

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Lesson Plan & Work-done Diary for AY: 2026-27, ODD Semester

Course with Code: Automotive Electronics – BEC714C				Faculty: Nagesh M S			Semester: VII	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1		Evolution of Automotive Electronics, Automobile Physical Configuration, Survey of Major Automotive Systems	PPT	1				
2		The Engine – Engine Block, Cylinder Head, Four Stroke Cycle Engine Control, Ignition System - Spark plug, High voltage circuit and distribution		2				
3		Spark pulse generation, Ignition Timing, Diesel Engine, Drive Train – Transmission		3				
4		Drive Shaft, Differential, Suspension, Brakes, Steering System, Starter Battery –Operating principle		4				
5		Motivation for Electronic Engine, Control – Exhaust Emissions, Fuel Economy		5				
6		Concept of an Electronic Engine control system, Definition of General terms, Definition of Engine performance terms		6				
7		Engine mapping, Effect of Air/Fuel ratio, spark timing and EGR on performance		7				
8		Control Strategy, Electronic Fuel control system Analysis of intake manifold pressure, Electronic Ignition		8				

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MODULE-2								
9		Automotive Sensors: Automotive Control System applications of Sensors and Actuators – Typical Electronic Engine Control System, Variables to be measured	PPT	9				
10		Airflow rate sensor, Strain Gauge MAP sensor		10				
11		Engine Crankshaft Angular Position Sensor, Magnetic Reluctance Position Sensor		11				
12		Hall effect Position Sensor, Shielded Field Sensor		12				
13		Optical Crankshaft Position Sensor, Throttle Angle Sensor (TAS)		13				
14		Engine Coolant Temperature (ECT) Sensor, Exhaust Gas Oxygen (O2/EGO)		14				
15		Lambda Sensors, Piezoelectric Knock Sensor.		15				
16		Solenoid, Fuel Injector, EGR Actuator, Ignition System		16				

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MODULE-3								
17		Digital Engine control features, modes for fuel Control (Seven Modes) EGR Control, Electronic Ignition Control - Closed loop Ignition timing	PPT	17				
18		Spark Advance Correction Scheme, Integrated Engine Control System		18				
19		Secondary Air Management, Evaporative Emissions Canister Purge		19				
20		Automatic System Adjustment, System Diagnostics.		20				
21		Operating conditions, Design		21				
22		Data processing, Programming,		22				
23		Digital modules in the Control unit		23				
24		Control unit software		24				

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MODULE-4								
25		Bus Systems – Classification	PPT	25				
26		Applications in the vehicle, Coupling of networks, Examples of networked vehicles		26				
37		Buses - CAN Bus, LIN Bus, MOST Bus, Bluetooth		37				
28		Flex Ray, Diagnostic Interfaces		28				
29		Typical Cruise Control System, Digital Cruise Control System		29				
30		Digital Speed Sensor, Throttle Actuator		30				
31		Digital Cruise Control configuration		31				
32		Cruise Control Electronics (Digital only), Antilock Brake System (ABS)		32				

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MODULE-5								
33		Timing Light, Engine Analyzer, On-board diagnostics, Off-board diagnostics	PPT	33				
34		Expert Systems, Occupant Protection Systems, Accelerometer based Air Bag systems		34				
35		Alternative Fuel Engines, Electric and Hybrid vehicles, Fuel cell powered cars		35				
36		Collision Avoidance Radar warning Systems, Low tire pressure warning system		36				
37		Heads Up display, Speech Synthesis, Navigation – Navigation Sensors, Radio Navigation, Signpost navigation		37				
38		Dead reckoning navigation, Voice Recognition Cell Phone dialing,		38				
39		Advanced Cruise Control, Stability Augmentation,		39				
40		Automatic driving Control		40				



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Sl. No	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/ Quizzes/ Self-study	2/5/0		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	100%		
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	