



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-508** Course Title: **Climate Change : Impact**
2. Contact Hours: **L: 3 T: 1 P:**
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: **PEC**
8. Pre-requisite: **Nil**
9. Objective :
10. Details of Course :

Sl. No	Particulars	Contact Hours
1.	Climate and Climate Change: Components, Phenomena, radiative forces, Energy budget and transport, atmospheric circulation, ocean circulation, land-surface process, carbon cycle	5
2.	Atmospheric Thermodynamics: Equation of state, Dalton's of partial pressure, Poisson's law, equivalent potential temperature, concept of air parcel, virtual temperature, dry adiabatic lapse rate and saturated adiabatic lapse rate, hydrostatic equilibrium equation, dispersion of air pollutants	6
3.	Physical processes: Conservation of momentum, equation of state, temperature equation, continuity equation, conservation of mass	5
4.	Climate Models: Introduction to GCM and RCM simulations, SRES, downscaling GCM outputs	5
5.	ENSO: El Niño basic, Tropical pacific climatology, El Niño mechanism, ENSO indices, predictions and teleconnections	3
6.	Greenhouse effects and climate feedbacks: Global energy model, greenhouse effect and global warming, climate feedback	3
7.	Climate Model scenarios for global warming: Greenhouse gases, aerosols forcing, global-average response to GhG warming scenarios on temperature, rainfall, sea, ice/snow, extreme events	6
8.	Extreme Events analysis of climatic parameters, Climate Change Impact Assessment on floods, droughts,	5
9.	Climate Change induced disaster – Case Studies	4
	Total	42

11. Suggested Books :

Sl. No.	Name of Authors/Book/Publisher	Year of Publication / Reprint