Department of Mechanical Engineering
MTech (CP) Project Titles for 2022-2024 batch

Faculty	Project Titles
G.K. Ananthasuresh	Design and Microfabrication of Disk Resonator Gyroscopes for Inertial Grade Performance Non-dimensionalization of nonlinear elastic response of compliant mechanisms
M.S. Bobji	Soil moisture sensor: Molecular relaxation in water at GHz frequencies (or) Biomimetic Underwater Vehicle: Design and development Adhesion Impact mechanics: FEM and Experimental studies with hydrogel (or) Cu-Alumina interface as a Memristor: Modelling and experimental verification
D. Das	Constitutive modeling of domain switching in multifunctional polycrystalline ferroelectric thin films and the effect of film texture on their electromechanical response. Using machine learning to perform real-time image correlation and predicting crack initiation during fatigue of metal coupons.
S. Dash	Thermal management using thermosyphons Bubbles at liquid-oil interfaces Wicking of liquid on textured surfaces
P. Dutta	CFD simulation of die filling in low pressure die casting of automobile wheels Passive cooling of EV battery pack using phase change materials
A. Ambirajan	Integrated thermal simulation of an electric vehicle thermal management system

Department of Mechanical Engineering
MTech (CP) Project Titles for 2022-2024 batch

R. N. Govardhan	Development of a robotic fish Shock-vortex/ Fluid-structure interactions in high-speed flows
J. Keshavan	Fabrication and development of a collision-resilient autonomous drone Aerial-ground robot coordination for navigating in unstructured environments
N. Gundiah	Cavitation rheology in soft matter OR Impact in soft hydrogels Genetic algorithm based vertex methods for dynamics of soft active matter
G. R. Jayant	Diamagnetically levitated nano-positioners with large range: Development and applications Piezo-electrically actuated flexure-guided displacement amplifiers: Development and applications
C. S. Jog	Receding contact problems in elasticity. Wave propagation problems on wedges.
A. Kumar	Experimental visualization and quantification of waves using image correlation techniques for complex fluids
P. Kumar	Hybrid-Thermal Electric Propulsion using sCO_2 cycles OR Novel Polygeneration cycles for Clean Hydrogen Production Transcritical CO_2 based cooling cycles for ultralow temperature applications OR Investigations on Dry Ice formation in sCO2 turbomachinery

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S. Mondal	Microscale swimming in eternal flows Microscale transport and locomotion of particles in non-Newtonian fluid
R. Narasimhan	Finite Element Modeling of Elastic-Plastic Crack Growth using Phase Field Method
Navaneetha K R	Solution of the non-linear Boltzmann Transport Equation to describe heat conduction in nanoscale semiconductor electronics Monte Carlo solution of the Boltzmann transport equation to describe heat conduction in semiconductor electronics
R. Rangarajan	DIY 3D printer (involves: structural mechanics, mechatronics, fabrication, experiments, maybe some ML) DIY propeller-less submarine (involves: FSI, mechatronics, fabrication, experiments)
Ravikrishna R.	Modeling of hybrid electric vehicles Modeling of hydrogen-fueled IC Engines
D. Sen	Kinematics and Geometry of Human Visual Performance Deriving Multibody Assembly Model from Mechanical Assembly Model
R. K. Shukla	Cavitation bubble collapse and jetting dynamics Shock-boundary layer interactions in high-speed intakes
V. R. Sonti	Analytical solutions for waves in shallow waters Insights into "the Donell-Mushtari-Vlasov theory (DMV)" in vibrations of shells
B. Suri	Laminar and Turbulent polymer laden two-dimensional (geophysical) flows (experiments) Laminar and Turbulent particle laden two-dimensional (geophysical) flows (experiments) 3D DNS of quasi-two-dimensional flows using spectral methods and finite differences.

Department of Mechanical Engineering
MTech (CP) Project Titles for 2022-2024 batch

G. Tomar	Experimental and numerical investigation of ultrasonic atomization. Genetic algorithm based vertex methods for dynamics of soft active matter.
K. Viswanathan	Design, development and fabrication of a collision-resilient autonomous drone Powder mechanics for metal 3D printing