



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

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1. Subject Code : **DMN-506** Course Title : **Cyclone and Wind Engineering**
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 the basics of enhancing wind load resistance of structures.
10. Details of Course:

Sl. No.	Particulars	Contact Hours
1.	Climate change and its impact on tropical cyclones , Nature of cyclonic wind	5
2.	Boundary layer winds - velocities and pressures	3
3.	Behaviour of structures in past cyclones and wind storms - lessons learnt	5
4.	Basic wind engineering, aerodynamics of bluff bodies, vortex shedding and associated unsteady along and across wind forces. Peak factor and gust factor estimation. Analytical procedures for along wind and across wind forces.	10
5.	Wind tunnel testing and its salient features.	2
6.	General planning and design considerations under wind storms and cyclones; Wind effects on buildings, towers, glass panels etc, and features in their design. Codal Provisions – design wind speed, pressure coefficients; Introduction to international codes.	8
7.	Vulnerability and risk assessment in high cyclone prone areas	4
8.	Cyclonic risk mitigation and preparedness. Life–line structures such as cyclone shelters. Retrofitting and strengthening of structures. Rehabilitation,	5
	Total	42

11. Suggested Books:

Sl. No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Simiu E. and Scanlan R.H., Wind Effects on Structures-Fundamentals and Applications to Design, 3 rd Ed., John Wiley	1996
2.	Dyrbye C.D., Dyrbye C., Dyrbye C., Wind Loads on Structures, John Wiley	1997
3.	Smith B.S. and Coull A., Tall Building Structures : Analysis and Design, Willey – Inderscience	2001
4.	Taranath B.S., Wind and Earthquake Resistant Buildings : Structural Analysis and Design (Civil and Environmental Engineering) , CRC Press	2004
5.	Talwar A.K. and Juneja S., Cyclone Disaster Management, Commonwealth Publishers	2009
6.	Holmes J.D., Wind Loading of Structures, 2 nd Ed., Taylor & Francis	2007