



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

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

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1. Subject Code : **DMN-601** Course Title: **Hazard Monitoring, Prediction and Microzonation**
2. Contact Hours: **L: 3 T: 1 P: 2/2**
3. Examination Duration (Hrs.) : **Theory: 3 Practical: 0**
4. Relative Weight : **CWS 20 PRS 20 MTE 20 ETE 40 PRE 0**
5. Credits: **4** 6. Semester: **Autumn** 7. Subject Area: **PCC**
8. Pre-requisite: **Nil**
9. Objective : To introduce methodologies to monitor, predict and assessment of various kinds of natural hazards.
10. Details of Course :

Sl. No	Particulars	Contact Hours
1.	Monitoring of cyclones, earthquakes, tsunamis, floods, landslides; requirement of warning system, communication protocol	3
2.	Cyclone monitoring, instrumentation for cyclone monitoring, satellites communication, cyclone prediction, case studies of some major cyclones	4
3.	Flood monitoring, distribution of rainfall, hydrological forecasting, flood mapping, basin studies, case studies of some major floods	4
4.	Use of remote sensing in landslide monitoring, GIS application, qualitative and quantitative hazard approaches, landslide hazard zonation, statistical approaches, weight and rating schemes	6
5.	Probabilistic and deterministic approaches for seismic hazard assessment, seismotectonic modeling, source and distance definitions, probabilistic distributions, conditional probabilities, uniform seismic hazard	8
6.	Macrozonation and microzonation, social economic factors and considerations, microzones, engineering aspects, return periods	5
7.	Basic concepts and procedure for microzonation of urban cities	4
8.	Case studies of microzonation of some mega cities	2
9.	Foreshocks and aftershocks, earthquake monitoring using seismographs and accelerographs, earthquake alert systems, earthquake prediction	6
	<b>Total</b>	<b>42</b>

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.	Keller, Environment Geology, Prentice Hall	2000
3.	Kramer S. L., Geotechnical earthquake engineering, Pearson Education	2003
4.	Hyndman D. and Hyndman D., Natural Hazards and Disasters, Brooks/Cole	2006
5.	Mileti D.S., Disasters by Design: A Reassessment of Natural Hazards in United States, The National Academic Press	1999