GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦର୍ଲପାଲି, ସୁନ୍ଦରଗଡ

GOVERNMENT OF ODISHA | ଓଡିଶା ସରକାର

Website:. https://gpdarlipali.org.in/ In E-mail: gpdarlipali24@gmail.com
A/ P: Darlipali , NTPC Darlipali ,Dist.: Sundargarh, Odisha- 758001

LESSON PLAN

Discipline: Mechatronics Engg.	**Semester: 4th**	**Name of the Teaching faculty: Dusmanta Bariha (Sr. Lecturer in Mechanical Engg.)**	
Subject:Automotive Electronics Subject Code: MEPE204A TH:5(A)	**No of Days/Week class alloted: 3**	**Semester from Date: 22/12/2025 to 18/04/2026** **No. of Periods available: 47**	**No of weeks: 16**

Month	Week	No of periods avaliable	Class Day	Unit	Theory topics to be covered
DECEMB	1st	3P	1	I	Engine Components: Block, cylinder, crank shaft, piston, cam shaft, valves
			2	I	Intake system, Ignition (Basic), Exhaust, Cooling system
			3	I	Lubrication system & Fuel feed system
JANUARY	2nd	3P	1	I	Ignition system components: Spark plug, high voltage circuit, distribution
			2	I	Compression Ignition System; Steering System & Ackerman mechanism
			3	I	Suspension Systems
	3rd	3P	1	I	Fuel Injection: Throttle body vs Port injection, Injector types
			2	I	High pressure diesel fuel injection,Introduction to Electronic Ignition system
			3	I	Assessment and Review of unit-1
	4th	3P	1	II	Storage Battery: Lead acid cells principle, plates, construction
			2	II	Electrolyte characteristics, Specific gravity, Capacity & Efficiency
			3	II	Methods of charging (DC mains), Defects/Remedies, Care of batteries
	5th	3P	1	II	Recycling Process; DC Generators vs Alternators (Characteristics)
			2	II	Control, Cutout, Electrical, Electro-mechanical & Electronic regulators
			3	II	Procedure for charging batteries
FEBRUARY	6th	3P	1	II	Lighting: Head light, Side light, LED lighting system
			2	II	Head light dazzling and preventive methods
			3	II	Static and Dynamic Bending lights, review, assessment
	7th	3P	1	III	Introduction to Sensors and Transducers; Air flow rate sensor
			2	III	Engine crankshaft angular position, Engine speed & Timing sensors
			3	III	Throttle angle, Pressure, Temperature & Oxygen sensors
	8th	3P	1	III	Knock Sensor, Torque sensors; Automotive engine control actuators
			2	III	Exhaust gas recirculation (EGR) actuator; Electronic Engine Management System
			3	III	Warning Systems: Brake actuation, Flash, Oil pressure, Overheat
	9th	3P	1	III	Warning Systems: Air pressure, Speed, Door lock, Neutral gear
			2	III	Horn design, Perm. magnet/Air/Music horns; Windshield wiper/washer
			3	III	Electronic instruments, Dashboard illumination and MIL, review and assessment
MARCH	10th	3P	1	IV	Engine Control Objectives, Functions, Fuel Delivery & EFI Systems
			2	IV	Emission control; Automotive Transmission Control Systems
			3	IV	Cruise control, ABS (Antilock Braking System), Tire-slip control
	11th	3P	1	IV	Active suspension, Traction control, Electronic Suspension, Stability control
			2	IV	Integrated engine control; Central locking, Air bags, Seat belt tensioners
			3	IV	Voice warning system, Travel information system, GPS
	12th	3P	1	IV	Introduction to Microcontroller: Block diagram & Architecture
			2	IV	Intro to AVR family IC: Features, Block diagram, Architecture
			3	IV	Basics of embedded control and software, Assessment and review
	13th	3P	1	V	Intro to Electrical & Hybrid Vehicles; System layout & Basic components
			2	V	Electric battery solar cells; Rapid charging systems
			3	V	Motor drive system; Fuel cell Electric vehicle
APRIL	14th	3P	1	V	Hybrid Vehicles: Parallel Hybrid Vehicle
			2	V	CNG Electric hybrid vehicle
			3	V	Vehicle Intelligence: Intro, Base structure, Vision-based autonomous vehicles
	15th	3P	1	V	Architecture for vision system; Features applications
			2	V	Image processing in vehicles
			3	V	Intelligent robot vehicles: Obstacle detection, Collision warning/avoidance
	16th	2P	1		Revision and previous year questions discussion
			2		Revision and previous year questions discussion

22/12/25

Dusmanta Bariha
(HOD I/C Mechatronics)
Sr. Lecturer in Mechanical Engg.

Principal
G.P. Darlipali