

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VII
ENVIRONMENTAL SCIENCE & TECHNOLOGY

Subject Name: Safety & Hygiene in Chemical Industries

Subject Code: 173502

| Teaching Scheme | | | | Evaluation Scheme | | | |
|-----------------|----------|-----------|-------|--------------------|--------------------|--------------------------|----------------------|
| Theory | Tutorial | Practical | Total | University Exam(E) | University Exam(P) | Mid Sem Exam(Theory) (M) | Practical (Internal) |
| 4 | 0 | 0 | 4 | 70 | 0 | 30 | 50 |

| Sr No | Course Contents |
|-------|---|
| 1 | Industrial safety aspects related to toxicity, noise, pressure, temperature, vibrations, radiations, etc. Explosions due to different forms of materials such as dust, vapour cloud, mist etc. |
| 2 | Hazard identification, assessment & safety audit, HAZOP, HAZAN & consequence analysis. |
| 3 | Introduction to Industrial Hygiene & Historical views, Definitions and professionals involved in industrial Hygiene work. |
| 4 | Threshold Limit Value (TLV) and Permissible Exposure Limits (PEL) for chemicals, Industrial toxicology and the basics, Classification of toxic agents |
| 5 | Safety and Hygiene aspects related to i. Transport, handling & storage of inflammable liquids & gases & toxic materials ii. Process equipment including piping (fire, static electricity, pressure, temperature, etc.) safety aspects at process development & design stage. Reliability engineering. Hazard mitigation systems. Emergency planning. Case studies. |

Reference Books:

1. Fundamentals of Industrial Hygiene, Barbara A Plog & Patricia J Quinalan, National Safety Council, 5th Ed., 2001
2. Safety & Health for Engineers, Roger L Brauer, Wiley Interscience, 2nd Ed, 2005
3. Industrial Hygiene & Chemical Safety, M.H. Fulekar, I.K International Pvt. Ltd, 2006
4. The safe Handling of chemicals in Industry, Philip A Carson, John Wiley & Sons, Vol. 3, 1996
5. Patty's Industrial Hygiene & Toxicology, R.L. Harris, L.V Cralley & L.J. Cralley, Wiley, 3rd Ed, 1994