

IV B.Tech – I Semester
(17EC753) AUTOMOTIVE ELECTRONICS DESIGN USING EMBEDDED SYSTEMS
(Skill Course Lab-II)

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
60	40	100	-	-	3	2

Pre-Requisites: Control Systems Microprocessors and Microcontrollers

UNIT-I: Engine management systems : Introduction - components for engine management system - Open loop and closed loop control system – Engine cranking and warm up control – Acceleration, deceleration and idle speed control.

UNIT-II: Injection and ignition systems : Feedback carburetor system–Throttle body injection and multi point fuel injection system– Injection system controls –Advantage of electronic ignition systems–Types of solid state ignition systems and their principles of operation – Electronic spark timing control, Exhaust emission control engineering.

UNIT-III: Automotive control mechanism :Electronic management of chassis systems, Vehicle motion control, anti – lock braking system, Tyre pressure monitoring system, Collision avoidance system, Traction control system.

UNIT-IV: Automotive Electronics systems : Active suspension system Keyless entry system and Electronic power steering system, Electronic controls - lighting design - Horn – Warning systems – Brake actuation warning systems, Infotainment

UNIT-V: Monitoring of Automotive systems : Speed warning systems, oil pressure warning system, engine over heat warning system, air pressure warning system, safety devices-Wind shield wiper and washer, VANET

UNIT-VI: Sensors for transportation: Basic sensor arrangement–Types of sensors, Oxygen Sensor –Cranking Sensor –Position Sensors , Engine cooling water temperature Sensor–Engine oil pressure Sensor–Fuel metering –Vehicle speed sensor and detonation sensor

Course Outcomes:

After successful completion of the course, the students can be able to:

S. No	Course Outcome	BTL
1.		
2.		
3.		
4.		
5.		
6.		

Correlation of COs with POs & PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO 1														
CO 2														
CO 3														
CO 4														
CO 5														
CO 6														