata Mc Graw Hill

Course Outcome:

After learning the course the students should be able to:

1. Select proper materials for desired performance, durability, minimum maintenance & repair for construction projects.
2. Apply recent developments of materials.

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