



**Kadi Sarva Vishwavidyalaya's  
LDRP Institute of Technology & Research  
Gandhinagar-382 015**



**M.E. (Civil) (Infrastructure Engineering), Semester: II  
Subject Name: Environment Risk Management Subject Name: MECV204-B**

**A. Learning objectives:**

The objective of this course is

- To making concepts related with Environmental Risk Management which involves management of project with economic development & prosperity.
- To recalling the basic principles on which it is based in the context of various environmental aspects.
- To correlate relation with practical aspects and principles of environmental protection.
- To give an experience in the implementation of engineering concepts which are applied in field of Environmental Engineering.

**B. Teaching scheme (credits and hours) :**

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect Hrs	Tut Hrs	Pract. Hrs	Total	Theory	Pract/TW	Total	UE	IE	CIA	PRAC/VIVA	Total
04	02	00	06	04	01	05	70	30	20	30	150

**C. Detailed syllabus :**

1. **Introduction:** Environment Risk assessment and Management: The what's, whys and how's.
2. **Risk assessment and management for waste treatment and disposal.**
3. **Risk Communication**
4. **Economics of risk and valuing risk**
5. **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.
6. **Maximum Credible accidents (MCA) analysis:** Hazard indices viz. Dow's fire and explosion. Indexc (FEI) and MOND index – degree of hazard – toxicity index
7. **Consequence analysis:** Development and assessment of various scenarios, determination of extent of damage
8. **Disaster Management Plan (DMP) and Emergency preparedness plan (EDP)**



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**D. Lesson planning:**

Unit	Topics	Hours	Weightage
1.	Introduction:	06	10
2.	Risk assessment and management	07	10
3.	Risk Communication	06	10
4.	Economics of risk and valuing risk	08	10
5.	Risk Assessment Process	10	20
6.	Maximum Credible accidents (MCA) analysis	10	20
7.	Consequence analysis	07	10
8.	Disaster Management Plan (DMP) and Emergency preparedness plan (EDP)	06	10
	<b>Total</b>	<b>60</b>	<b>100</b>

**E. Term work :**

Term Work will comprise of assignments and exercises based on MCA analysis, Hazard indices, Dow's fire and explosion index, toxicity index, fault tree analysis, HAZAN and HAZOP, DMP and Emergency preparedness Plan.

**Tutorial based on above mentioned course.**

**F. Instructional Method and Pedagogy (Continuous Internal Assessment (CIA) Scheme)**

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.
- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms Carries Marks
- Internal exam of 30 marks will be conducted as a part of Mid semester evaluation.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.



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**G. Students Learning Outcomes:**

At the end of the course

- Adopting scientific principles of environmental Risk planning and management, Quality Management, cost and time control when students employed in practice.
- The students will be able to think logically for risk assessment in field.
- Ensuring inter-disciplinary co-ordination during Planning and management.
- The students will gain an experience and knowledge in the implementation of Infrastructure Engineering on environmental engineering concepts which are applied in field.

**H. Recommended Study Materials**

**Reference Books**

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