

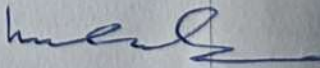
**Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138**

**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-			<b>Elements of Design &amp; Mechanics of Vehicle</b>	Session:-	<b>Aug-Nov 2025</b>
Name of Teacher:-			<b>Rishav</b>	Semester:-	<b>5th Semeser</b>
Designation:-			<b>Lecturer (Automobile Engg.)</b>	Scheme:-	<b>N-2022</b>
Sr No	Month	Week	Contents		Remarks
1	August	Week 2	Unit-I: Introduction: Design considerations, design procedure, Basic requirements		
		Week 3	classifications of design and principles of good economic design. Standardization,		
		Week 4	Interchangeability of Automobile parts with reference to IS specifications, Limits, fits and tolerances		
		Week 5	Unit-II: Design of keys, couplings and Engine Parts: Concept of Sunk Keys, Rectangular Keys, Square, Parallel, Crosshead, Woodruff Key Design of rectangular key, Coupling: Flange coupling, Muff coupling, Clamp coupling,		
2	September	Week 1	Engine Parts: Cylinder liner and cylinder head, Piston, Connecting Rod		
		Week 2	<b>Class Test I</b>		
		Week 3	Clutch- Single Plate and Multi plate Clutch, Brakes- Internal Expanding shoe brake		
		Week 4	Unit-III Simple Mechanism: Definition of link, kinematic pair, kinematic chain, Mechanism, inversions and machines,		
		Week 5	Simple examples of mechanism with: Lower pairs, Four bar chain, Slider crank chain,		
3	October	Week 1	Unit-IV: Motion and Turning Moment: Displacement, velocity and acceleration of piston Angular velocity and angular acceleration of connecting rod,		
		Week 2	Calculations of piston effort and crank effort at different angles, Fly wheel: types,		
		Week 3	<b>Class Test II</b>		
		Week 4	weight and moment of inertia, Fluctuation of energy for fly wheel,		
		Week 5	Turning moment diagrams with reference to internal combustion engines.		
4	November	Week 1	Unit-V: Power Transmission: Flat belt, V-belt and chain drives		
		Week 2	<b>House Test</b>		
		Week 3	Ratio of tension of two sides of the belt with and without centrifugal tension,		
		Week 4	Horse power transmitted and condition for maximum horse power transmitted		
		Week 5	Velocity ratios transmitted by Belts, Simple, compound and Epicyclic gear box.		

**Signature of Teacher**  
( Er. Rishav )

  
**Signature of H.O.D**  
(Er Vivek Singh)

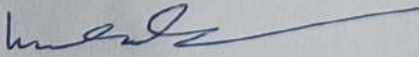


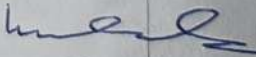
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**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-			<b>Auto Electrical &amp; Electronic Equipment</b>	Session:-	<b>Aug-Nov 2025</b>
Name of Teacher:-			<b>Er. Vivek Singh</b>	Semester:-	<b>5th Semester</b>
Designation:-			<b>HOD (Automobile Engg.)</b>	Scheme:-	<b>N-2022</b>
Sr No	Month	Week	Contents	Remarks	
1	August	Week 2	Unit-I: Introduction & Batteries: Various Electrical components/systems in Automobile. Their functions and demands, earths return system,		
		Week 3	types of earthing, 6V, 12V & 24V system. Lead Acid Batteries: Construction, working, elements,		
		Week 4	types, materials used, electrolyte and its strength, effect of added plate area and temperature,		
		Week 5	rating, capacity, efficiency, temperature characteristics, terminal voltages, charging and discharging, Battery Testing: Electrolyte testing by hydrometer, voltage test, high discharge and cadmium test (voltage)		
2	September	Week 1	Battery Charging: Constant potential and constant current, initial charging, normal charging, trickle charging, intermittent charging,		
		Week 2	<b>Class Test I</b>		
		Week 3	boost charging, Battery Defects: Sulphation, plates decay, working, erosion, cracking, sedimentation, separator defects, short circuits, overcharging.		
		Week 4	Unit-II: Charging System & Starting system: Circuits, function and various components of alternator, types, construction,		
		Week 5	working, advantages and disadvantages of alternators, drives, cut out relay.		
3	October	Week 1	Starting System: Function of various components, torque terms, principle and constructional details of starter motor, switches, types		
		Week 2	starter to engine drive and their types, Starter alternators. Unit-III: Ignition System : Constructional details of coil, distributor, condenser, meaning of cam angle,		
		Week 3	<b>Class Test II</b>		
		Week 4	ignition timing, ignition advancing mechanisms, centrifugal and vacuum type, transistorized ignition system, construction and working details of magneto ignition system.		
		Week 5	Spark Plugs: Constructional details of spark plugs, classification as per reach, heat range, diameter, a		
4	November	Week 1	and effect of leaded fuels, care and maintenance of spark plug. Unit- IV: Lighting System: Various lighting circuits, head lamp, type and constructional details,		
		Week 2	<b>House Test</b>		
		Week 3	sealed beam, double filaments, fog light, side light, brake light, instrument light, indicator lights, reversing light.		
		Week 4	Wiring: HT and LT, their specifications, cable colour codes, wiring Harness,		
		Week 5	Wiring diagrams of cars and two wheeler, Fuses, faults and rectification.		

