VIT
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Theme: Innovations for Sustainable Future

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BOOK OF ABSTRACTS

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VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI
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AND
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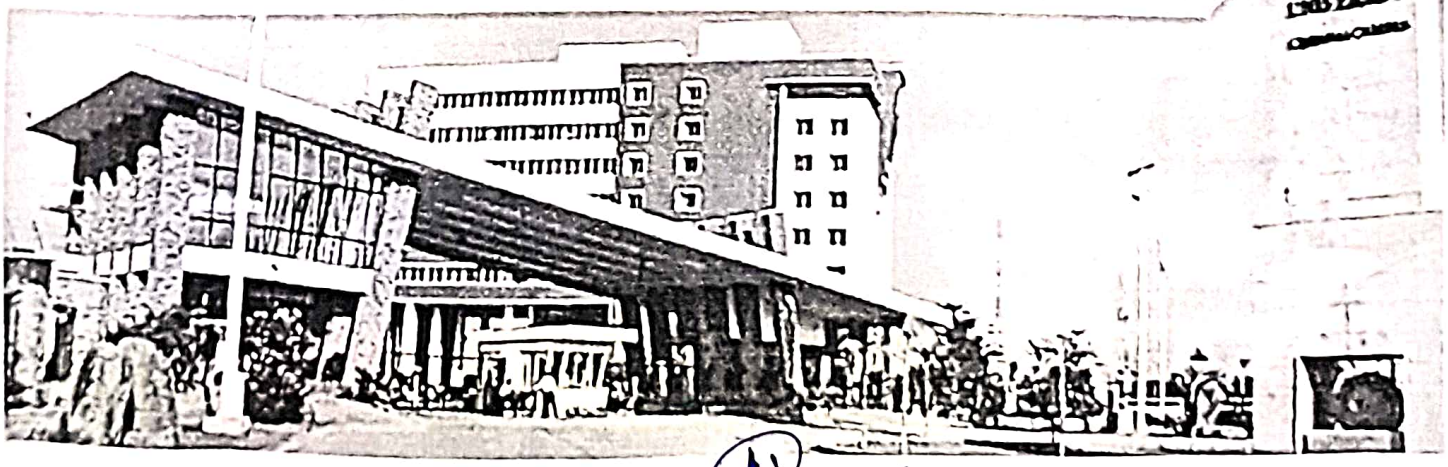
COEP TECHNOLOGICAL UNIVERSITY, PUNE



software for the validation of experimental results. Based on the results shows that both experimental and numerical analysis of castor oil PU foams resulted in greater compressive strength when compared to Petro-based PU foams.

Paper Id: 117

Design and Analysis of Subsonic Wind Tunnel

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Abstract: This project focuses on design and analysis of a subsonic wind tunnel in order to attain
a test section speed of 27.78 m/s or 0.08 Mach with anticipated low intensity turbulence levels. Each wind tunnel section's design and construction and the flow analysis have been shown and discussed in an effort to offer some design and production guidance for the essential components
of a low subsonic wind tunnel. Various calculations were performed in order to find out the Reynolds number which is an essential component in finding out the pressure losses inside the constant cross sectional area of our wind tunnel i.e. test section. The wind tunnel is also validated
by placing NACA 2412 and NACA 4412 airfoils in the test section at six different angles of attack. The coefficient of lift and drag values was also plotted with respect to different angle of
attacks of NACA 2412 and NACA 4412 airfoils.

Paper Id: 133

Modal analysis of cantilever beam using theoretical and Finite Element Method

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Abstract: In most of the engineering structures the study of vibration plays a significant role. Natural frequency and mode shape are two significant parameters associated with a vibrating body. Natural frequencies and mode shapes of structure can be identified by modal analysis. The modal analysis plays a crucial role in the designing of the mechanical system. In this paper, investigation of vibration characteristics of a cantilever beam is carried out. To determine the natural frequency and mode shape of a single rectangular cantilever beam through finite element analysis software is the objective of this paper. The natural frequencies obtained through finite element analysis software are then compared with the natural frequencies obtained through mathematical calculations of Euler's Bernoulli's beam theory. The study of mild steel single rectangular beam in free fixed condition is carried out. Modes and the natural frequencies applicable to it are computed in finite element analysis software. The cantilever beam is designed and analysed in two FEA software. The two FEA software used for modal analysis are ANSYS & ABAQUS. For mathematical calculations Euler's Bernoulli's beam theory is used. The natural frequencies obtained through ANSYS & ABAQUS are compared with natural frequencies obtained through mathematical equation and are found in good agreement.

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has successfully presented a paper titled

Design and Analysis of Wind Tunnel

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