**20CEXXO4 –DISASTER MANAGEMENT**

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| **Course Category:** | Open Elective | **Credits** | 3 |
| **Course Type** | Theory | **Lecture - Tutorial - Practical** | 3 - 0 - 0 |
| **Prerequisite** | None | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **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. Tushar Bhattacharya,*Disaster Science and Management*, McGraw hill Publications, 1st Edition, 2017. 2. Donald Hyndman and David Hyndman,*Natural Hazards and Disasters*, Brooks/Cole, 5th Edition, 2016. 3. Rajib Shah, RR Krishna Murthy,*Disaster Management: Global Problems and Local Solutions*, CRC Press, 1st Edition, 2009.   **REFERENCES:**   1. R B Singh, *Natural Hazards and Disaster Management: Vulnerability and Mitigation,* Rawat Publications, Reprint edition, 2006. 2. [Pardeep and Sahni](http://www.flipkart.com/author/pardeep-sahni/), *Disaster Mitigation: Experiences and Reflections*, Prentice Hall India Learning Private Limited, New title edition, 2001. 3. H.K. Gupta, *Disaster Management*, Universities Press, India, 2003. |

**CO-PO Mapping:**3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 2 | - | - | - | - | - | 2 | - | 1 | - | - | 1 | - | - | - |
| **CO2** | 1 | - | - | - | - | 2 | 1 | 1 | 1 | - | - | - | 1 | - | - |
| **CO3** | - | - | - | - | - | 2 | 2 | 1 | - | 2 | - | - | 1 | 1 | - |
| **CO4** | 1 | - | - | - | - | 1 | - | 2 | - | - | - | - | - | 1 | - |
| **CO5** | 1 | 1 | - | - | - | - | 2 | 1 | 2 | - | 1 | 1 | - | 1 | - |
| **CO6** | - | - | - | - | - | - | 2 | - | 2 | - | 1 | 2 | - | 1 | - |