**19CEXXΦ4 –DISASTER MANAGEMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 |

|  |  |
| --- | --- |
| **Course Objectives** | 1. To illustrate on Environmental Hazards and disasters and their approach with ecosystem.
2. To categorize Endogenous and Exogenous hazards
3. To explain about exogenous hazards and disasters
4. To discuss various concepts of soil erosion.
5. To indicate emerging approaches in disaster mitigation.
6. To relate some case studies with respect to its disastrous effect.
 |
| **Course Outcomes** | CO1 | Demonstrate hazards, disasters and different approaches with ecosystem and its application in geographical research |
| CO2 | Classify various disasters, endogenous disasters and their causes and effects. |
| CO3 | Recognize exogenous disasters with their causes and impacts. |
| CO4 | Distinguish various concepts of soil erosion and its controlling measures |
| CO5 | Utilize emerging approaches in disaster management through engineering applications. |
| CO6 | Discuss case studies on national and international level disasters. |
| **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. 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 Stages1. 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.
 |

|  |  |
| --- | --- |
| **Textbooks** **and** **References** | **TEXTBOOKS:**1. Rajib Shah, RR Krishna Murthy, *Disaster Management: Global Problems and Local Solutions*, CRC Press, 1st Edition, 2009.
2. Tushar Bhattacharya, *Disaster Science and Management*, McGraw hill Publications, 1st Edition, 2017.
3. [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.
4. Donald Hyndman and David, *Hyndman Natural Hazards and Disasters,* Brooks/Cole, 5th Edition, 2016.

**REFERENCES:**1. Kates, B.I and White, G.F, *The Environment as Hazards*, Oxford Publishers, 1978.
2. R B Singh, *Natural Hazards and Disaster Management: Vulnerability and Mitigation,* Rawat Publications, Reprint edition, 2006.
3. H.K. Gupta, *Disaster Management*, Universities Press, India, 2003.
 |

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | - | - | - | - | - | 1 | - | - | - | - | - | 1 |
| **CO2** | 1 | - | - | - | - | 2 | 1 | - | - | - | - | - |
| **CO3** | 1 | 1 | - | - | - | 2 | 1 | - | - | - | - | - |
| **CO4** | - | 1 | - | - | - | - | 1 | - | 1 | - | - | - |
| **CO5** | 2 | - | - | 1 | 1 | 1 | 1 | - | - | - | 1 | 1 |
| **CO6** | - | - | - | - | - | 3 | - | - | - | - | - | 2 |