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MECHANICAL ENGINEERING PROJECTS LIST -AY 2024-25						
SNo	Dept	Guide	USNs	Title	Status	Abstract (100 words)
1	ME	Prof. Harish S R	4VP21ME001 4VP21ME008 4VP21ME016	Acoustic Characterization Of Natural Fiber Composite	Analysis	This report investigates the fabrication, testing, and performance analysis of polyurethane (PU) foam composites reinforced with natural fibers. The primary objective is to evaluate the acoustic and mechanical properties of plain PU foam and natural fiber-reinforced PU composites. The methodology involves chemical preparation of PU foam (Part A and Part B), integration of natural fibers such as banana fibers into the matrix, specimen preparation using custom-designed molds, and testing for sound absorption using an impedance tube. Comparative analysis of the results reveals the effectiveness of fiber reinforcement in improving the foam's acoustic absorption properties across various frequency ranges. Additionally, the study explores the advantages, limitations, and potential applications of natural fiber-reinforced foams in sustainable acoustic materials for building, automotive, and industrial sectors. The findings demonstrate significant improvements in sound absorption and eco-friendliness, establishing natural fiber-reinforced PU foam as a viable alternative to traditional synthetic materials.
2	ME	Dr. Deepak K B	4VP21ME002 4VP21ME005 4VP21ME011 4VP21ME013	Fabrication Of Panchakajjaya Making Machine	Working	Panchakajjaya, a revered South Indian prasad, holds profound cultural and spiritual significance, especially during festivals like Ganesh Chaturthi, Janmashtami, and Navratri. Traditionally prepared using ingredients such as poha, sesame seeds, banana, sugarcane, fresh coconut, and jaggery, the process is labor-intensive and time-consuming. Tasks like grating coconut, crushing jaggery, and mixing ingredients demand significant manual effort, leading to physical strain and inconsistencies, particularly when

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						preparing large quantities for temple gatherings. This project introduces a semi-automated Panchakajjaya-making machine to address these challenges. By integrating coconut grating, jaggery crushing, and ingredient mixing into a single motorized system, the machine ensures efficiency, consistency, and food safety. It significantly reduces preparation time and labor while enhancing productivity. Designed to support temples and institutions, this innovative solution modernizes the preparation process while maintaining the authenticity and cultural essence of Panchakajjaya, offering an efficient and reliable method for large-scale production of high-quality prasad.
3	ME	Prof. Naveen S P	4VP21ME003 4VP21ME009 4VP21ME014 4VP21ME015	Fabrication Of Manually Operating Multi Utility Crane	Working	This project presents the design and fabrication of a cost-effective, multi-utility crane integrating a hydraulic jack and winch for versatile lifting applications in automotive workshops and agriculture. Unlike traditional hoists, the proposed crane is portable, adaptable, and designed for enhanced safety and efficiency. Fabricated from durable 14-gauge rectangular hollow bar, the system includes pulleys, and a winch to ensure controlled load movement and ease of operation. The methodology encompasses CAD modeling, material selection, fabrication, and on-field testing, with results demonstrating improved performance, reduced physical strain, and suitability for diverse environments. This innovative crane offers a practical and affordable solution for heavy-load handling tasks.
4	ME	Prof. Sudarshan M L	4VP21ME004 4VP21ME022 4VP22ME401 4VP22ME402	Design & Fabrication Of Automated Coconut De-Husker, Scrapper And Cutting Machine	Working	This project involves the design and fabrication of a semi-automated coconut de-husker, cutter, and scraping machine. The machine is designed to automate the process of de-husking, cutting, and scraping coconuts, reducing manual

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						labor and increasing efficiency. The machine consists of three main units: de-husking, cutting, and scraping. The de-husking unit removes the husk from the coconut, the cutting unit cuts the coconut into desired sizes, and the scraping unit removes the coconut meat from the shell. The machine is powered by an electric motor and is controlled by a simple and user-friendly control panel. The machine has been successfully fabricated and tested, and has shown promising results in terms of efficiency, productivity, and quality of output. This project has the potential to benefit coconut farmers, processors, and exporters by reducing labor costs, increasing productivity, and improving the quality of coconut products. The semi-automated coconut de-husker, cutter, and scraping machine is designed to be compact, durable, and easy to maintain. The machine is also designed to be energy-efficient and environmentally friendly. The machine's performance has been evaluated based on its efficiency, productivity, and quality of output. The results show that the machine is capable of de-husking, cutting, and scraping coconuts at a rate of 100 coconuts per hour, with an efficiency of 90% and a quality of output of 95%.
5	ME	Prof. Ajith K & Prof. Deepak Kumar Shetty	4VP21ME006 4VP21ME012 4VP21ME021 4VP22ME405	Design And Fabrication of Movable Treadmill	Working	This project focuses on designing and developing a cost-effective, user-friendly, and portable treadmill that integrates pre-set workout programs to enhance fitness and overall well-being. It aims to provide an innovative solution for individuals who prefer home-based workouts or lack access to expensive gym equipment. The treadmill bike will be designed with user-cantered principles, ensuring affordability, ease of use, and functionality. The development process will involve prototyping, testing, and

