



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

रुड़की – 247667

CENTRE OF EXCELLENCE IN DISASTER MITIGATION & MANAGEMENT, 3<sup>rd</sup> 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](mailto:coe_dmm@iitr.ernet.in); [www.coedmm.org](http://www.coedmm.org)

1. Subject Code : **DMN-608** Course Title : **Man-made and Biological Disasters- Detection and Mitigation**
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: **Spring** 7. Subject Area: **PEC** 8. Pre-requisite: **Nil**
9. Objective : To impart knowledge on various manmade, biological disasters and various mitigation strategies related to them.
10. Details of Course :

Sl. No.	Particulars	Contact Hours
1.	Bioterrorism – Bioterror agents: Bacterial and viral; Agribioterrorism- introduction of plant and animal diseases	6
2.	Infectious diseases – Infectious agents, mortality due to major bacterial outbreaks, spread of bacterial infections and the never ending fight, pathogens and multiple drug resistance, means of detecting and mitigating bacterial pathogens	8
3.	Viral diseases - Outbreaks and incidences; Viral outbreaks – SARS, Bird flu, Swine flu and HIV, detection and mitigation of viral agents	8
4.	Chemical Emergencies: Pesticides, industrial pollutants, heavy metal contamination.	6
5.	Radiation emergencies : Nuclear radiation leakage, Chernobyl disaster and implications on biological systems , effect on genetic material; Mutations-chromosomal	4
6.	Biotechnology and Biodiversity : Issues of Biodiversity, value of biodiversity; Emergence of Biotechnology; Biotechnology and promises to society; Biotechnology Techniques; Managing the Hazards of Genetic Engineering, regulations and control of biotechnology; Biosafety	10
	<b>Total</b>	<b>42</b>

11. Suggested Books:

Sl. No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Grey M. and Spaeth K., The Bioterrorism Sourcebook, McGraw Hill	2006
2.	Yousef A. K., et.al., Biology, Pathogenicity, Epidemiology, and Biodefense, Wiley-Blackwell	2007
3.	Luther E. L., George Korch, Biological Weapons Defense: Infectious Diseases and Counter bioterrorism, Humana Press	2004
4.	Fong I .W. and Alibek K., Bioterrorism and Infectious Agents: A New Dilemma for the 21st Century, Springer	2009
5.	Hawksworth D.L., Methods and Practice in Biodiversity Conservation, Springer	2009