**17CE4XO2 –DISASTER MITIGATION AND MANAGEMENT**

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| **Course Category:** | Open Elective | **Credits** | 3 |
| **Course Type** | Theory | **Lecture - Tutorial - Practical** | 3 - 0 - 0 |
| **Prerequisite** | Environmental Studies | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Objectives** | 1. To give the basic knowledge of Environmental Hazards and disasters. 2. To understand the basics of Endogenous and Exogenous hazards 3. To distinguish various concepts of soil erosion. 4. To give a suitable picture on the different types of hazard and disaster mitigation methods. 5. To indicate emerging approaches in disaster mitigation. 6. To know some case studies related to disasters. | |
| **Course Outcomes** | CO1 | Hazards and disasters and different approaches to disaster and their mitigation. |
| CO2 | types of disasters, exogenous disasters and their effects. |
| CO3 | Endogenous disasters and their effects. |
| CO4 | Man induced disasters and their effects. |
| CO5 | Disaster management through engineering applications. |
| CO6 | Case study on disasters in national and international level. |
| **Course**  **Content** | **UNIT-I**  **ENVIRONMENTAL HAZARDS & DISASTERS:** Meaning of Environmental hazards – Environmental Disasters Environmental stress – Concept of Environmental Hazards – Different approaches and relation with human Ecology - Landscape Approach –[Ecosystem](http://www.indiastudychannel.com/resources/55702-Syllabus-DISASTER-MANAGEMENT.aspx) Approach – Perception approach – Human ecology & its application in geographical researches.  **UNIT –II**  **TYPES OF ENVIRONMENTAL HAZARDS & DISASTERS:** Natural hazards and Disasters – Man induced hazards & Disasters – Natural Hazards – Planetary Hazards/ Disasters – Extra Planetary Hazards/ disasters Planetary Hazards – Endogenous Hazards – Exogenous Hazards Endogenous Hazards.  Volcanic Eruption – Earthquakes – Landslides – Volcanic Hazards/ Disasters. Causes and distribution of Volcanoes – Environmental impacts of volcanic eruptions – Earthquake Hazards/ Disasters – Causes of Earthquakes – Distribution of earthquakes – Hazardous effects of earthquakes – Human adjustment – Perception & mitigation of earthquake.  **UNIT –III**  **EXOGENOUS HAZARDS AND DISASTERS**: Infrequent events – Cumulative atmospheric hazards/ disasters Infrequent events – Cyclones – Lightning – Hailstorms.  **CYCLONES:** Tropical cyclones & Local storms – Destruction by tropical cyclones & local storms – Causes – Distribution human adjustment – Perception & mitigation)Cumulative atmospheric hazards and disasters – Floods – Droughts – Cold waves – Heat waves. Floods: – Causes of floods – Flood control measures (Human adjustment – Perception & mitigation) – Droughts: – Impacts of droughts – Drought control measures – Extra Planetary Hazards/ Disasters.  **UNIT –IV**  **SOIL EROSION**: Mechanics & forms of Soil Erosion – Factors and causes of Soil Erosion – Conservation measures of Soil Erosion. Chemical hazards/ disasters – Release of toxic chemicals – nuclear explosion – Sedimentation processes. Sedimentation processes: – Global Sedimentation problems – Regional Sedimentation problems – Sedimentation and Environmental problems – Corrective measures of Erosion and Sedimentation. Biological hazards/ disasters: – Population Explosion.  **UNIT –V**  **EMERGING APPROACHES IN DISASTER MANAGEMENT:**  Three Stages   1. Pre- disaster stage (preparedness). 2. Emergency Stage. 3. Post Disaster stage-Rehabilitation.   **UNIT – VI**  **CASE STUDIES:**   1. Bhuj Earthquake – Gujarat 2001. 2. Indian Ocean earthquake and Tsunami, 2004. 3. Chernobyl disaster, Ukraine 1986. 4. Bhopal Gas tragedy, 1984. 5. Kerala Floods, 2018. | |

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| **Textbooks**  **and**  **References** | **TEXTBOOKS:**   1. Disaster Management by Rajib Shah, Universities Press, India, 2003 2. Disaster Science and Management by Tushar Bhattacharya, TMH Publications. 3. Disaster Mitigation: Experiences and Reflections by [Pardeep Sahni](http://www.flipkart.com/author/pardeep-sahni/). 4. Natural Hazards and Disasters by Donald Hyndman and David Hyndman – Cengage Learning.   **REFERENCES:**   1. The Environment as Hazards by Kates, B.I and White, G.F, Oxford Publishers, New York, 1978. 2. Disaster Management by R.B. Singh (Ed), Rawat Publication, New Delhi, 2000. 3. Disaster Management by H.K. Gupta (Ed), Universities Press, India, 2003. 4. Technology for Disaster Mitigation in India (INCED) by R.B. Singh,,   University of Tokyo, 1994. |