

Devi Ahilya Vishwavidhyalaya, Indore, India Institute of Engineering & Technology			
Subject code and name	Type	L-T-P	Credits
8VLRE1: Disaster Modeling and Management	L	T	P
	PE	3-1-0	4

### Learning Objectives:

1. To spell out the need for better disaster management which may help to bring relief immediately to the victims of the tragedy.
2. To understand and appreciate the nature of disaster management, in its pre-disaster, during disaster and post disaster phases.

### COURSE CONTENTS

#### Unit – 1

Disasters: Definition- Hazard Risk, Mitigation, Natural and human-induced disasters types of hazards, disasters and catastrophes – Disaster Management.

#### Unit - 2

Hydrological Hazards: Cyclone – damage assessment- Flooding: Topography, land use and flooding– flood prone area analysis and management Tsunami and floods.

#### Unit - 3

Drought- types of drought, -factors influencing drought - delimiting drought prone areas - drought index, SPI and Palmer.

#### Unit - 4

Geological Hazards: Earthquakes; location, faults, causes, types, associated hazards and impacts, Richter scale and Modified Mercalli scale. Important examples from India. Structural damage and its prevention - Dams and earthquakes.-Tsunamis - earthquake induced landslide.

Geomorphic Hazards: Mass movements: Definition of landslides, causes, debris flows, landslides in soil and rock, slope stability analysis.

#### Unit - 5

Mitigation and Management: Hazard, Risk and Vulnerability mapping and modelling using GIS. Case studies for earthquake zonation. Preparedness- GIS case studies for earthquake, landslide–risk assessment–GIS case studies for earthquake, landslide and cyclones. Emergency Management Systems (EMS) in the Disaster Management Cycle.

### Books & References Recommended:

1. National Disaster Management Division (2004) Disaster Management in India - A Status Report, Ministry of Home Affairs, Government of India, New Delhi.
2. UNDRO (1995) Guidelines for Hazard Evaluation Procedures, United Nations Disasters Relief Organization, Vienna.
3. Nagarajan, R., (2004) Landslide Disaster Assessment and Monitoring, Anmol Publications, New Delhi.
4. Ramkumar, Mu, (2009) Geological Hazards: Causes, Consequences and Methods of Containment, New India Publishing Agency, New Delhi.
5. Arnold M et.al Ed. (2006) Natural Disaster Hotspots:Case Studies. The World Bank Hazard Management Unit Washington, D.C.204p.

