



AMITY UNIVERSITY
— UTTAR PRADESH —

COURSE CURRICULUM

L	T	P/S	SW/F W	TOTAL CREDIT UNITS
3	-	-	-	3

Course Title: Environmental Hazards, Risk Assessment and Disaster Management

Course Code:

Credit Units: 03

Course Level: PG

Course Objectives: The course is intended to provide a general insight in the dimensions of environmental hazards caused by nature as well as induced by human developmental activities and gives an understanding of disaster preparedness, mitigation and management. The course also provides general understanding about occupational health and safety and the methods for undertaking the risk assessment and would introduce the techniques for understanding and assessing the hazards.

Pre-requisites: Basic knowledge of the environment and natural resources.

Student Learning Outcomes:

On successfully completing this course, the students will be able to:

- Explain the difference between environmental hazard, risk and disaster;
- Identify the major natural hazards and explain their causes and effects;
- Explain how hazards can be mitigated, through prediction, prevention and preparation; but also the problems involved in these approaches;
- Critically assess the various human responses to natural hazards, including mitigation efforts;
- Evaluate management strategies which are used to deal with environmental risks and disasters.

Course Contents/Syllabus:

	Weightage (%)
Module I Environmental Hazards and Disasters	20
Descriptors/Topics Definition: Hazard, Risk and Disaster; Natural disasters; nature, causes and effects; cyclone, tornadoes, floods, drought, earthquakes, avalanche, land slides, forest fire, volcanism, epidemics, case study; Man made and man induced disasters: industrial accidents, oil spills, chemical and nuclear hazards, biohazards; Terrorism.	
Module II Disaster Preparedness and Management	30
Descriptors/Topics Disaster preparedness and mitigation: forecasting and warning systems, contingency planning, terrorism preparedness, community emergency response team, training, India Disaster Resource Network; Case studies Disaster management: Pre-disaster phase - vulnerability analysis, hazards monitoring, tracking and modeling, disaster planning; Disaster phase - disaster responses operation-planning and practice, emergency management, emergency service systems, rescue operation; Post-disaster phase - Relief and recovery, disaster education, alternatives and new directions: conceptualizing crisis management; Rehabilitation and resettlement Government agencies and other social organizations relevant to natural calamities; their aims and functions, available assistance and guidance; case studies; National Disaster Management Policies Mitigation Strategy, Disaster planning and Safety regulation; Case studies	
Module III Health and Safety Management	30
Descriptors/Topics Occupational Health and Safety Management: Definitions - occupational hygiene, occupational health, occupational hazards, occupational diseases, classification of occupational hazards, examples of occupational diseases; Physical Environment at work, Health effects: Thermal stress, noise, electromagnetic radiations, vibrations, pressure, ventilation and illumination. Chemical and Biological Environment at Work: Chemical nature, particle size, concentration, duration and exposure, mode of entry, fibrogenic, toxic, allergic, dermatitic and carcinogenic health effect., infection and allergy at work environment; Control measures Occupational Health & Safety Management System: OHSAS – 18000, Case studies Accidents and Safety Management: Accident Prevention methods, Safety Management and audit, Personal Protection Approaches; Case studies	
Module IV Risk Assessment and Management	20
Descriptors/Topics Introduction to risk evaluation; Definition of risk and fundamentals of risk analysis, Basic methodology in risk assessment: hazard identification, dose response assessment, exposure assessment, and risk characterization.	

Health Risk Assessment, Ecological Risk Assessment, Risk Assessment for Industry-release of toxics products, Dispersion analysis, Concepts of eco-toxicology and eco-epidemiology. Epidemics: Causes, effects and management of epidemics like Plague, Dengue, malaria Design of risk management program; risk estimation, risk evaluation, risk management and risk communication	
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Pedagogy for Course Delivery: The course is designed to be taught through the lecture mode. During the tutorial sessions, group discussions and seminar presentations on various topics related to the course may be organized. Class room interaction will be an integral part of the learning experience.

Lab/ Practicals details, if applicable: Not Applicable

List of Experiments:

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	End Term Examination
100 %	NA	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class Test	Home Assignment	Presentation	Attendance	
Weightage (%)	10	05	10	05	70

Lab/ Practical/ Studio Assessment: Not Applicable

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)					
Weightage (%)					

Text:

- Cutter, L.1999. Environment risks and hazards. Prentice Hall of India Private Limited, New Delhi
- Disaster Management in India – A Status Report. National Disaster Management Division, Ministry of Home Affairs, Govt. of India

References:

- Living With Risk: A global Review of Disaster Reduction Initiatives 2004 Vision, United Nations, 2004.
- Alexander, D. 1993, Natural Disaster, UCL Press Ltd., London.
- Collins Larry R. and Scheind Thomas D. (2000). Disaster Management and Preparedness. Taylor and Francis, 2000.
- Willson, R; and E. A. C. Crouch, 1987, Risk assessment and comparisons: An Introduction, Science 17, 1987, pp 267-270.