



राजकीय बहुतकनीकी, हमीरपुर (हि.प्र.)
GOVT. POLYTECHNIC, HAMIRPUR [H.P.]



DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

Name of Faculty	Manoj Kumar	Academic Session	Aug - Dec 2026
Course Name	Elements of Refrigeration and Air Conditioning	Scheme	N- 2022
Course Code	MEPE301- 2	Semester	5th
Course Type	Programme Elective Course (PE)	Semester Start Date	06.08.2026
L-T-P	4-0-0	Semester End Date	28.11.2026

STUDY AND EVALUATION SCHEME

Teaching Hours/Week		Internal Assessment		External Assessment				Total		Credit
Theory	Practical	Theory	Practical	Theory	Hrs.	Practical	Hrs.	Theory	Practical	
04 Hrs.	NA	40	NA	60	03 Hrs.	NA	NA	100	NA	03

COURSE OUTCOMES(COs)

On the successful completion of this course, students will be able to:-

CO1	Define refrigeration and types of Refrigeration cycles
CO2	Explain Vapour Compression and Vapour Absorbtion System working principles
CO3	Identify the components required for refrigeration system and lubricants of refrigeration system
CO4	Identify the controlling components for a refrigeration system.
CO5	Explain the working principles of Air-conditioning.
CO6	Explain the basics about air conditioning systems.

Recommended Books	
1.	Refrigeration and Air Conditioning by R.S Khurmi & J.K Gupta. S. Chand
2.	Refrigeration and Air Conditioning – A.S.Sarao & G.S. Gabi. Satya Prakashan
3.	Thermodynamics by Yunus A. Cengel, Special Indian Edition
4.	Refrigeration and Air Conditioning–C.P Arora, Tata McGraw
5.	Refrigeration and Air Conditioning by G.S Aulakh.
6.	Refrigeration and Air Conditioning–M.Zakria Baig, Premier/ Radiant Publishing House.

Teaching Plan

Unit No	No. of Lect. Planed	Topic to be covered	Proposed date (as per time table)	Actual Date	Remarks
I. Introduction to Refrigeration	1	Introduction to Syllabus	06.08.2026		
	2	Definition of Refrigeration	07.08.2026		
	3	Refrigerating effect-unit of refrigeration, Coefficient of performance	11.08.2026		
	4	Carnot refrigeration Cycle	13.08.2026		
	5	-----do-----	14.08.2026		
	6	Air refrigeration-Bell-Coleman cycle, PV & TS diagram	18.08.2026		
	7	-----do-----	20.08.2026		
	8	Advantage and disadvantages in air refrigeration	21.08.2026		
	9	Simple problems on Carnot refrigeration cycle	22.08.2026		
	10	-----do-----	25.08.2026		
	11	-----do-----	27.08.2026		
	12	-----do-----	28.08.2026		
2. Refrigeration Systems (Problems omitted)	13	Basic Components, Flow diagram of working of Vapour compression cycle	29.08.2026		
	14	Types of Vapour Compression cycle; Representation of the vapour compression cycle on P-H & T-S Diagram; Expression for Refrigerating effect, work done and power required;	01.09.2026		
	15	-----do-----	03.09.2026		
	16	-----do-----	05.09.2026		
	17	Effects of superheating and sub cooling, its advantages and disadvantages	08.09.2026		

	18	-----do-----	10.09.2026		
	19	CT-I	11.09.2026		
	20	Simple Vapour absorptions cycle and its flow diagram;	15.09.2026		
	21	-----do-----	17.09.2026		
	22	Comparison of Vapour absorption and vapour compression system.	18.09.2026		
	23	-----do-----	19.09.2026		
3. Refrigeration Equipments, Refrigerants & Lubricants	24	Compressor - Hermetically sealed, Semi hermetically sealed compressor	22.09.2026		
	25	Condensers - Air Cooled, Water Cooled	24.09.2026		
	26	Natural and forced draught cooling system	25.09.2026		
	27	Advantages and disadvantages of air cooled and water cooled condensers;	26.09.2026		
	28	Evaporators-natural convection, forced convection types.	29.09.2026		
	29	Introduction to refrigerants; Properties of good refrigerants;	01.10.2026		
	30	Classification of refrigerants;	03.10.2026		
	31	Detection of refrigerants leakage;	06.10.2026		
	32	Charging the system with refrigerant;	08.10.2026		
	33	Lubricants used in refrigeration and their properties.	09.10.2026		
	34	CT-2	13.10.2026		
4. Refrigerant Flow Controls & Application of Refrigeration	35	Capillary tube	15.10.2026		
	36	Automatic Expansion valve	16.10.2026		
	37	Thermo static expansion valve	17.10.2026		
	38	High side and low side float valve	22.10.2026		
	39	Solenoid valve; Evaporator pressure regulator.	23.10.2026		
	40	Slow and quick freezing; Cold storage and Frozen storage	24.10.2026		
	41	Dairy refrigeration; Ice making industry;	27.10.2026		
	42	Water coolers.	29.10.2026		

