# Department of Liberal Education
# Era University, Lucknow
## Course Outline
## Effective From: 2023-24

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| **Name of the Program** | **B.A. / B.Sc. (LIBERAL EDUCATION)** | | | **Year/ Semester:** | **3rd / 6th** |
| **Course Name** | **Environmental Disaster & Global Change** | **Course Code:** | **EVA306** | **Type:** | **Theory** |
| **Credits** | **03** | | | **Total Sessions Hours:** | **45 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | **40 Marks** | | **End Term Exam:** | **35 Marks** |
| **Type of Course** | ○ Compulsory | ◉ Core | | ○ Creative | ○ Life Skill |
| **Course Objectives** | 1. Identify various types of environmental hazards and the major global environmental changes and learn about drivers behind these changes.<br>2. Learn about risks of climate variability and change, including the sources of vulnerability and exposure to those risks.<br>3. Learn about management strategies and governmental action plan to mitigate and prepare for such hazards. | | | | |

**Course Outcomes (CO):** *After the successful course completion, learners will develop following attributes:*

| **Course Outcome (CO)** | **Attributes** |
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| **CO1** | Learn about the earth's atmospheric phenomenon and analyze factors altering earth's climate, risk of global disaster and measures for mitigation. |
| **CO2** | To learn about various natural disasters, their causes and impacts at national as well as global level. |
| **CO3** | Understand increasing risk of human negligence and greed leading to disaster and know the extent of damage at national and global level. |
| **CO4** | Learn basic concept of disaster risk, vulnerability and management, and know about various national agencies working for the management of disaster. |
| **Pedagogy** | Interactive, discussion-based, student-centered, presentation. |
| **Internal Evaluation Mode** | Mid-term Examination: 20 Marks<br>Class test: 05 Marks<br>Online Test/Objective Test: 05 Marks<br>Assignments/Presentation: 05 Marks<br>Attendance: 05 Marks |

| **Session Details** | **Topic** | **Hours** | **Mapped CO** |
|---|---|---|---|
| **Unit 1** | **Global climate change**<br>• Earth's atmosphere, weather & climate<br>• Meteorological parameters: wind, pressure, temperature, precipitation, relative humidity, wind rose & inversion<br>• Earth's energy budget, energy transfer in atmosphere & greenhouse effect<br>• Global warming & climate change: Concept, consequences and mitigation measures | 11 | CO1 |

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| **Unit 2** | **Natural disasters**<br>• Natural Disasters: Concept, types, distribution, and mitigation measures<br>• Hydro-Meteorological disaster: Extreme temperature, flood, drought, wildfire, cyclones, glacial lake outburst. Case study- Cyclone Freddy 2023, flood in North India 2023<br>• Biological disaster: Epidemics & pandemics. case study- Covid-19, 2020<br>• Geological disaster: Earthquake, Tsunami, avalanche. Case study-Tsunami in India, 2004, Glacier burst in Uttarakhand, 2021 | 13 | CO2 |
| **Unit 3** | **Man-made disaster**<br>• Man-made disaster: Concept, risk and mitigation<br>• Impact of mining, and groundwater extraction on environment<br>• Chemical accident. Case study- Bhopal gas tragedy, 1984<br>• War and disaster. Case study- Ukraine and Russia war, 2022-2023<br>• Developmental projects in hazard prone zones. Case study- Joshimath land subsidence 2023, Landslides in Himachal Pradesh 2023 | 10 | CO3 |
| **Unit 4** | **Disaster risk management**<br>• Concept of risk, vulnerability, and mitigation<br>• Disaster management<br>• Role of government bodies such as NDMA, SDMA and IMD<br>• Role of armed forces and media in disaster management, NDRF | 11 | CO4 |

**CO-PO and PSO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PSO6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 2 | 2 | 3 | 1 | | 3 | 3 | | 3 | 2 | 2 | 2 | 3 | |
| CO2 | 2 | 2 | 3 | | | | 3 | | 3 | 2 | 2 | 2 | 3 | |
| CO3 | 2 | 2 | 3 | | | | 3 | | 3 | 2 | 2 | 2 | 3 | |
| CO4 | | 2 | | 3 | 2 | | 2 | 1 | 3 | | | 3 | 2 | 1 |

*Strong contribution-3, Average contribution-2 , Low contribution-1,*

**Suggested Readings:**

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| **Text- Books** | 1. Keller, E. A. 1996. Introduction to Environmental Geology. Prentice Hall, Upper Saddle River, New Jersey.<br>2. Smith, K. 2001. Environmental Hazards: Assessing Risk and Reducing Disaster. Routledge Press. |
| **Reference Books** | 1. Pine, J.C. 2009. Natural Hazards Analysis: Reducing the Impact of Disasters. CRC Press, Taylor and Francis Group.<br>2. Schneid, T.D. & Collins, L. 2001. Disaster Management and Preparedness. Lewis Publishers, New York, NY.<br>3. Coppola D. P. 2007. Introduction to International Disaster Management. Butterworth Heinemann.<br>4. Cutter, S.L. 2012. Hazards Vulnerability and Environmental Justice. EarthScan, Routledge Press. |
| **Para Text** | **Unit 1:**<br>1. El-nino and La-nina- https://www.youtube.com/watch?v=iVCviVp4rLU&ab_channel=AmitSengupta |

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| | **Unit 2:**<br>1. Natural disaster-<br>https://www.youtube.com/watch?v=zRwDc97Tc2A&ab_channel=infinitysci<br>**Unit 3:**<br>1. Anthropogenic disaster -<br>https://www.youtube.com/watch?v=qPGXs7o8HCQ&ab_channel=TechnoEdLearning<br>**Unit4:**<br>1. Disaster management-<br>https://www.youtube.com/watch?v=KwAKjtkpdP4&ab_channel=CLASSBOOK |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| **Component** | **Marks** | **Pattern** |
|---|---|---|
| **Mid-term Exam** | 20 | **Section A:** Contains **10** MCQs/Fill in the blanks/One Word Answer/ True-False type of questions. Each question carries **0.5 marks.**<br>**Section B:** Contains **07** descriptive questions out of which **05** questions are to be attempted. Each question carries **03 marks**. |
| **Class Test** | 05 | Contains **05 descriptive questions.** Each question carries **01** marks. |
| **Online Test/ Objective Test** | 05 | Contains **10 multiple choice questions.** Each question carries **0.5** marks. |
| **Assignment/ Presentation** | 05 | Assignment to be made on topics and instruction given by subject teacher. |
| **Attendance** | 05 | As per policy. |
| **Total Marks** | **40** | |

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| **Course created by: Dr. Swati Sachdev**<br>**Signature:** | **Approved by: Dr. Venkatesh Dutta**<br>**Signature:** |