Disaster Mitigation and Management

01CI0712

Objective of the Course:

- To study Principles of Disaster mitigation and management
- To provide students with understanding regarding the natural and manmade disaster risk mitigation techniques.
- Introduce to Disaster management agencies and their roles in India.
- Develop an understanding of technologies involved in Disaster mitigation.

Credit Earned: 04

Student's learning outcomes:

After successful completion of the course, it is expected that students will be able to,

1. Discuss the need and importance of disaster management in the Civil engineering.
2. Interpret the causes of disaster and provide the mitigation measures for Natural and Manmade disasters.
3. Analyze the importance of science and modern technology in disaster risk management.
4. Review the Disaster management policies and funding mechanisms for Indian Context.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
03	01	00	04	50	30	20	25	25	150

Detailed Syllabus

Sr. No	Topic name	Hours
1	**Introduction**	**10**
	1.1 Hazards and Disasters, Risk and Vulnerability in Disasters, Natural and Man-made disasters.	03
	1.2 Earthquakes, floods drought, landslide, land subsidence, cyclones, volcanoes, tsunami, avalanches, and global climate extremes	04

	1.3 Man-made disasters: Terrorism, gas and radiations leaks, toxic waste disposal, oil spills, forest fires	02
2	**Disaster Risk Management and Mitigation**	**12**
	2.1 Assessing disaster risk: Preparedness, Mitigation, and Prevention, Disaster Risk Management (DRM) plan, Role of risk transfer and insurance in DRM.	03
	2.2 Earthquake risk mitigation, Flood risk mitigation, Draught risk mitigation, Cyclone risk mitigation, and Landslide risk mitigation.	06
	2.3 Disaster Response, Rescue, Evacuation. Psychological response and management, Relief and recovery, medical health response to different disasters	03
3	**Disaster Management in India**	**10**
	3.1 Disaster Management Policy Environment and local Action, Disaster Profile of India, Mega Disasters of India and Lessons Learn, Disaster Management Act 2005.	03
	3.2 Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management, Role of Government (local, state, and national), Non-Government and Inter-Governmental Agencies	04
	3.3 Funding for Disaster Management: State Disaster Mitigation fund, State Disaster Response Fund (SDRF), National Disaster Response Fund (NDRF), Prime Minister National Relief Fund (PMNRF), Chief Minister Relief Fund and Role	03
4	**Training Awareness Program and Project on Disaster Management**	**10**
	4.1 The disaster Communication system (Early warning and dissemination). Training and mock drills for disaster preparedness, Awareness generation program,	03
	4.2 Usage of GIS, GPS, and Remote sensing techniques in disaster management, Mini project on disaster risk assessment and preparedness for disasters with reference to disasters in India.	03
	4.3 Cases Studies: Natural Disaster -Floods, Earthquakes, Cyclones, Tsunamis. Manmade Disaster: Industrial Accidents, Transportation Accidents and Terrorism, Bio-terrorism, Droughts, Nuclear Disaster	04
	TOTAL	**42**

List of Tutorials

Sr. No	Topic name	Hours
1	Case Study – Natural Disaster (Earthquake)	2
2	Case Study – Natural Disaster (Tsunami)	2
3	Case Study – Natural Disaster (Cyclone)	2
4	Case Study – Natural Disaster (Flood)	2
5	Case Study – Natural Disaster (Drought and Landslide)	2
6	Case Study – Forest Fires	2
7	Case Study – Working of NDRF, SDRF	1

8	Case Study – Functioning of various Funds for Disaster mitigation and management	1

Suggested Theory Distribution

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve an effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	10%	30%	30%	15%	10%

Instructional Method and Pedagogy:

1 Prerequisite of the course and its pattern shall be discussed on the commencement of the course.
2 Lectures shall be conducted in class room using various teaching aids.
3 Presence in all academic sessions is mandatory which shall carry 5% marks of the total internal evaluation.
4 At the end of each unit/topic an assignment based on the course content shall be given to the students which shall carry 5% weightage for timely completion and submission of the assigned work.

Recommended Study Material

1. Manual on natural disaster management in India, M C Gupta, NIDM, New Delhi
2. An overview on natural & man-made disasters and their reduction, R K Bhandani, CSIR, New Delhi
3. World Disasters Report, 2009. International Federation of Red Cross and Red Crescent, Switzerland
4. Encyclopedia of disaster management, Vol I, II and IIIL Disaster management policy and administration, S L Goyal, Deep & Deep, New Delhi, 2006
5. Encyclopedia of Disasters – Environmental Catastrophes and Human Tragedies, Vol. 1 & 2,Angus M. Gunn, Greenwood Press, 2008
6. Disasters in India Studies of grim reality, AnuKapur& others, 2005, 283 pages, Rawat Publishers, Jaipur
7. Sahni, Pardeep et.al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.
8. Roy, P.S. (2000): Space Technology for Disaster management: A Remote Sensing & GIS Perspective, Indian Institute of Remote Sensing (NRSA) Dehradun.
9. Sharma, R.K. & Sharma, G. (2005) (ed) Natural Disaster, APH Publishing Corporation, New Delhi.

Web Links

1. https://nptel.ac.in/courses/124107010
2. https://onlinecourses.swayam2.ac.in/cec19_hs20/preview

3. https://onlinecourses.swayam2.ac.in/cec20_ge35/preview