5. Air Conditioning and Refrigeration & Air Conditioning Tools	43	Introduction to Air conditioning; Factors affecting Air conditioning;	30.10.2026		
	44	Brief description of Dry Bulb Temperature, Wet bulb Temperature, Dew point temperature;	31.10.2026		
	45	Psychometric chart and its use	06.11.2026		
	46	Psychometric process-sensible heating and cooling	07.11.2026		
	47	Humidification and dehumidification;	10.11.2026		
	48	Cooling and dehumidification	12.11.2026		
	49	Heating and humidification.	13.11.2026		
	50	Simple problems on above psychrometric processes only by using psychrometric char	17.11.2026		
	51	-----do-----	19.11.2026		
	52	-----do-----	20.11.2026		
	53	Equipment used in air conditioning cycle. Tools used in refrigeration and Air conditioner installation;	21.11.2026		
	54	Installation procedure; Servicing procedure.	26.11.2026		
	55	DCS	27.11.2026		
	56	DCS	28.11.2026		

Home Assignments

Ass. No	Contents of Syllabus Covered	Proposed date (DOS)	Actual Date (DOS)	Remarks
1	Unit-1&2	29.09.2026		
2	Unit-3&4	31.10.2026		
3				

Class /House Test

Name of Test	Syllabus Covered in Tests (Unit/Chapter Wise)	Proposed date	Actual Date	Remarks
Class Test-I	30% of whole syllabus	11.09.2026		
Class Test-II	60% of whole syllabus	13.10.2026		
House Test	80% of whole syllabus	As per HPTSB Academic Calendar Schedule		

Signature of Course Teacher with Name

MANOJ KUMAR
SR. LECT. MECH.

Approved by

OiC/HoD/Principal



Govt. Polytechnic Hamirpur
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

Name of Faculty	Mohan Lal	Academic Session	August – November 2026
Course Name	Fluid Mechanics & Hydraulic Machinery	Scheme	N-2022
Course Code	MEPC301	Semester	5th
Course Type	Program Core Course	Semester Start Date	01-08-2026
L-T-P	2-2-0 (L:2, DCS:2, P:0)	Semester End Date	28-11-2026

STUDY AND EVALUATION SCHEME

Teaching Hours/Week		Internal Assessment		External Assessment				Total		Credit
Theory	Practical	Theory	Practical	Theory	Hrs.	Practical	Hrs.	Theory	Practical	
04 Hrs.	NA	40	NA	60	03 Hrs.	NA	NA	100	NA	02

COURSE OUTCOMES (COs)

On successful completion of this course, students will be able to:-

CO1	Measure various properties such as pressure, velocity and flow rate using various instruments.
CO2	Calculate different parameters such as coefficient of friction, power, efficiency, etc. of various systems.
CO3	Describe the construction and working of turbines and pumps.
CO4	Test the performance of turbines and pumps.
CO5	Plot characteristic curves of turbines and pumps.

Recommended Books

1	Fluid Mechanics and Hydraulic Machines – R.K. Bansal, Laxmi Publications, New Delhi
2	Fluid Mechanics & Hydraulic Machines – S.S. Rattan, Khanna Publishing House, New Delhi
3	Hydraulics and Fluid Mechanics including Hydraulic Machines – Modi P.N. and Seth S.M., Standard Book House
4	Hydraulic, Fluid Mechanics & Fluid Machines – Ramamrutham S., Dhanpat Rai and Sons, New Delhi
5	One Thousand Solved Problems in Fluid Mechanics – K. Subramanya, Tata McGraw Hill

Teaching Plan

Unit No.	No. of Lect. Planned	Topic to be covered	Proposed date (as per time table)	Actual Date	Remarks
1. Properties of Fluid & Pressure Measurement	1	Properties of fluid: Density, Specific gravity, Specific weight, Specific volume	05.08.2026		
	2	Dynamic viscosity, Newton's law of viscosity, Kinematic viscosity; numerical problems on viscosity	10.08.2026		
	3	Surface tension, Capillarity, Vapour pressure, Compressibility	11.08.2026		
	4	Numerical problems on surface tension & capillarity	12.08.2026		
	5	Fluid pressure, Pressure head, Pressure intensity	17.08.2026		
	6	Concept of vacuum & gauge pressure, atmospheric pressure, absolute pressure	18.08.2026		
	7	Numerical problems on pressure & pressure head	19.08.2026		
	8	Simple manometers: principle & construction	22.08.2026		
	9	Numerical problems on simple manometers; Differential manometers: principle & construction	24.08.2026		

