# MESmeResearch

## TAG1- Thermal & Fluid Science

Thermal Science & Fluid mechanics research focuses on computational mechanics, fluid mechanics, and mechanics of solid materials, nonlinear dynamics, acoustics, and I.C.Engines and transport phenomena.

Research and teaching in the Thermal Science & Fluid mechanics area are focused on enriching the spectrum of models and tools for describing and predicting static and dynamic thermo mechanical phenomena. Understanding and optimizing the mechanical and dynamical response of a material system is essential to its ultimate application.

Research Includes: Fluid mechanics, solid mechanics, nonlinear mechanics, computational mechanics, and structural mechanics, solar energy and photovoltaic; transport phenomena and water desalination; carbon dioxide capture and hydrogen research; electrochemical energy storage and conversion; and energy conservation.

## TAG2- Manufacturing, Material science & Metrology

Process of bringing new devices, technologies, and services to the marketplace In the Design research area, everything from a steam turbine to a gaming console is conceived, designed, fabricated, assembled, and delivered by an engineer who understands design, manufacturing, sustainability, and the supply chain.

Research Includes: Precision and machine design, product design and development, environment and sustainability, information and sensing, manufacturing process and systems & Material Tensile Strength Characterization at High Strain rates and Temperatures, Biomaterials, computational modeling of materials, corrosion, electronic, optical and magnetic materials, material performance, welding engineering.

## TAG3- Basics of Mechanical Engineering, Design, Drawing, Analysis& transport

This area advances the knowledge in product design, manufacturing processes, and engineering analysis using the state-of-the-art computer technology. The scope includes such areas as CFD, manufacturing and assembly simulation, crash-worthiness, computational mechanics, mold flow, ride simulation, ergonomic design, NVH, reverse engineering, etc. Developments in numerical methods applicable to automotive engineering problems are also included.

**Research Includes:** CFD, manufacturing and assembly simulation, crash-worthiness, computational mechanics, mold flow, ride simulation, ergonomic design, NVH, reverse engineering, etc.

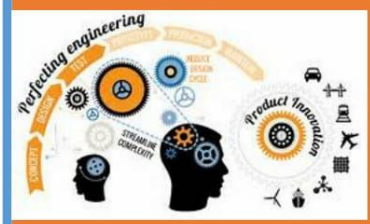
## TAG4- Robotics Industrial Engineering & Management

The CIR area seeks to enable systems to exhibit intelligent, goal-oriented behavior, and develop innovative instruments to monitor, manipulate, and control systems. The CIR area is based on strong core disciplinary competencies in dynamic systems and control, supplemented by knowledge of a diverse array of topics, including mechanical design, manufacturing, electronics, materials, and biology.

Research Includes: Novel actuator and sensor technology, bio-robotics and bioinstrumentation, control of complex systems, precision instrumentation, autonomous robotic vehicle, and optics, Operations management, marketing management, supply chain management, TQM, Adaptive manufacturing etc.

## DEPARTMENT OF MECHANICAL ENGINEERING

**MESmeResearch**




"The one who is manufacturing the great ideas is the one making the money. So I look at it and wonder, how could you ever have an economy without manufacturing?"

- Professor David Hardt

Six Graduate Thrust Areas delineate how Mechanical Engineering research areas relate to each other and how an area's research focus relates to its application potential.

MES COLLEGE OF ENGINEERING
Kuttippuram, Malappuram, Kerala - INDIA


| YEAR | PRODUCT/RESEARCH | DETAILS | STATUS |
|---|---|---|---|
| 2014-2015 | GENERATION-1 | Prototype of Humanoid Robot- Mechanically powered Exoskeleton | completed |
| 2015-2016 | REMORE | REMORE gun control for UCAVs and UCGVs | completed |
| 2015-2016 | GENERATION-II | A MMI System Design for Material Handling with Pneumatic Powered Exo-Skeleton using Mechanical Feedback | completed |
| 2015-2016 | EFFICIENCY IMPROVEMENT TECHNIQUE IN ELECTRIC SCOOTER | Efficiency Improvement Technique for Electric Scooters by Self-Charging | completed |
| 2016-2017 | HAMMER | Third version of Exoskeleton Robot | completed |
| 2016-2017 | SOLAR CAR | Adaptive Development of an electric car | on going |
| 2017-2018 | PROSTHETIC LEG | Two Mode Pneumatic Damping Prosthetic Leg For Above-Knee Amputees | on going |
| 2017-2018 | TONGUE CONTROLLED WHEEL CHAIR | Tongue motion controlled wheel chair using FSR Sensor | completed |
| 2017-2018 | FIRE FIGHTER ROBOT | Prototype of Automated rough terrain Fire Fighter Robot | Completed |