



Course: UG-Open Course

Title: Disasters, Environment, Risk Reduction and Climate Change Adaptation

Department: Environmental Science

Syllabus

Course Code	15U50CDRC/15U50CDRC1
Title of the course	Disasters, Environment, Risk Reduction and Climate Change Adaptation
Semester in which the course is to be taught	5
No. of credits	3
No. of contact hours	72

Course Objectives

1. To provide a systematic knowledge base on disaster typology, risk, vulnerability, their impacts and concerns to growing hydro-met disasters,.
2. To comprehend on approaches and measures of disaster management, preparedness and response, and related policies, law and methods.
3. To enumerate on possible pathways, tools and options for CCA-DRR and sustainability mainstreaming through developmental planning at sectors, department or local levels, and activities

Course Outcomes

- Students would widen their perspectives to realize that hazards become disasters only if they are poorly managed and that disaster management can be significantly improved by adding ecosystem components.
- To develop a sound understanding of disaster risk and related underlying factors, their impacts.
- To appreciate and comprehend on approaches and measures of disaster management, preparedness and response, and related policies, law and methods Understand the significance of gender as a factor in both disaster risk and effects of climate change
- Awareness of how they need to act differently on a personal and institutional level in order to deal with disasters in the context of climate change
- To know various pathways, tools and entry points for integrating CCA-DRR and sustainability concerns into developmental planning across sectors, national, subnational and local plans and actions of DM.
- Understand the importance of the Sustainable Development Goals (SDG) for disaster risk reduction

COURSE DESIGN

Module 1	12 Hours
Module 2	18 Hours
Module 3	12 Hours
Module 4	20 Hours
Module 5	10 Hours

MODULE 1: INTRODUCTION TO DISASTER MANAGEMENT (12 Hours)

Concepts and definitions of Disaster, Hazard, Vulnerability, Risk and Capacity - Disaster Management Cycle, Basic Concepts of Disaster Risk reduction (DRR), Climate change adaptation CCA, Development and Disaster Management.

MODULE 2: ECOSYSTEM-BASED DISASTER RISK REDUCTION (18 Hours)

Global environmental problems and disasters. Fundamental concepts of ecosystems and ecosystem services. Linking sustainable development, disasters and environment. Ecosystem principles for DRR. Major eco-zones, hazards and impact on populations. Ecosystem services for vulnerability reduction. Ecological Engineering for DRR. Valuing ecosystem services. Ecosystems and biodiversity in relation to CCA and DRR.

MODULE 3: ECO-DRR INSTRUMENTS AND APPROACH (12 Hours)

Introduction to instruments and approaches for Eco-DRR. Spatial planning tools and approaches for DRR. Integrated Water Resources Management/River basin management.

Integrated Coastal Zone Management. Managing ecosystems for urban risk reduction. Ecosystem-based Adaptation.

MODULE 4: APPLICATIONS OF SCIENCE AND TECHNOLOGY FOR DRR AND CCA (20 Hours)

Geo-informatics in Disaster Management (RS, GIS, GPS and RS) Disaster Communication System (Early Warning and Its Dissemination) Land Use Planning and Development Regulations Disaster Safe Designs and Constructions Structural and Non Structural Mitigation of Disasters S&T Institutions for Disaster Management in India.

MODULE 5: CASE STUDY (10Hours)

Case studies - Different disaster management in different counties with different disaster situation.

REFERENCE

- 1 Coppola D P, 2007. Introduction to International Disaster Management, Elsevier Science (B/H), London.
2. Manual on natural disaster management in India, M C Gupta, NIDM, New Delhi
3. An overview on natural & man-made disasters and their reduction, R K Bhandani, CSIR, New Delhi
4. World Disasters Report, 2009. International Federation of Red Cross and Red Crescent, Switzerland
5. Encyclopedia of disaster management, Vol I, II and III Disaster management policy and administration, S L Goyal, Deep & Deep, New Delhi, 2006
6. Encyclopedia of Disasters – Environmental Catastrophes and Human Tragedies, Vol. 1 & 2, Angus M. Gunn, Greenwood Press, 2008
- 7 Disasters in India Studies of grim reality, AnuKapur& others, 2005, 283 pages, Rawat Publishers, Jaipur
8. Management of Natural Disasters in developing countries, H.N. Srivastava & G.D. Gupta, Daya Publishers, Delhi, 2006, 201 pages
9. Natural Disasters, David Alexander, Kluwer Academic London, 1999, 632 pages
- 10 Disaster Management Act 2005, Publisher by Govt. of India
- 11 Publications of National Disaster Management Authority (NDMA) on Various Templates and Guidelines for Disaster Management
- 12 NIDM Publications
- 13 High Power Committee Report, 2001, J.C. Pant
- 14 Disaster Mitigation in Asia & Pacific, Asian Development Bank
- 15 National Disaster Management Policy, 2009, GoI
- 16 Disaster Preparedness Kit, American Red Cross