



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Minor Degree: Construction Technology
Subject Code: 115AC01
Subject Name: Safety in Construction

Type of Course: Minor Degree (Course 2)

Prerequisite: Building Construction,

Rationale:

Safety in construction works is a prime aspect during execution of work. Accidents on construction sites can cause the injuries to involved people and lose of materials. The safety requirements are prominent in modern construction due to increased scale of structures. Safety aspect in detail with planning, management and implementation to modern construction projects.

Teaching and Examination scheme:

Teaching Scheme			Credits C	Examination scheme				Total Marks
L	T	P		Theory marks		Practical marks		
				ESE(E)	PA(M)	ESE(V)	PA(I)	
3	0	2	4	70	0	30	0	100

Content:

Unit No	Course Content	No of Hours	Mapped CO
1	Construction accidents: Importance of Construction Safety Management, causes of accidents and its prevention, safety measures, laws related to construction industry. Human factors in safety, legal and financial aspects of accidents in construction, occupational and safety hazard assessment.	12	CO1
2	Safety Programs: Construction Safety, Elements of an Effective Safety Programs - Job-site assessment - Safety Meetings -Safety Incentives. Contractual Obligations - Safety in construction contracts- Substance Abuse - safety Record Keeping.	8	CO2
3	Safety and Health in Construction: Safety and accidents in construction projects, theories of accident causation, health and illness related with construction works, cost of construction injuries, safety risk analysis and control, personal protective equipment, occupational and safety hazard assessment, legal implications, OSH Management System	10	CO3
4	Implementation of Safety: Safety culture, safe workers, safety and first line supervisors, safety and middle managers, top	12	CO4



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	management practices, company activities and safety, safety personnel, sub contractual obligation, project coordination and safety procedures and workers compensation		
		Total Hrs.	42

Course Outcome:

No	Course Outcomes	RBT Level*
01	Explain the safety management and measures to implement it on projects	UN, AP
02	Illustrate the safety programs and record keeping systems	UN, AP
03	Analyze the causes and prevention of accidents in construction projects	UN, AP, AN
04	Identify tools for implementing safety measures on site	AP, AN, CR

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create

Reference Books:

- 1) Construction Safety by R.K. Mishra
- 2) Safety in Construction by Prof J Uma Maheshwari
- 3) Safety Management in Construction (Principles and Practice) by S.K. Bhattacharjee
- 4) Safety, Occupational Health and Environmental Management in Construction by S.C. Sharma and Vineet Kumar
- 5) Construction Safety by Sunah Poon
- 6) Introduction to Health and Safety in Construction by Phil Hughes and Ed Ferrett
- 7) Principles of Construction Safety by St John Allan Holt
- 8) IS 13416 : Part 1 to 5:1992 Recommendations for Preventive Measures Against Hazards at Workplaces
- 9) IS 15883 : Part 5 : 2013 Construction project Management - Guideline part 5 Health and Safety Management
- 10) IS 3696 : Part 1 and 2: Safety code of scaffolds and ladders
- 11) IS 3764 : 1992 Code of safety for excavation work
- 12) IS 4130 : 1991 Safety code for demolition of buildings
- 13) IS 7293 : 1974 Safety code for working with construction machinery
- 14) IS 7969 : 1975 Safety code for handling and storage of building materials
- 15) IS 8989 : 1978 Safety code for erection of concrete framed structures
- 16) SP 70 : 2001 Handbook on construction safety practices

List of Experiments/Tutorials:

Tutorials based on

- 1) Construction accidents
- 2) Safety Programs
- 3) Safety and Health in Construction



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- 4) Implementation of Safety
- 5) Safety measures – preparation of checklist and priority

Major Equipment/Software:

Nil

List of Open Source Software/learning website:

<https://nptel.ac.in/>