  
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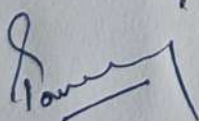


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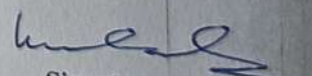
**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-		<b>Mechatronics and Microprocessor</b>		Session:-	<b>Aug-Nov 2025</b>
Name of Teacher:-		<b>Pankaj Kumar</b>		Semester:-	<b>5th Semester</b>
Designation:-		<b>Workshop Supdt.</b>		Scheme:-	<b>N-2022</b>
Sr No	Month	Week	Contents	Remarks	
1	August	Week 2	1.1 Introduction to Mechatronics, 1.2 Mechatronic system ,1.3 Measurement systems ,1.4 Control system-open Loop, Close loop and sequential 1.5 Microprocessor based controllers,1.6 The Mechatronics approach		
		Week 3	"2.1 Sensors and transducers ,2.2 Performance terminology ,2.3 Displacement, position and motion sensors,2.4 Electromechanical sensors and transducers ,		
		Week 4	2.5 Force sensors,2.6 Liquid flow sensors, 2.7 Temperature sensors ,2.8 Light sensors,2.9 Selection of sensors ,2.10 Simple problems		
		Week 5	3.1 Displays ,3.2 Data presentation elements, 3.3 Magnetic recording		
2	September	Week 1	3.4 Data acquisition systems 3.5 Measurement systems 3.6 Testing and calibration 3.7 Simple problems		
		Week 2	<b>Class Test I</b>		
		Week 3	4.1 Actuation systems,4.2 Pneumatic and hydraulic systems,4.3 Directional control		
		Week 4	4.4 Pressure control valves,4.5 Cylinders,4.6 Process control valves ,4.7 Rotary actuators"		
		Week 5	5.1 Mechanical systems5.2 Cams		
3	October	Week 1	5.3 Gear trains5.4 Ratchet and pawl		
		Week 2	5.5 Belt and chain drives		
		Week 3	<b>Class Test II</b>		
		Week 4	6.1 Electrical systems 6.2 Mechanical switches 6.3 Solid-state switches		
		Week 5	6.5 D.C. motors		
4	November	Week 1	6.4 Solenoids 6.5 D.C. motors 6.6 A.C. motors 6.7 Stepper motors		
		Week 2	<b>House Test</b>		
		Week 3	7.1 Microcomputer structure 7.2 Microcontrollers 7.3 Applications		
		Week 4	7.4 Programmable logic controller – applications 7.5 Basic structure, input/output processing		
		Week 5	Revision		



Signature of Teacher  
(Pankaj Kumar )



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**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-			Two And Three Wheelers	Session:-	Aug-Nov 2025
Name of Teacher:-			Er. Rishav	Semester:-	5th Semester
Designation:-			Lecturer (Automobile Engg)	Scheme:-	N-2022
Sr No	Month	Week	Contents	Remarks	
1	August	Week 2	Unit-I: Power Unit: Two stroke and four stroke SI engine, merits and demerits. Symmetrical and unsymmetrical port timing diagrams		
		Week 3	Types of scavenging process merits and demerits, scavenging efficiency.		
		Week 4	Scavenging pumps. Rotary valve engine. Unit-II: Various System: Fuel system. Lubrication system		
		Week 5	Magneto coil and battery coil spark ignition system. Electronic Ignition system. Starting system. Kick starter system. Unit-III: Chassis and Sub-Systems: Mainframe, its types		
2	September	Week 1	Chassis and shaft drive. Single, multiple plates and centrifugal clutches		
		Week 2	<b>Class Test I</b>		
		Week 3	Gear box and gear controls. Front and rear suspension- systems. Shock absorbers		
		Week 4	Panel meters and controls on handle bar.		
		Week 5	Unit-IV: Brake and Wheels: Drum brakes, Disc brakes		
3	October	Week 1	front and rear brake links layouts. Spoked wheel		
		Week 2	Cast wheel. Disc wheel. Disc types. Tyres & tubes.		
		Week 3	<b>Class Test II</b>		
		Week 4	Unit-V: Two Wheelers: Case study of Major Indian models of motorcycles		
		Week 5	SCOOTERS AND MOPEDS. Bajaj, Vespa, Lambretta scooters.		
4	November	Week 1	Enfield, TVS Suzuki, Hero-Honda		
		Week 2	<b>House Test</b>		
		Week 3	Yamaha RX100, Kawasaki Bajaj Motor cycle. Kinetic Spark, Hero Majestic,		
		Week 4	TVS mopeds. Servicing and maintenance. Three Wheelers: Case study of Indian Models. Front engine and rear engine.		
		Week 5	. Auto rickshaws. Pickup van. Delivery Van and Trailer.		

