WIND ENGINEERING

(Elective-II)

Course Code: 15CE2214

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Course Outcomes: At the end of the course the student will be able to:

CO1: Familiarize with various aspects of wind effects.
CO2: Know the static and dynamic wind effects.
CO3: Know the effect of wind on tall structures.
CO4: Calculate the design forces on tall structures due to wind.
CO5: Familiarize with various aspects of wind tunnel test.

UNIT - I: (10-Lectures)

INTRODUCTION

Terminology – Wind Data – Gust factor and its determination - Wind speed variation with height – Shape factor – Aspect ratio – Drag and lift.

UNIT - II: (10-Lectures)

EFFECT OF WIND ON STRUCTURES

Static effect – Dynamic effect – Interference effects (concept only) – Rigid structure – Aeroelastic structure (concept only).

UNIT - III: (10-Lectures)

EFFECT ON TYPICAL STRUCTURES

Tall buildings – Low rise buildings – Roof and cladding – Chimneys, towers and bridges.

UNIT - IV: (10-Lectures)

APPLICATION TO DESIGN:

Design forces on multi-storey building, towers and roof trusses.

UNIT - V: (10-Lectures)

INTRODUCTION TO WIND TUNNEL:

Types of models (Principles only) – Basic considerations – Test procedures, Examples of tests and their use.

TEXT BOOK:

1. Peter Sachs, *"Wind Forces in Engineering"*, Pergamon Press, 2nd Edition, New York, 1978.

REFERENCE

1. Lawson T.V., *"Wind Effects on Buildings",* Vol. I and II, 1st Edition, Applied Science and Publishers, London, 1980.