# GUJARAT TECHNOLOGICAL UNIVERSITY

## CIVIL (STRUCTURAL ENGINEERING) (20)

DISASTER MANAGEMENT AND MILIGATION

**SUBJECT CODE:** 2722014

SEMESTER: II

**Type of course:** Open Elective

**Prerequisite:** --

**Rationale:** --

**Teaching and Examination Scheme:**

| Teaching Scheme | | | Credits | Examination Marks | | | | | | Total Marks |
|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P | C | Theory Marks | | Practical Marks | | | | |
| | | | | ESE (E) | PA (M) | ESE (V) | | PA (I) | | |
| | | | | | | ESE | OEP | PA | RP | |
| 3 | 2# | 2 | 5 | 70 | 30 | 20 | 10 | 10 | 10 | 150 |

**Content:**

| Sr. No. | Content | Total Hrs | % Weightage |
|---|---|---|---|
| | | | |
| **1** | Introduction to Natural & Man-made Disasters : Understanding Disasters, Geological and Mountain Area Disasters, Wind and Water Related Natural Disaster, Man Made Disasters, | 04 | 10 |
| | | | |
| **2** | Introduction to disaster Preparedness, Concept & Nature, Plan, Disaster Preparedness for People and Infrastructure, Community based Disaster Preparedness Plan | 04 | 10 |
| | | | |
| **3** | Technologies for Disaster Management Role of IT in Disaster Preparedness, Remote Sensing, GIS and GPS, Use and Application of Emerging Technologies, Application of Modern Technologies for the Emergency communication, Application and use of ICST for different disasters. | 08 | 15 |
| | | | |
| **4** | Rehabilitation, Reconstruction And Recovery: Introduction and basic concept | 08 | 10 |
| | | | |
| 5 | Disaster Response And Management: Introduction to Response Essential Components, Stakeholders Co-ordination in Disaster Response, Human Behaviour and Response Management and Relief Measures | 06 | 15 |
| | | | |
| **6** | Risk Assessment And Vulnerability Analysis: Introduction and basic concept | 06 | 15 |
| | | | |
| **7** | Disaster Mitigation : meaning and concept, Disaster Mitigation Strategies, Emerging Trends in Disaster Mitigation, Mitigation management, Role of Team and Coordination | 06 | 25 |

**Reference Books:**


1. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
2. Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
3. Sahni, Pardeep et.al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.
4. Bryant Edwards (2005): Natural Hazards, Cambridge University Press,U.K.
5. Roy, P.S. (2000): Space Technology for Disaster management: A Remote Sensing & GIS Perspective, Indian Institute of Remote Sensing (NRSA) Dehradun.
6. Sharma, R.K. & Sharma, G. (2005) (ed) Natural Disaster, APH Publishing Corporation, New Delhi.
7. Kasperson, J.X., R.E. Kasperson, and B.L. Turner III (Eds.), 1995, Regions at Risk: Comparisons of Threatened Environments, United Nations University Press, Tokyo
8. Singh Satendra (2003): Disaster Management in the Hills, Concept Publishing Company, New Delhi.
9. Taori, K (2005) Disaster Management through Panchayati Raj, Concept Publishing Company, New Delhi.


**Course Outcome:**
After learning the course the students should be able to:

(a) understand disasters, disaster preparedness, role of IT, remote sensing, GIS and GPS,
(b) understand Rehabilitation, Reconstruction And Recovery,
(c) Apply knowledge Disaster Response And Management, Risk Assessment and Vulnerability Analysis,
(d) Understand Disaster Mitigation.

**List of Experiments/Tutorials:**

The work shall consist of presentations / finding engineering applications /preparation of learning material based on above topics.

**Open Ended Problems:**

Apart from above tutorials/experiments a group of students has to undertake one open ended problem/design problem based on syllabus/beyond syllabus related to the subject.

**Major Equipments:** --

**List of Open Source Software/learning website:**

www.GIS. Development.net
www.iirs.nrsa.org
http://quake.usgs.gov
www.nidmindia.nic.in

**Review Presentation (RP):** The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website