

Defence Seminar

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Seminar Title	: Mechanical and Tribo Performance of Agave Lechuguilla-A Sustainable Natural Fiber and Its Composite
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Venue	: HOD OFFICE ROOM (ME Department)
Date and Time	: 07 Jun 2024 (11 am)
Abstract	: Recent times, especially the last two decades, have witnessed the rising adoption of natural fiber-reinforced polymer (NFRP) composites by material designers and researchers due to relatively lesser cost, reduced energy consumption, diminished CO2 footprint, decreased toxicity, and a notable reduction in non-biodegradability when compared to conventional synthetic fiber-based polymer composites. This has led to extensive study of natural fibers by the research community to explore various properties of the fibers and their composites to suit industrial and commercial applications. Against this background, the current research aims to investigate the use of the natural fiber Agave Lechuguilla as a sustainable reinforcement material in epoxy-based composites. The manufacturing of the composite is carried out using the conventional hand-lay-up method by reinforcing varying weight percentages of fibers. Enhancement of compatibility between the fiber and matrix is achieved through different chemical treatments. An assessment of moisture absorption behaviour is also carried out on both treated and untreated fiber composites. To assess the tribo-potential of AL fibers, experiments involving solid particle erosion tests and abrasive wear tests have been carried out following the ASTM standard. The outcomes of the results are discussed in details and reported in the thesis.