

## DISASTER MANAGEMENT AND MITIGATION

**VII Semester: CE**

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		CIA	SEE	Total
ACE533	Elective	3	-	-	3	30	70	100
<b>Contact Classes: 45</b>	<b>Tutorial Classes: Nil</b>	<b>Practical Classes: Nil</b>			<b>Total Classes: 45</b>			

### **COURSE OBJECTIVES:**

**The course should enable the students to:**

- I. Identify the major disaster types and develop an understanding of modern disaster management.
- II. Recognize and develop awareness of the chronological phases of natural disaster response and refugee relief operations.
- III. Understand the key concepts of disaster management related to development and the relationship of different disaster management activities.
- IV. Categorize the organizations that are involved in natural disaster assistance and relief system.

### **COURSE OUTCOMES (COs):**

- CO 1: Understand to describe the basic types of Environmental hazards and disasters.  
Understand how to react effectively to natural, man-made, and technological threats.
- CO 2: Understand how to react effectively to natural, man-made, and planetary hazards.
- CO 3: Explore the history of the field and comprehend how past events are earthquake, landslides and volcanic hazards.
- CO 4: Describe the basic concepts of the emergency management cycle mitigation, preparedness, response, and recovery
- CO 5: Recognizes the stakeholders in disaster management system, their jurisdiction and responsibilities

### **COURSE LEARNING OUTCOMES (CLOs):**

1. Integrate knowledge and to analyze, evaluate and manage the different public health aspects of disaster events at a local and global levels, even when limited information is available.
2. Analyze and evaluate the environmental, social, cultural, economic, legal and organizational
3. Aspects influencing vulnerabilities and capacities to face disasters. and to know about different types of environmental hazards
4. Obtain knowledge on different types of natural and man- made disasters. Work theoretically and practically in the processes of disaster management (disaster risk reduction, response and recovery)
5. Describe endogenous and exogenous hazards their harmful effects to the environment. Case
6. studies of India
7. Analyze, and communicate information on risks, relief needs and order to formulate strategies for mitigation.
8. Understand the Mitigation and control measures of exogenous hazards.
9. Demonstrating insight into the potential and limitations of science, its role in society and people's responsibility for how it is used. And emerging approaches of disasters.
10. Analyze the future scenarios with the ability to clearly present and discuss their conclusions and the knowledge and arguments.
11. Understand integrated approach for disaster preparedness, mitigation & awareness; Mitigation.
12. Understand different types of institution for disaster mitigation and management

<p>13. Design and perform research on the different aspects of the emergencies and disaster.</p> <p>14. Relate their interconnections, particularly in the field of the Public Health aspects of the disasters.</p> <p>15. Understand different approaches to prevent disasters.</p> <p>16. Understanding the race process of dealing with work place hazards.</p> <p>17. Identification of natural calamities that tends to hazards and disasters.</p> <p>18. Understand the integrated approach for disaster preparedness, mitigation &amp; awareness; mitigation</p> <p>19. Analyze the Meteorological observatory, seismological observatory, volcanology institution</p> <p>20. Understand the working of institution of urban &amp; regional planners, engineering council, world meteorological organizations (WMO).</p> <p>21. Understand the world federation of engineering organizations (WFED).</p>		
<b>UNIT-I</b>	<b>ENVIRONMENTAL HAZARDS AND DISASTERS</b>	<b>Classes: 09</b>
<p>Environmental hazards and disasters: meaning of environmental hazards, environmental disasters and environmental stress; concept of environmental hazards, environmental stress and environmental disasters, different approaches and relation with human ecology, landscape approach, ecosystem approach, perception approach, human ecology and its application in geographical researches.</p>		
<b>UNIT-II</b>	<b>TYPES OF ENVIRONMENTAL HAZARDS AND DISASTERS</b>	<b>Classes: 09</b>
<p>Types of environmental hazards and disasters: Natural hazards and disasters, man induced hazards and disasters, natural hazards, planetary hazards/ disasters, extra planetary hazards/ disasters, planetary hazards, endogenous hazards, exogenous hazards.</p>		
<b>UNIT-III</b>	<b>ENDOGENOUS HAZARDS AND EXOGENOUS HAZARDS</b>	<b>Classes: 09</b>
<p>Endogenous hazards, volcanic eruption, earthquakes, landslides, volcanic hazards/ disasters, causes and distribution of volcanoes, hazardous effects of volcanic eruptions, environmental impacts of volcanic eruptions, earthquake hazards/disasters, causes of earthquakes, distribution of earthquakes, hazardous effects of earthquakes, earthquake hazards in India, human adjustment, perception &amp; mitigation of earthquake.</p> <p>Exogenous hazards/ disasters, infrequent events, cumulative atmospheric hazards/ disasters, infrequent events: Cyclones, lightning, hailstorms; Cyclones: Tropical cyclones &amp; local storms (causes, distribution human adjustment, perception &amp; mitigation), cumulative atmospheric hazards/ disasters: Floods, droughts. cold waves; heat waves floods: Causes of floods, flood hazards India, flood control measures (human adjustment, perception &amp; mitigation), droughts, impacts of droughts, drought hazards in India-drought control measures, extra planetary hazards/ disasters, man induced hazards /disasters, physical hazards/ disasters, soil erosion.</p>		
<b>UNIT-IV</b>	<b>EMERGING APPROACHES IN DISASTER MANAGEMENT</b>	<b>Classes: 09</b>
<p>Emerging approaches in Disaster Management. Three Stages</p> <ol style="list-style-type: none"> <li>1. Pre, disaster stage (preparedness)</li> <li>2. Emergency Stage</li> <li>3. Post Disaster stage, Rehabilitation.</li> </ol>		
<b>UNIT-V</b>	<b>DISASTER MANAGEMENT- AN INTEGRATED APPROACH</b>	<b>Classes: 09</b>
<p>Disaster Management: An integrated approach for disaster preparedness, mitigation &amp; awareness; mitigation: Institutions, discuss the work of following Institution: Meteorological observatory, seismological observatory, volcanology institution, hydrology laboratory, institution of urban &amp; regional planners, engineering council, world meteorological organizations (WMO), geographical information system (GIS), world federation of engineering organizations (WFED).</p>		

**Text Books:**

1. Pardeep Sahni, "Disaster Mitigation: Experiences and Reflections", PHI Learning Pvt. Ltd., 1st Edition, 2001.
2. J. Glynn, Gary W. Hein Ke, "Environmental Science and Engineering", Prentice Hall Publishers, 2nd Edition, 1996.

**Reference Books:**

1. R.B.Singh (Ed), "Environmental Geography", 2nd Edition, 1990.
2. R.B. Singh (Ed), "Disaster Management", 2nd Edition, 2006.