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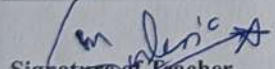
  
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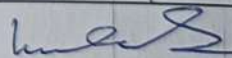
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**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-			Auto Electrical & Electronic Equipment Labora	Session:-	Aug-Nov 2025
Name of Teacher:-			Er Maneet Guleria	Semester:-	5th Semester
Designation:-			Workshop Supdt. (Automobile Engg)	Scheme:-	N-2022
Sr No	Month	Week	Contents	Remark	
1	August	Week 2	Testing of Battery with hydrometer and high rate discharge tester, charging of Batteries.		
		Week 3	Testing and measurement of ignition timing and dwell angle with timing light and cam angle tester		
		Week 4	Testing, cleaning and setting of spark plug on spark plug cleaning and testing machine.		
		Week 5	Testing of alternator rotor and stator winding for short circuit, ground and broken circuit using alternator test bench.. Testing and setting of horn and relay.		
2	September	Week 1	Testing and fault tracing of field winding, armature and magnetic switch for short circuit, grounding of a starter using starter test bench.		
		Week 2	<b>Class Test I</b>		
		Week 3	Identification of colour codes for continuity test in a wiring harness		
		Week 4	Study and sketching of complete wiring circuit of an Indian vehicle		
		Week 5	Study and sketching of complete wiring circuit of an Indian vehicle		
3	October	Week 1	Fault tracing and diagnosis of electronic ignition system through engine car scanner.		
		Week 2	Fault tracing and diagnosis of electronic ignition system through engine car scanner.		
		Week 3	<b>Class Test II</b>		
		Week 4	Study and demonstration of MPFI and CRDI system		
		Week 5	Layout of temperature sensor circuit.		
4	November	Week 1	• Study and layout circuit of D.C. Shunt motor and stepper motor		
		Week 2	<b>House Test</b>		
		Week 3	• Study and layout circuit of D.C. Shunt motor and stepper motor		
		Week 4	PLC basic circuits and control.		
		Week 5	PLC basic circuits and control.		

  
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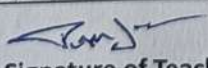
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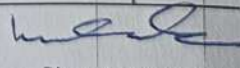
**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-	<b>Automobile Workshop Practice-III</b>	Session:-	<b>Aug-Nov 2025</b>
Name of Teacher:-	<b>Er Rishav &amp; Sh. Pushpender</b>	Semester:-	<b>5th Semester</b>
Designation:-	<b>Lecturer (Automobile Engg)</b>	Scheme:-	<b>N-2022</b>

Sr No	Month	Week	Contents	Remark
1	August	Week 2	Electric vehicle & Teardown Shop: Study of safety equipment's for electrical vehicles	
		Week 3	Study of electric vehicle components (Drive chain, PDU, On board charger, BCM) and fault findings.	
		Week 4	Study of Electric Vehicle battery system, rating and drive train system in Electric Vehicle.	
		Week 5	Job on making the electric vehicle voltage free on two wheeler and electric vehicle. Job on measurement and diagnosis on electric drive motor in electric vehicle on trainer.	
2	September	Week 1	Job on Removal of windows, replacement of window glass, fender and window motor mechanism. • Diagnosis and installation of center locking connected car system and standard accessories	
		Week 2	<b>Class Test I</b>	
		Week 3	Job on removal of complete dashboard and installation	
		Week 4	Decarburizing of Engines: removing carbon deposits from engine combustion chamber, piston crown, and valve parts manually and by using engine decarbonizing machine. • Overhauling of Diesel engine.	
		Week 5	• Surfacing of cylinder heads, cylinder blocks and manifolds with cylinder head re-facing machine.	
3	October	Week 1	• Practice in cylinder boring machine, measuring ovality and taperness of cylinder bore, using cylinder dial gauge, inside micrometer, telescopic gauge, and use of direct reading micrometer.	
		Week 2	Practice in honing cylinder blocks, keeping allowance of cylinder clearances.	
		Week 3	<b>Class Test II</b>	
		Week 4	Inspection and practice of crankshaft, crankpin, journal grinding, main journal grinding on crankshaft grinding machine.	
		Week 5	Practice of cam shaft journals on line boring machine. • Servicing of valve and valve mechanism, replacement of valves.	
4	November	Week 1	Testing of fuel injector in fuel injection tester.	
		Week 2	<b>House Test</b>	
		Week 3	Calibrations of fuel injection pump on fuel calibration machine	
		Week 4	Practice on brake drum lathe, measuring ovality, skimming the brake drum.	
		Week 5	Practice in nozzle grinding and lapping, setting of injection pressure and nature of spray	