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						iterative improvements to align with user needs and expectations. A multidisciplinary approach, combining design thinking, engineering, and user experience design, will be adopted, with collaboration from stakeholders such as users, manufacturers, and healthcare professionals. This project has the potential to promote healthier lifestyles by offering accessible, sustainable, and innovative fitness solutions, positively impacting individuals and communities.
6	ME	Prof. Satheesha Kumar K	4VP21ME010 4VP22ME400 4VP22ME403	Comparative Study Of Nano-Particle Reinforced Natural Fiber Composite For Acoustic Application	Analysis	Foams are increasingly utilized across a wide range of applications due to their unique properties, including lightweight structure, sound absorption, and versatility. In thiscontext, we conducted a comprehensive comparative study focusing on nanoparticle reinforced natural fibers to evaluate their potential for acoustic applications. This research explores the advantages of combining natural fibers with nanoparticles to enhance acoustic performance, paving the way for sustainable materials in noise control and soundproofing technologies. The material was prepared using natural fibers derived from the Kumbhi tree, reinforced with graphene nanoparticles to improve their properties. The foam matrix was synthesized using Polyurethane Foam components 'A' and 'B,' which were combined to create a stable and effective composite suitable for diverse applications. The specimens were fabricated into two cylindrical pieces with diameters of 99 mm (ϕ99 mm) and 29 mm (ϕ29 mm), each with a uniform thickness of 4 mm. These specimens were subjected to acoustic testing using an impedance tube. In this setup, sound waves of varying wavelengths were

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						transmitted through the tube, and the sound attenuation (measured in decibels, dB) was recorded to evaluate the acoustic properties of the material. The experimental results revealed that the natural fiber-reinforced specimen exhibited significantly higher sound absorption efficiency compared to the nanoparticle-reinforced natural fiber. Specifically, in the 1/12th octave testing tube, the natural fiber-reinforced specimen demonstrated 16.74% greater absorption effectiveness. In the 1/3rd octave testing tube, a 16.5% improvement was observed. These findings underscore the superior acoustic absorption capabilities of natural fiber reinforcement under the tested conditions, highlighting its potential for sustainable acoustic applications.
7	ME	Prof. Naveenakrishna P V	4VP21ME017 4VP21ME018 4VP21ME023	Design & Fabrication Of Compact Arecanut Dehusking Machine	Working	The arecanut dehusker is a vital agricultural innovation designed to address the labour-intensive and time-consuming process of manually removing the husk from arecanuts. Arecanut, a widely cultivated crop in tropical regions, is extensively used in various cultural, medicinal, and industrial applications. Traditional dehusking methods often involve significant manual effort, leading to low productivity and higher operational costs. The arecanut dehusker automates this process, significantly enhancing efficiency and productivity. These machines employ mechanical or motorized mechanisms that gently but effectively separate the husk from the kernel, preserving the quality of the nut. Modern arecanut dehuskers are built with user-friendly features, durable materials, and ergonomic designs, ensuring

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						ease of operation and long service life. They cater to small, medium, and large-scale farmers by offering varying capacities to suit different operational needs. The introduction of arecanut dehuskers has led to reduced dependency on manual labour, minimized post-harvest losses, and improved processing speeds. It also provides economic advantages, as farmers can process larger volumes of nuts in less time, enhancing their market competitiveness. Moreover, the uniform dehusking ensures high-quality produce, meeting the standards required for both domestic and international markets. As sustainable farming practices gain traction, energy-efficient and eco-friendly dehusking models are being developed, contributing to the environmental conservation goals. Overall, the arecanut dehusker represents a transformative step in areca nut farming, supporting mechanization, improving farmers' livelihoods, and strengthening the agricultural value chain.
8	ME	Dr. Manujesh B J & Prof. Raghavendra Prasada S A	4VP21ME019 4VP21ME020 4VP22ME406 4VP22ME408	An Analytical Study On Heat Transfer Performance Of Radiator With Nanofluids.	Analysis	Nanofluids are known for their exceptional thermal properties, offer a promising solution for enhancing heat transfer efficiency in various engineering applications. Recognizing the critical need for advanced thermal management systems, this study extensively investigated the thermal performance of aluminium oxide (Al_2O_3) and titanium dioxide (TiO_2) nanofluids at volume concentrations of 0.05, 0.1 and 0.2. A radiator test rig was developed to systematically evaluate their impact on critical heat transfer parameters, including the heat transfer coefficient and overall heat transfer rates, under varying operating conditions. The results revealed that TiO_2 nanofluid at a volume concentration of 0.05 achieved the highest enhancement,

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						with heat transfer rates increasing by up to 170% compared to water. Similarly, Al_2O_3 nanofluid at 0.05 demonstrated a significant improvement, with rates increasing by up to 67%. However, both nanofluids showed diminishing returns at higher concentrations, indicating that optimal dispersion plays a crucial role in performance. This comprehensive analysis concludes that nanofluids, particularly TiO_2 at lower concentrations, can significantly enhance heat transfer performance, paving the way for more efficient, sustainable, and high-performance thermal management solutions in engineering applications.