FLOW VISUALISATION OVER DIFFERENT BODIES INSIDE A WIND TUNNEL

A PROJECT REPORT

Submitted by

BL.EN.U4MEE09008	ANEESH RAVIKUMAR
BL.EN.U4MEE09033	IRFAN MALIK
BL.EN.U4MEE09042	R MADAN
BL.EN.U4MEE09048	SIVA SEMBIAN

In partial fulfilment for the award of the degree

Of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

AMRITA SCHOOL OF ENGINEERING, BANGALORE

AMRITA VISHWA VIDYAPEETHAM

BANGALORE 560 035

May,2013

ABSTRACT

A wind tunnel is a specially designed protected space into which air is drawn, or blown in by mechanical means in order to achieve a specified speed and predetermined flow pattern at a given instant. The flow so achieved can be observed from outside the wind tunnel through transparent windows that enclose the test section and flow characteristics are measurable using specialized instrumentation. A wind tunnel consists of a closed tubular passage with the object to be tested mounted in the middle. The test object is equipped with instrumentation that have a sensitive balance to measure the forces generated by airflow; or, the airflow may have smoke or other substances injected to make the flow lines around the object visible. The objectives of using the wind tunnel include being able to simulate, visualize, observe, and/or measure how the flow around a test object affects the object.

The aim of the project is to study the effect of lift and drag on an aerofoil at different flow conditions. The flow conditions can be varied by varying the angle of attack. Also the flow over the aerofoil has to be simulated using Fluent and visualized physically with smoke.