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(Sh. Pushpender)

  
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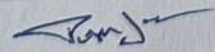
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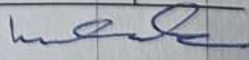
**Department of Automobile Engineering**

**Lesson Plan w.e.f 04-08-2025 to 26-11-2025**

Name of Subject:-			Automobile Workshop Practice-III	Session:-	Aug-Nov 2025	
Name of Teacher:-			Er Rishav & Sh. Pushpender	Semester:-	5th Semester	
Designation:-			Lecturer (Automobile Engg)	Scheme:-	N-2022	
Sr No	Month	Week	Contents			Remark
1	August	Week 2	Electric vehicle & Teardown Shop: □ Study of safety equipment's for electrical vehicles			
		Week 3	Study of electric vehicle components (Drive chain, PDU, On board charger, BCM) and fault findings.			
		Week 4	Study of Electric Vehicle battery system, rating and drive train system in Electric Vehicle.			
		Week 5	Job on making the electric vehicle voltage free on two wheeler and electric vehicle. Job on measurement and diagnosis on electric drive motor in electric vehicle on trainer.			
2	September	Week 1	Job on Removal of windows, replacement of window glass, fender and window motor mechanism. • Diagnosis and installation of center locking connected car system and standard accessories			
		Week 2	Class Test I			
		Week 3	Job on removal of complete dashboard and installation			
		Week 4	Decarburizing of Engines: removing carbon deposits from engine combustion chamber, piston crown, and valve parts manually and by using engine decarbonizing machine. • Overhauling of Diesel engine.			
		Week 5	• Surfacing of cylinder heads, cylinder blocks and manifolds with cylinder head re-facing machine.			
3	October	Week 1	• Practice in cylinder boring machine, measuring ovality and taperness of cylinder bore, using cylinder dial gauge, inside micrometer, telescopic gauge, and use of direct reading micrometer.			
		Week 2	Practice in honing cylinder blocks, keeping allowance of cylinder clearances.			
		Week 3	Class Test II			
		Week 4	Inspection and practice of crankshaft, crankpin, journal grinding, main journal grinding on crankshaft grinding machine.			
		Week 5	Practice of cam shaft journals on line boring machine. • Servicing of valve and valve mechanism, replacement of valves.			
4	November	Week 1	Testing of fuel injector in fuel injection tester.			
		Week 2	House Test			
		Week 3	Calibrations of fuel injection pump on fuel calibration machine			
		Week 4	Practice on brake drum lathe, measuring ovality, skimming the brake drum.			
		Week 5	Practice in nozzle grinding and lapping, setting of injection pressure and nature of spray			

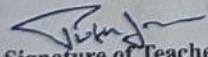
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(Er Rishav)

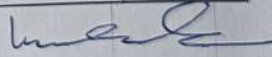
  
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Department of Automobile Engineering					
Lesson Plan w.e.f 04-08-2025 to 26-11-2025					
Name of Subject:-		Driving practice -II		Session:-	Aug-Nov 2025
Name of Teacher:-		Pushpender		Semester:-	5th Semester
Designation:-		Apprentice (mmv)		Scheme:-	N-2022
Sr No	Month	Week	Contents	Remarks	
1	August	Week 2	Driving Techniques		
		Week 3	Revision		
		Week 4	Maneuver in: Passing, Merging, Diverging, Overtaking, Crossing, Turning, Cornering, Reversing, and Emergency stopping		
		Week 5	Use of bye pass, sub way, over bridge and flyover. Difficult driving- Night driving, Hill driving, driving under special conditions like fog, heavy rain and snow etc		
2	September	Week 1	Difficult driving- Night driving, Hill driving, driving under special conditions like fog, heavy rain and snow etc		
		Week 2	Class Test I		
		Week 3	Driving on highways: lane selection & lane discipline		
		Week 4	Public relations and dealing with police		
		Week 5	Public relations and dealing with police		
3	October	Week 1	Fire Hazards		
		Week 2	First Aid		
		Week 3	Class Test II		
		Week 4	Vehicle Repair & Maintenance: Break down recovery		
		Week 5	Recovery from police: accident cases		
4	November	Week 1	Record keeping		
		Week 2	House Test		
		Week 3	Accounting		
		Week 4	Practice on road up to 60 K.M. during the semester for each student.		
		Week 5	Practice on road up to 60 K.M. during the semester for each student.		

  
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 (Pushpender)

  
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 (Er Vivek Singh)