



आपदा न्यूनीकरण एवं प्रबन्धन उत्कृष्टता केन्द्र, भारतीय प्रौद्योगिकी संस्थान रुड़की,

रुड़की – 247667

CENTRE OF EXCELLENCE IN DISASTER MITIGATION & MANAGEMENT, 3rd Floor,
New Building, Opposite Biotechnology Department

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, ROORKEE – 247667, UTTARAKHAND, INDIA

Tel: 01332-28-6616 (Office), E-mail: coe_dmm@iitr.ernet.in; www.coedmm.org

1. Subject Code : **DMN-502** Course Title : **Natural Hazards and Impact Assessment**
2. Contact Hours: **L: 3 T: 1 P: 0**
3. Examination Duration (Hrs.) : **Theory: 3 Practical: 0**
4. Relative Weight: **CWS 25 PRS 0 MTE 25 ETE 50 PRE 0**
5. Credits: **4** 6. Semester: **Autumn** 7. Subject Area: **PCC**
8. Pre-requisite: **Nil**
9. Objective : To impart knowledge about the various natural hazards, associated damages and lessons learnt.
10. Details of Course :

Sl. No.	Particulars	Contact Hours
1.	Introduction to various natural hazards: earthquakes, floods, cyclones, and landslides	2
2.	Geological Processes leading to natural hazards, short term & long term prediction	5
3.	Parameters and grade of damage, performa for damage studies, documentation of damage survey, loss assessment and lessons learnt	4
4.	Earthquakes, causes and classification, estimation of size of earthquake, magnitude and intensity, seismic waves, site effect, attenuation effect, isoseismal maps, palaeoseismology, recurrence intervals, fault slip-rates, and fault behaviour models, earthquake ground motion, response spectra	5
5.	Landslides, causative factors, landslide monitoring and prediction, landslide hazard zonation	4
6.	Floods, causes of floods, flood damages, flood analysis and flood plain zoning, drought and its impact	4
7.	Cyclones, their causes, characteristics and their impact	4
8.	Tsunami, Tsunamigenic earthquakes and its impact, tsunami modeling, inundation and tsunami intensity, tsunami zonation.	4
9.	Other natural hazards: volcanic eruptions, forest fires etc., Case histories of hazard assessment	4
10.	Vulnerability and risk due to natural hazards	2
11.	Case studies for above natural hazards	4
	Total	42

11. Suggested Books :

Sl. No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Reiter, L., Earthquake Hazard Analysis: Issues and Insights, Columbia University Press	2000
2.	Hyndman D. and Hyndman D., Natural Hazard and Disasters, Brooks/Cole	2006
3.	Bryant E., Natural Hazards, Cambridge University Press	2005
4.	Mileti D.S., Disasters by Design: A Reassessment of Natural Hazards in United States; The National Academic Press	1999
5.	Keller, Environment Geology, Prentice Hall	2000