



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3171312

Semester – VII
Subject Name: ENVIRONMENTAL RISK MANAGEMENT

Type of course: Professional Elective Course

Prerequisite: Knowledge of health impact and hazards

Rationale: planning, executing and managing major risk with the understanding of organized risk assessment and management, multidisciplinary approach to evaluating scientific data, the techniques involved in analyzing risks.

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)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Introduction: Environment Risk assessment and Management: Assessing risk to human health and ecological systems from chemicals.	05
2	Risk Communication, Economics of risk and valuing risk	10
3	Risk Assessment Process: Conceptual frame work, Hazard identification, Hazard assessment, Risk estimation, Risk evaluation, Risk mitigation, Risk assessment in option evaluation, Risk assessment during operation of risk assessment.	15
4	Maximum Credible accidents (MCA) analysis: Hazard indices viz. Dow's fire and explosion. Indexc (FEI) and MOND index – degree of hazard – toxicity index	06
5	Consequence analysis: Development and assessment of various scenarios, determination of extent of damage	06

Suggested Specification table with Marks (Theory): (For BE only)



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Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	30	30	10	10	

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.

Reference Books:

1. **Hand book of Environmental Impact Assessment vol –1: By Judith petts,**
2. **The Risk Assessment of Environmental and Human Health Hazards (Text book of case studies): By Paustenbach, D.ceds**
3. **Hand book of Env Risk Assessment and Management Edited: By Peter Callow**
4. **Environmental Risks and Hazards: By Cutter and Susan**

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Describe the importance of Risk management.	10
CO-2	Discuss the need of risk communication , economics of risk & risk evaluation	25
CO-3	Illustrate methods of the risk identification, evaluation & mitigation.	35
CO-4	Examine the extent of damage performing Consequence analysis.	30

List of Practicals:

1. Hazard Identification of given Industry.
2. Prediction of potential chemical release using ALOHA model.
3. Case study on Risk Assessment of thermal power plant with remedial measures.
4. Case study on Risk Assessment of Chemical Industry with remedial measures.
5. Case study on Risk Assessment of landfill site with remedial measures
6. Case study on Risk Assessment of CETP/BMW with remedial measures