

**CENTRE FOR DISASTER MANAGEMENT**  
**Tezpur University, Tezpur, Sonitpur, Assam**

Open Elective Course for UG Students

**Curriculum and syllabus**

Course code	Course Name	L	T	P	Credit	Level
DM 301	Fundamentals of Disaster Management	3	0	0	3	UG (All streams)

**Context**

A crisis situation may arise in any system due to large scale damage to physical elements and disruption of essential facilities, under the impact of natural or man-made hazards. The magnitude of damage and disruption depends mostly on prevailing and consequential unsafe conditions of the system. To mitigate disaster risk of a set-up, genuine assessment of disaster risk and subsequent adoption of risk mitigation measures are required. This particular course is designed to highlight various issues relevant to disaster risk assessment and risk mitigation planning. Due importance has also been given to the issues pertaining to environmental management and community based disaster management.

**Objectives**

- To educate learners about disaster risk assessment and risk mitigation practices related to different natural and man-made hazards.
- To improve management skills and motivation level of the learners for community based disaster risk mitigation activities.

**Prerequisites of the course**

Students of under graduate programmes from any discipline (Science, Engineering, Management, Social Science, Humanities etc.) may join in this course.

**Course Contents**

**Unit 01: Understanding disaster phenomena and parameters of disaster risk**

- Definitions of hazard, vulnerability, risk and disaster.
- Approaches to understand disaster phenomena, disaster risk and its associated parameters.
- Selected models and approaches to study disaster risk.
- Classification, characteristics, causes, and damage potentials of different natural hazards.
- Factors relevant to civil unrest (community conflict, religious conflict, political conflict, terrorism, war, national scarcity).
- Health hazards (biological, radiation and physical).
- Dimensions of vulnerability and examples of hazard specific vulnerability factors (structural and non-structural).

**Unit 02: Global disaster scenario and disaster risk mitigation mechanisms**

- Disaster trends (Global, national and regional).
- Methods of hazard, vulnerability and capacity assessment (HVCA).
- Scopes of and criteria for disaster risk mitigation measures (prevention, mitigation and preparedness).
- Capacity building for disaster risk mitigation (structural and non-structural measures).

- Alternative adjustment processes for damage mitigation.
- Community based disaster risk reduction mechanism.
- Counter disaster resources and their roles.

### **Unit 03: Safety norms and practices for damage mitigation**

- Importance of safety measures in risky systems for damage mitigation.
- Industrial hazards, vulnerability and safety norms.
- Concept of fire, elements of fire (Fire triangle) and products of fire.
- Types of heat sources and fuels that may ignite fire.
- Different types of fire extinguishers and their applications.
- Fire detection and suppression facilities (isolated or integrated).
- Common fire protection tools and devices.
- Electrical safety norms for prevention of fire.

### **Unit 04: Environment and disasters**

- Environment, ecosystem and disasters.
- Climate change – issues and concerns.
- Air, water and soil pollution.
- Post disaster impact on environment.
- Impact of developmental projects on disaster risk.
- Aspects of environmental management for disaster risk reduction.
- Environmental Impact Assessment (*EIA*).
- Role of NGT on environmental management.

### **Unit 05: Disaster management mechanism, policies and legislations**

- Community-hazard profiles in India.
- Different phases of Disaster Management.
- Relief mechanism.
- Objectives, provisions and recommendations of DM Act 2005 and NPDM 2009.

### **Unit 06: Field work / Case studies (Group assignment)**

- Risk assessment, hazard and vulnerability mapping of vulnerable systems or areas.
- Case studies on past disaster events.

### **Learning outcome**

On completion of this course, learners will be able to -

- identify the potential threats and vulnerability factors of any system which may lead to significant damage and disruption.
- contribute in CBDRM process through public awareness and capacity building of vulnerable communities.

### **Suggested books**

1. Raju, N. V. S. *Disaster Management: Hazard and Risk Awareness - A Comprehensive Approach*, B. S. Publications, BSP Books Pvt. Ltd., Hyderabad, 2019.
2. Chakrabarty, U. K. *Industrial Disaster Management and Emergency Response*, Asian Books Pvt. Ltd., New Delhi 2007.
3. Alexander, D. *Natural Disasters*, ULC press Ltd, London, 1993.
4. Carter, W. N. *Disaster Management: A Disaster Management Handbook*, Asian Development Bank, Bangkok, 1991.