DISASTER MANAGEMENT

Course Code	23CE2601	Year	III	Semester	II
Course Category	Open Elective - II	Offering Branch	CE	Course Type	Environmental Science
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Objectives

- Introduce the basic concepts and interdisciplinary nature of disaster management, including the disaster management cycle and key types of natural hazards.
- Enable understanding of man-made disasters, their causes, and effective case-based management approaches.
- Develop the ability to assess risk and vulnerability, and understand regulatory and planning tools for sustainable disaster mitigation.
- Demonstrate the role of modern technology, such as GIS, remote sensing, and multimedia, in disaster prediction, monitoring, and response.
- Promote awareness of community preparedness and capacity-building, emphasizing education, public participation, and institutional roles in disaster resilience

Course Outcomes:

CO	Statement	Blooms level
CO1	Define the fundamental concepts of Disaster Management, types of natural hazards, the disaster management cycle, and key terminologies related to man-made disasters, risk, vulnerability, technology use, and community preparedness.	L2
CO2	Explain the causes, characteristics, and impacts of natural disasters and man-made disasters along with their case studies and post-disaster effects.	L3
CO3	Apply disaster preparedness principles, building codes, land-use planning, and basic mitigation strategies and technological tools to assess hazards and manage post-disaster situations.	L3
CO4	Analyze risk and vulnerability using environmental, social, and economic indicators, and examine the effectiveness of technological tools such as Remote Sensing, GIS, and multimedia systems in disaster assessment.	L4
CO5	Analyze multi-sectoral disaster management approaches and design community-based preparedness frameworks, resilience strategies, and education modules for sustainable disaster risk reduction.	L4

Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2				2				2	2		2
CO2	3	2	2			2				2	2		2
CO3	2	3	3	2		2			2	2	2	3	2
CO4	2	3	2	3	2	3			3	2	2	3	2
CO5	2	3	3	2	2	3		2	3	3	2	3	2

Syllabus		
UNIT	**Content**	**Mapped CO**
I	**Natural Hazards and Disaster Management:** Introduction of DM – Inter disciplinary nature of the subject– Disaster Management cycle – Five priorities for action. Case study methods of the following: Vegetal Cover floods, droughts – Earthquakes – landslides – global warming, cyclones & Tsunamis – Post Tsunami hazards along the Indian coast.	**CO1, CO2**
II	**Man made Disaster and their management along with case study methods of the following:** Fire hazards – transport hazard dynamics – solid waste management – post disaster – bio terrorism -threat in mega cities, rail and aircraft accidents, ground water, industries - Emerging infectious diseases and Aids and their management.	**CO1, CO2**
III	**Risk and Vulnerability:** Building codes and land use planning – Social Vulnerability – Environmental vulnerability – Macro-economic management and sustainable development, Climate change risk rendition – Financial management of disaster – related losses.	**CO1, CO3, CO4**
IV	**Role of Technology in Disaster Managements**: Disaster management for infra structures, taxonomy of infra structure – treatment plants and process facilities-electrical substations- roads and bridges- mitigation programme for earth quakes – flowchart, geospatial information in agriculture drought assessment - Multimedia Technology in disaster risk management and training - Transformable Indigenous Knowledge in disaster reduction – Role of RS & GIS	**CO1, CO3, CO4**
V	**Multi-sectional Issues, Education and Community Preparedness:** Impact of disaster on poverty and deprivation - Climate change adaptation and human health - Exposure, health hazards and environmental risk-Forest management and disaster risk reduction - The Red cross and red crescent movement - Corporate sector and disaster risk reduction- Education in disaster risk reduction- Essentials of school disaster education - Community capacity and disaster resilience-Community based disaster recovery - Community based disaster management and social capital-Designing resilience- building community capacity for action.	**CO1, CO3, CO5**

Learning Recourse(s)

Text Book(s)

1. An Introduction of Disaster Management- Natural Disasters & Vulnerable Hazards– S.Vaidyanathan: CBS Publishers& Distributors Pvt.Ltd.
2. Natural Hazards & Disaster Management, Vulnerability and Mitigation by RB Singh- Rawat Publications
3. 'Disaster Science & Management' by Tushar Bhattacharya, Tata McGraw Hill Education Pvt. Ltd., NewDelhi.
4. 'Disaster Management – Future Challenges and Opportunities' by Jagbir Singh (2007), I K International Publishing House Pvt.Ltd

Reference books

1. 'Disaster Management' edited by H K Gupta (2003), Universities press.
2. 'Disaster Management – Global Challenges and Local Solutions' by Rajib shah & R R Krishnamurthy (2009), Universities press. R. Nishith, Singh AK,
3. "Disaster Management in India: Perspectives, Issues and strategies" New Royal Book Company."