M.Kumarasamy College of Engineering
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur - 639 113, TAMILNADU.

MAKEATHON CONTEST

Antenna Design

Problem statement

ID: MKCE-ECE-ANTENNA-001

Wideband Circularly Polarized Antenna for 6G and Beyond

Problem Statement: Design a compact, wideband, circularly polarized antenna capable of supporting frequencies beyond 100 GHz for 6G applications. The antenna must exhibit high efficiency, low profile, and minimal interference with adjacent networks, while supporting multiple-input multiple-output (MIMO) configurations for increased data rates.

ID: MKCE-ECE-ANTENNA-002

Reconfigurable Beam-Steering Antenna for Unmanned Aerial Vehicles (UAVs)

Problem Statement: Develop a reconfigurable beam-steering antenna system optimized for UAV communication networks. The antenna should be capable of dynamically adjusting its radiation pattern to maintain a reliable communication link while minimizing power consumption and weight.

ID: MKCE-ECE-ANTENNA-003

Self-Healing Antenna for Space Applications

Problem Statement: Design a self-healing antenna system capable of repairing physical damage in space environments, such as micro-meteor impacts. The antenna should maintain performance after damage and utilize minimal energy for the self-repair process.

ID: MKCE-ECE-ANTENNA-004

Compact Antenna for In-Body Medical Implants

Problem Statement: Create a highly miniaturized antenna for in-body medical implants that can operate efficiently within human tissues. The design must ensure biocompatibility, minimize interference with body tissues, and maintain reliable communication at low power levels.

ID: MKCE-ECE-ANTENNA-005

Flexible, Wearable Antenna for 5G-Enabled Healthcare Monitoring

Problem Statement: Develop a flexible, wearable antenna system that can seamlessly integrate with 5G-enabled health monitoring devices. The antenna should be capable of conforming to various body shapes and maintain stable performance under movement and environmental changes.

ID: MKCE-ECE-ANTENNA-006

Dual-Mode Antenna for 5G NR and Satellite Communication

Problem Statement: Design a dual-mode antenna that operates efficiently in both 5G NR (New Radio) and satellite communication frequency bands. The antenna should have minimal cross-band interference and provide seamless handover between terrestrial and satellite networks.

ID: MKCE-ECE-ANTENNA-007

High-Gain Antenna for Wireless Power Transfer in IoT Devices

Problem Statement: Design a high-gain antenna specifically for efficient wireless power transfer in IoT devices, which can operate in a cluttered environment with multiple reflective surfaces. The antenna should provide focused, long-distance power transmission with minimal loss.

ID: MKCE-ECE-ANTENNA-008

Transparent Antenna for Solar-Powered Smart Glasses

Problem Statement: Develop a transparent, low-profile antenna that can be integrated into solar-powered smart glasses. The antenna must provide reliable connectivity without affecting the transparency or aesthetics of the glasses, while also being energy-efficient.

ID: MKCE-ECE-ANTENNA-009

Multi-Band Antenna for 5G and Wi-Fi 7 Convergence

Problem Statement: Design a compact, multi-band antenna that supports both 5G and Wi-Fi 7 frequencies, providing seamless connectivity between the two technologies. The antenna should minimize interference while maximizing data throughput in dense urban environments.

ID: MKCE-ECE-ANTENNA-010

10. Plasma-Based Antenna for Secure Military Communication

Problem Statement: Create a plasma-based antenna that can be dynamically tuned to different frequencies, ensuring secure military communication and jamming resistance. The antenna must be lightweight, portable, and capable of operating under harsh environmental conditions.
