



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3172426

Semester – VII

Subject Name: **INDUSTRIAL SAFETY**

Type of course: Open Elective Course

Prerequisite: nil

Rationale: Safety is major issue in any industry; awareness about safety helps students from major accidents, Different rules regulation of safety helps students apply it in industry for performance and productivity improvements. Knowledge of fire, its type and prevention give better work environments and helps industry from major damage using first aid approach.

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)	
2	1	0	3	70	30	0	0	100

Content:

Sr. No.	Course Content	Total Hrs.
1	Industrial Safety: Overview, Accidents - its preventions, PPE; Safety -objectives, management, organization, auditing, promotion, policy, safety act, safety manager, government role- National Safety Council, Safety color codes.	6
2	Safety Management: Security management of industrial plants, Organization, administration & management - responsibility in the field of safety. Salient points of factories act 1948 w.r.t. health & environment, plant & machinery.	8
3	Industrial Safety Analysis: Locating injury sources, identify causes of injury, injury investigation, safety analysis techniques -FAULT TREE, THERP, FMEA; Risk tolerability, ten-point scale for workplace hazards.	8
4	Fire Prevention: Fire- Fundamentals, elements, classification, initiation & causes Types, extinguishing techniques-agents & application, Prevention; Electrical fires & its prevention, Fire detection, Fire alarm and Firefighting systems.	8
5	Electrical Safety, Electric Shocks, and their Prevention: Precautions & safety in use of electricity, electrical hazards, shocks & electric shock-phenomenon, various types, its precautions, safety procedure in electrical plant, earthing system, grounding, Safety systems & training.	9
6	First Aid: Principal, Resuscitation, training, general rule, electrical shocks/burns, Artificial	6

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Respiration- methods, first aid for-open wounds, bleeding, burns& scalds, fracture& dislocations, heat stroke, eye injuries, fainting etc.
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Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	25	10	10	10	05

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested Reading:

1. Industrial Safety Health & Environment Management Systems by R. K.Jain & Sunil S. Rao Khanna Pub.(2017 Reprint)
2. Industrial Handbook by William Handling, Mc-Graw-Hill.
3. Industrial Safety & Environment by A.K. Gupta *Laxmi* Publications; second edition.
4. Industrial Safety and Health Management by David W. Rieske C. Ray Asfahl, Pearson Education.
5. Industrial Safety, Health Environment and Security by Basudev Panda Laxmi Publications; 1st edition

Course Outcomes: At the end of this course, students will be able to clarify.

Sr. No.	CO statement	Topics of the Syllabus	Marks % weightage
CO1	To understand the importance of safety and its management systems.	1,2	25
CO2	To accomplish the industrial safety analysis.	2,3	20
CO3	To analyze fire and fire-fighting systems.	2,3,4	20
CO4	To identify electrical safety, electric shocks, and their prevention.	2,3,5	25
CO5	To familiarize about the First aid methods.	6	10