	National Institute of Technology Meghalaya An Institute of National Importance	**CURRICULUM**

Programme	**Bachelor of Technology in Civil Engineering**	Year of Regulation	**2020-21**
Department	**Civil Engineering**	Semester	**VII**

Course Code	Course Name	Pre requisite	Credit Structure				Marks Distribution			
			L	T	P	C	INT	MID	END	Total
CE 491	**Disaster Management**	**Nil**	**2**	**0**	**0**	**2**	**50**	**50**	**100**	**200**

Course Objectives	To provide basic conceptual understanding of disasters and its relationships with development.	Course Outcomes	CO1	Able to understand the concepts of hazards, disasters and associated natural/social phenomena.
	To provide a general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery.		CO2	Able to understand the types, trends, causes and consequences of Disasters.
			CO3	Able to understand Disaster Management cycle, Risk Mapping, prevention and mitigation of Disasters and Framework of action.
	To enhance awareness of Disaster Risk Management institutional processes in India and to build skills to respond to disasters.		CO4	Able to familiarize with Disaster Management in India.
			CO5	Able to understand the application of Science and Technology for Disaster Management.

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**
2	CO2	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**0**
3	CO3	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**
4	CO4	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**
5	CO5	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**

SYLLABUS

No.	Content	Hours	COs
I	**Introduction on Disasters**: Understanding the concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management.	**02**	**CO1**
II	**Types, Trends, Causes and Consequences of Disasters:** Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves) Biological Disasters (epidemics, pest attacks, forest fire); Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade Disasters (building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters) Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters.	**06**	**CO2**
III	**Disaster Management Cycle and Framework:** Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters.– Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment.	**06**	**CO3**
IV	**Disaster Management in India:** Disaster Profile of India – Mega Disasters of India and Lessons Learnt, Disaster Management Act 2005 – 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**	**CO4**
V	**Applications of Science and Technology for Disaster Management:** Geo-informatics in Disaster Management, Disaster Communication System (Early Warning and Its Dissemination), Land Use, Planning and Development, Regulations, Disaster Safe Designs and Constructions, Structural and Non Structural Mitigation of Disasters, S&T Institutions for Disaster Management in India. Study of Recent Disasters (at local, state and national level) And Preparation of Disaster Risk Management Plan of an Area or Sector Role of Engineers in Disaster Management.	**06**	**CO5**
	Total Hours	**24**	

Essential Readings

1. Pandey, M., “Disaster Management”, Wiley India Pvt. Ltd.

2. J. P. Singhal, “Disaster Management”, Laxmi Publications.

3. M. C. Gupta, “Manual on natural disaster management in India”, NIDM, New Delhi.

Supplementary Readings

1. H. N. Srivastava & G.D. Gupta, “Management of Natural Disasters in developing countries”, Daya Publishers.

2. Singh, J., “Disaster Management: Future Challenges and Opportunities”, K W Publishers Pvt. Ltd.
3. Bhattacharya, T., “Disaster Science and Management” McGraw Hill Education (India) Pvt. Ltd.
4. Coppola D. P., “Introduction to International Disaster Management”, Elsevier Science (B/H).