

M.E. (Infrastructure Engineering) Semester: I

Subject Name: Environmental Impact of Disaster and Management

Subject code : MECV106 - B

A. Learning objectives:

The objective of this course is

- To present the fundamental of disaster related Environmental Engineering.
- To provide a coherent development to the students for the courses of various branches of Engineering like sanitation, water supply etc
- To enhance the student's ability to think logically and mathematically.
- To give an experience in the implementation of design concepts which are applied in various field of Engineering

B. Teaching Scheme (Credits and Hours)

Teaching Scheme				Credit Scheme			Evaluation Scheme				
Lect Hrs	Tu Hrs	Prac. Hrs	Total	Theory	Pra/TW	Total	UE	IE	CIA	Prac/Viva	Total
03	00	00	03	03	00	03	70	30	20	00	120

C. Detailed Syllabus

Unit

Topics

No.

- 1 Introduction:** Overview of disaster, major natural disasters – flood, tropical cyclone, droughts, landslides, heat waves, earthquakes, fire hazards, tsunami, etc. Basic understanding of fragile ecosystems, hydrological factors, inclement climatic conditions like thunder storm, cyclone, tsunami and flooding. Factors for disaster – climatic change and global sea rise, coastal erosion, environmental degradation, large dams and earthquakes, road building and landslides, Chemical and Biological weapons –case studies.

- 2 **Disaster management, mitigation, and preparedness:** Techniques of monitoring and design against the disasters. Management issues related to disaster; Mitigation through capacity building, legislative responsibilities of disaster management; disaster mapping, assessment, pre-disaster risk and vulnerability reduction, post disaster recovery and rehabilitation; disaster related infrastructure development. Disaster management plan, national crisis management committee, state crisis management group.
- 3 **Design guidelines: Disaster** proofing construction at appropriate situation. Engineering, architectural, landscaping and planning solution for different types of calamities. Vulnerability atlas, norms, standards and practice procedures for shelter and settlement. Organizational and management aspects.
- 4 **Emergency water supply and sanitation: Water** supply preparedness and protection, emergency water supply strategy, rural and urban emergencies. Assessment of damage. Emergency water supply schemes – sources, quality, treatment, storage and distribution, operation and maintenance. Sanitation – human waste and health, strategy for excreta disposal in emergencies, techniques for excreta disposal, disposal of wastewater, management of refuse.

D. Lesson Planning:

Unit No	Topics	Hours	Weightage
1	Introduction	10	10%
2	Disaster management, mitigation, and preparedness;	15	15%
3	Design guidelines	10	25%
4	Emergency water supply and sanitation	10	12%

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

- Two Faculties will be covering the syllabus in each branch for 3 hours in a week. In Tutorial, class must be divided into two subclasses & faculties will be solving or assigning the problem of the subject in each subclass.
- Attendance is compulsory in lectures which carries 05 Marks.
- Classroom participation and involvement in solving the problems in Tutorial rooms carries 05 Marks.
- Viva Voce will be conducted at the end of the semester of 10 Marks.
- One internal exam of 30 marks is conducted as a part of internal theory evaluation.

F. Students Learning Outcomes:

At the end of the course

- The students will be able to think logically and engineering in field of environment impact of disaster management.
- The students will gain an experience in the implementation of engineering concepts which are applied in various field of Engineering.

G. Text Books & Reference Books:

- 1 Water supply engineering by B.C.Unamia, Vol I & II
- 2 Waste water engineering by Mcgraw Hill
- 3 Environmental Protection by Chanlett McGraw Hill Publishing