

## **ADD ON COURSE**

### **Centre For Environmental Studies**

#### **Ecosystem - Disaster Risk Reduction and Climate Change Adaptation**

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| Course Code                                  |   |
| Title of the course                          | Ecosystem - Disaster Risk Reduction and Climate Change Adaptation |
| Semester in which the course is to be taught | I   |
| No. of credits                               | 2   |
| No. of contact hours                         | 36 hrs  |

#### **COURSE OBJECTIVE:**

Equip students with knowledge of Ecosystem - Disaster Risk Reduction and aware them the methods of Disaster risk reduction. It will give an interdisciplinary interest among students of other disciplines.

#### **COURSE DESIGN**

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| Module 1 | 3 Hours  |
| Module 2 | 8 Hours  |
| Module 3 | 12 Hours |
| Module 4 | 9 Hours  |
| Module 5 | 4 Hours  |

#### **COURSE: Ecosystem - Disaster Risk Reduction and Climate Change Adaptation**

##### **Module 1: Introduction: Elements of Disaster Risk Reduction: (3 Hours)**

Define basic concepts of disasters, disaster risk reduction (DRR), climate change adaptation (CCA) and resilience. Ecosystems and biodiversity in relation to CCA and DRR. Types of natural and non-natural disasters. Disaster management cycle, preparedness and prevention. Disaster relief, recovery & reconstruction.

**Module 2: Ecosystem-based Disaster Risk Reduction (Eco-DRR): (8 Hours)**

Fundamental concepts of ecosystems and ecosystem services and principles for DRR and CCA. Implication of disasters and its impact on environment, environmental planning and management. Ecosystem based adaptation. Global environmental problems and disasters. Ecosystem services for vulnerability reduction. Ecological Engineering for DRR and CCA. Ecosystem values for DRR and assessing cost and benefits of DRR measures.

**Module 3: Instruments and Approaches: (12 Hours)**

Introduction to various ecosystem based tools and approaches for reducing DRR and CCA. Integrated Water Resources Management/River basin Management/Coastal Zone Management. Managing ecosystems for urban risk reduction. Community-based Ecosystem and Disaster Risk Management. Integrating DRR into culture. Strategic Environmental Assessments for DRR and CSS. Policy instruments for Eco-ecosystem management, DRR and CCA. Stakeholder analysis: Organizational/institutional assessments at different scales: international, national, local.

**Module 4 : Economics of Disaster Risk Reduction (9 Hours)**

Macroeconomic effects of natural and manmade disasters. Economics for disaster recovery and reconstruction. Economic costs of disasters losses – who pays for disasters? Investing in natural disaster risk reduction.

**Module 5 : Case study (4 Hours)**

Case studies on Eco-DRR or CCA in different countries with different disaster situation. Design an ecosystem-based project for increasing resilience and reducing DRR and CCA.

**REFERENCE:**

1. Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi. • Disaster Management – Vinod K Sharma- IIPA, New Delhi, 1995
2. Encyclopedia of Disaster Management- Goel S.L. - Deep and Deep Publications, New Delhi, 2006.
3. Mary c. Comerio, 1998, Disaster Hits Home: New Policy for Urban Housing Recovery, University of California Press; 326 p.
4. Disaster Management in India, Ministry of Home Affairs, Government of India, New Delhi, 2011.
5. National Policy on Disaster Management, NDMA, New Delhi, 2009.
6. Disaster Management Act. (2005), Ministry of Home Affairs, Government of India, New Delhi, 2005.
7. District Disaster Management Plan-Model Template, NIDM, New Delhi, 2005.

8. A Global Report - Reducing Disaster Risk, A Challenge for Development; UNDP Publication, 2004.
9. Good practices in community based disaster risk management; GoI-UNDP Disaster Risk Management Programme; 2002 – 09.
10. Alexander, D. Introduction in Confronting Catastrophe, Oxford University Press, 2000
11. Chakrabarty, U. K. Industrial Disaster Management and Emergency Response, Asian Books Pvt. Ltd., New Delhi 2007.
12. Geomorphological Techniques by Andrew Goudie, Published by Academic Division of Unwin Hyman Ltd. London, UK, 1990.
13. 10. Parasuraman, S & Unnikrishnan, P. V. (ed.), India Disasters Report Towards a policy initiative. Oxford, 2000.
14. Valdiya, K. S., Environmental geology Indian context. Tata McGraw Hills, 1987.