			ME 495 - 251 Proposal		
Ser.#	**Advisor Name**	**email**	**Research Title**	**Research Description**	**Area of research**
1	Yassmin Seid Ahmed	yassmin.seidahmed@kfupm.edu.sa	Design wind turbine blades using additive manufacturing	Leverages additive manufacturingo create lightweight, complex, and highly customized wind turbine blade designs, improving aerodynamic efficiency, reducing material waste.	Design for manufcaturing and polymers/composites
2	Yassmin Seid Ahmed	yassmin.seidahmed@kfupm.edu.sa	Machine Learning for mechanical performance predictions for addditive manufcatured components	Applies machine learning models to predict the mechanical properties of 3D-printed parts, enabling optimized designs, reduced experimental costs, and improved reliability in additive manufacturing.	Machine learning and mechabical performance
3	Dr Mohamed Abdrabou Hussein	mahussein@kfupm.edu.sa	High Entropy Alloy for Biomedical Applications	The student will engage in the experimental work including Material processing, characterizations, and performance evaluation	Materials & Manufacturing
4	Dr Mohamed Abdrabou Hussein	mahussein@kfupm.edu.sa	Mg Nanocomposite for Hydrogen Storage Applications	The student will engage in the experimental work including Material processing, characterizations, and performance evaluation	Materials & Manufacturing
5	Dr Mohamed Abdrabou Hussein	mahussein@kfupm.edu.sa	Surface Engineering of Ti for Bio Implant Applications	The student will engage in the experimental work including Material processing, characterizations, and performance evaluation	Materials & Manufacturing
6	Dr Mohamed Abdrabou Hussein	mahussein@kfupm.edu.sa	Mg Nanocomposite for Biomedical Applications	The student will engage in the experimental work including Material processing, characterizations, and performance evaluation	Materials & Manufacturing
7	Hussain Alqahtani	qahtanih@kfupm.edu.sa	Inverse Problem using PINNs, machine learning	The student will contribute to writing ML codes for inverse probems using ML.	Machine learning and Heat Transfer and vibration
8	Hussain Alqahtani	qahtanih@kfupm.edu.sa	Studing ferro particles water droplet	The student will engage in experimanal work for studing water droplets on hydrophic & hydrophilic surfaces.	Modeling dynamics of water droplets
	Bekir Sami Yilbas	bsyilbas@kfupm.edu.sa	Hydrophobizing of Polycarbonate surfaces and Surface Assessments	Rhe student is expected to involve with the experimantal study to explore surafce texturing techniques with acetone bathing. In addition, analyzing water drplet motions on hydropbobic surfaces under thermal source.	Green Energy and Thermal Sciences
9	Obaidallah Munteshari	obaidallah@kfupm.edu.sa	Battery thermal management system	The student will design and build an experimental setup for a battery thermal management system.	Thermodynamics, fluid, heat transfer
10	Obaidallah Munteshari	obaidallah@kfupm.edu.sa	Solar-driven hydrogyn production system	The student will develop a thermodynamics model using EES	Thermodynamics
11	Obaidallah Munteshari	obaidallah@kfupm.edu.sa	Solar-driven cooling-dealination system	The student will develop a thermodynamics model using EES	Thermodynamics, heat transfer
12	Jihad AlQasimi	jeqasimi@kfupm.edu.sa	Nonlinear Springs design to alter the wave propagation	The student will design a nonlinear spring and validate its performance through experiments and FEM analysis.	Nonlinear Dynamics and Structural Mechanics
13	Atia Khalifa	akhalifa@kfupm.edu.sa	Water desalination using membrane distillation	applying energy-efficient water desalination design using membrane distillation (MD) technique, including renewable energy utilization. many related research topic are available.	Thermal Sciences, water desalination, solar energy.
14	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	Design and Optimization of Wearable Biomedical Sensors for Real-Time Health Monitoring	This research focuses on the development and refinement of wearable biomedical sensors aimed at enhancing real-time health monitoring. The project emphasizes miniaturization, biocompatibility, signal fidelity, and wireless data transmission to ensure accurate and non-invasive diagnostics.	Biomedical Engineering
15	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	Design and Prototyping of Heart Pump and Electrical Lead Components for Enhanced Cardiac Support	This project aims to develop and optimize components of heart assist devices, particularly focusing on the mechanical and electrical interface elements like pumps and leads. Emphasis will be on biocompatibility, energy efficiency, and reliability for long-term implantation.	Biomedical/Mechanical Engineering
16	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	Design of Low-Vibration Joints for Precision Robotic Arms	This project focuses on the development of robotic joints that minimize vibration during operation to improve precision and durability in robotic manipulators. The research combines dynamic analysis, material engineering, and control algorithms for enhanced stability.	Mechatronics/Robotics
17	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	AI-Assisted Design and Analysis of Lightweight Drone Attachments	This research involves developing lightweight and structurally optimized attachments for drones using AI-guided finite element analysis (FEA). The goal is to enhance drone efficiency and payload capacity without compromising strength and stability.	Aerospace/Mechanical Engineering
18	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	Optimization of Hybrid Power Systems for Extended Drone Operation	This research project targets the development of hybrid power systems that extend drone flight time and improve energy efficiency. The focus lies on integrating renewable energy sources and optimizing energy conversion and storage systems.	Aerospace/Energy Systems
19	Ammar A. Alzaydi	ammar.alzaydi@kfupm.edu.sa	Design and Analysis of Zero-Net Force Thrusters for Aerial Firefighting Systems	This project focuses on designing thruster systems with balanced force output for drone-based firefighting units. The aim is to achieve stable hover and directional control during high-pressure fire suppressant discharge.	Aerospace/Control Systems
20	Pieter Boom	pieter.boom@kfupm.edu.sa	Numerical Simulation of Natural Convection in a Thermosyphon System	This research project uses ANSYS Fluent to simulate natural convection flow in a closed-loop thermosyphon system, with a focus on its application in Generation 4 Small Modular Reactors (SMRs) in Saudi Arabia. The study investigates how heat input, fluid properties, and system geometry influence thermal performance. The results will support the development of safe, efficient, and sustainable nuclear energy systems under the Kingdom's vision 2030 goals.	Thermo-fluids
21	Usman Ali	usman.ali@kfupm.edu.sa	3D printing and robotics	Discuss in person.	Mechanical
22	Nesar Merah	nesar@kfupm.edu.sa	3D printing parameter optimization for improving fatigue life of short carbon fiber filled polymers	Discuss in person.	Mechanical Engineering
23	Hafiz Muhammad Ali	hafiz.ali@kfupm.edu.sa	Thermal management of high heat generatng devices	This project will focus on the experiments and numerical simulations of thermal manamgent of high heat generating device.	Thermofluids
24	Hafiz Muhammad Ali	hafiz.ali@kfupm.edu.sa	Heat generation analysis of battery	This project will focus on the heat generation during the battery operation.	Thermofluids
25	Hafiz Muhammad Ali	hafiz.ali@kfupm.edu.sa	Thermal issues in advanced manufacturing and energing technologies	Thermal issues in advanced manufacturing processes and new technologies will be investigated.	Thermofluids