

Devi Ahilya University, Indore, India Institute of Engineering & Technology			
Subject code and name	Type	L-T-P	Credits
VLR8E1: Disaster Modeling And Management	L	T	P
	PE	3-1-0	4

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 modeling using GIS. Case studies for earth quake zonation.Preparedness- GIS case studiesfor 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.

Upon successful completion of the course, you will be able to

1. To know the types of Disasters and its triggering factures.
2. Understand the stages of emergency management and GIS capabilities and kinds of data are required to support emergency management work during the disasters.
3. Assess the potential of new, evolving GIS technologies to meet vulnerability mapping, modeling and emergency management needs.
4. Develop a report or project proposal that identifies or responds to needs for GIS solutions in emergency management.
5. Develop a Disaster Management Systems (DMS) for regional and large scale.