KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)
DEPARTMENT OF MECHANICAL ENGINEERING

CENTRE OF EXCELLENCE DETAILS

Laboratory Name   : **Centre for Auto Electronics**

Laboratory Incharge   : Mr. S.Mohankumar

Lab Technician   : Mr. P. Ramajayam

Figure: Centre for Auto Electronics

Area of the Centre for Auto Electronics: 81.7 Sq.m.

Objectives:

- Identify and explain the functions of auto electronics and diagnostic tools.
- Gain knowledge in vehicle cluster design.
- Able to learn calibration of signal and automotive sensors.
- Fostering knowledge on analyzing data from vehicle networks.
- Provide hands-on experience on advanced troubleshooting techniques in Electronic Control Unit.

Description:

- Centre for Auto Electronics was established in the academic year 2023–2024, to enrich the students' knowledge in Automotive Electronics. Recognizing the growing reliance of modern vehicles on electronics system for various functionalities. These labs play a crucial role in advancing automotive technology, providing a specialized facility for the study, development, and testing of automotive electronic systems used in automobiles.
- Equipped with advanced tools and equipment, to explore various electronic components used in modern vehicles. This includes systems like Electronic Control Unit (ECU), Sensors, Actuators, Infotainment systems, and Vehicle networking technologies like Controller Area Network (CAN).
- The lab provides hands-on experience in troubleshooting, diagnosing, and repairing automotive electronics using diagnostic tools and simulation software.

- Students can work with live vehicle setups, allowing them to understand complex systems such as Engine Management, Automatic Locking /Unlocking, Reverse Parking Assistance System (RPAS) for Modern Automobiles.

- This lab ensures that safety measures are in place for working with high-voltage and sensitive electronics. It is equipped to transform the Automotive Industry with Embedded Systems to protocols for Automotive Communication, Vehicle Networking and Cyber Security, Automotive Safety and Driver Assistance Systems, Automotive Sensing and Control Technologies and Automotive Embedded Systems Development.

- The students are trained in Automotive Electronics at Centre for Autoelectronics Laboratory and successfully got placements at TVS Harita Techerv Limited.

Configuration details:

➢ **Equipment and Software details:**

Sl. No.	Name of the Equipment	Quantity
1	HP Desktop Computer: CPU, LED Monitor, Keyboard,Mouse,16GB RAM, Core i7 Processor, 1 TB SSD Hard disk	30
2	IVN Testbed	5
3	CAN Interface	5
4	PCAN Explorer with dongle	2
5	IVN Test Kit	25

Outcome:
- Demonstrate the function of automotive electronic diagnostic tools.
- Design and evaluate the vehicle cluster.
- Perform accurate calibration of automotive sensors and signal systems.
- Analyze and interpret the vehicle network data for system performance and fault detection.
- Apply advanced troubleshooting techniques to diagnose and repair the Electronic Control Units (ECUs).

DESCRIPTION	PO(1..12) & PSO(1..2) MAPPING
Demonstrate the function of automotive electronic diagnostic tools	PO1, PO2, PO5, PSO1
Design and evaluate the vehicle cluster.	PO1, PO2, PO3, PO5, PO12, PSO1
Perform accurate calibration of automotive sensors and signal systems.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1
Analyze and interpret the vehicle network data for system performance and fault detection.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1
Apply advanced troubleshooting techniques to diagnose and repair the Electronic Control Units (ECUs).	PO1, PO2, PO3, PO4, PO5, PO12, PSO1