Unit No.	No. of Lect. Planned	Topic to be covered	Proposed date (as per time table)	Actual Date	Remarks
2. Fluid Flow & Flow Through Pipes	10	Numerical problems on differential manometers	25.08.2026		
	11	Bourdon pressure gauge: construction & working; Unit-I revision	26.08.2026		
	12	Types of fluid flow (steady/unsteady, uniform/non-uniform, laminar/turbulent, rotational/irrotational); Path line and Stream line	29.08.2026		
	13	Continuity equation: derivation; numerical problems on continuity equation	31.08.2026		
	14	Bernoulli's theorem for ideal fluid: derivation & assumptions	01.09.2026		
	15	Numerical problems on Bernoulli's theorem	02.09.2026		
	16	Venturimeter: principle, construction	05.09.2026		
	17	Derivation for discharge & coefficient of discharge through Venturimeter	07.09.2026		
	18	Numerical problems on Venturimeter	08.09.2026		
		CLASS TEST-I	09.09.2026		
	19	Orifice meter: principle, construction & coefficient of discharge; Pitot tube: principle & working, numerical problems	14.09.2026		
	20	Laminar & turbulent flow through pipes; Darcy's equation for frictional losses	15.09.2026		
	21	Chezy's equation for frictional losses; Minor losses in pipes	16.09.2026		
	22	Hydraulic gradient line & Total energy line; Numerical problems on pipe losses	19.09.2026		
3. Impact of Jets	23	Impact of jet on fixed vertical flat plate	21.09.2026		
	24	Impact of jet on moving vertical flat plate; numerical problems on flat plates	22.09.2026		
	25	Impact of jet on fixed curved vanes	23.09.2026		
	26	Impact of jet on moving curved vanes, with special reference to turbines	26.09.2026		
	27	Work done and efficiency: derivation	28.09.2026		
	28	Numerical problems on work done & efficiency	29.09.2026		
	29	Numerical problems on impact of jets (contd.)	30.09.2026		
	30	Revision / doubt clearing session on impact of jets	03.10.2026		
4. Hydraulic Turbines	31	Layout of hydroelectric power plant	05.10.2026		
	32	Features of hydroelectric power plant; Classification of hydraulic turbines	06.10.2026		
	33	Selection of turbine on the basis of head and discharge available	07.10.2026		
	34	Pelton wheel: construction and working principle	12.10.2026		
		CLASS TEST-II	13.10.2026		
	35	Numerical problems on Pelton wheel	14.10.2026		
	36	Francis turbine: construction and working principle	17.10.2026		
	37	Numerical problems on Francis turbine	19.10.2026		
	38	Kaplan turbine: construction and working principle	20.10.2026		
	39	Numerical problems on Kaplan turbine	24.10.2026		
	40	Draft tubes: types and construction; Concept of cavitation in	27.10.2026		

Unit No.	No. of Lect. Planned	Topic to be covered	Proposed date (as per time table)	Actual Date	Remarks
		turbines			
	41	Work done, power and efficiency of turbines: derivation	28.10.2026		
	42	Unit quantities (formula only) and numerical problems	31.10.2026		
	43	Unit-IV revision - numerical problems	07.11.2026		
5. Centrifugal & Reciprocating Pumps	44	Centrifugal pump: principle of working and applications	09.11.2026		
	45	Types of casings and impellers	10.11.2026		
	46	Concept of multistage centrifugal pumps; Concept of priming and cavitation in centrifugal pumps	11.11.2026		
	47	Manometric head, work done by centrifugal pump	16.11.2026		
	48	Manometric efficiency, overall efficiency	17.11.2026		
	49	Reciprocating pump: construction, working principle & applications (single acting)	18.11.2026		
	50	Double acting reciprocating pump: construction & working	21.11.2026		
	51	Concept of slip and negative slip	23.11.2026		
	52	Cavitation and separation in reciprocating pumps	25.11.2026		
	53	Revision - Unit-V / doubt clearing session	28.11.2026		

Home Assignments

Ass. No	Contents of Syllabus Covered	Proposed date	Actual Date	Remarks
1	Unit-I & Unit-II	03.09.2026		
2	Unit-III & Unit-IV	21.10.2026		

Class / House Test

Name of Test	Syllabus Covered in Tests (Unit/Chapter wise)	Proposed date	Actual Date	Remarks
Class Test-I	Unit-I & most of Unit-II	09.09.2026 (2nd week of September)		
Class Test-II	Remaining of Unit-II & III	13.10.2026 (2nd week of October)		
House Test	Unit-I to Unit-IV	As per HPTSB Academic Calendar		

Signature of Course Teacher with Name
Approved by

OIC/HoD/Principal

Govt. Polytechnic Hamirpur (H.P)

PLANNED SYLLABUS COVRAGE Department: Mechanical Engineering Subject – Advance Manufacturing Processes Course - Diploma Duration – 3 Years SYLLABUS COVERAGE Total Periods -56 Theory –56 hours						
Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-14	Jigs & Fixtures	Definition of jig; Types of jigs: Leaf jig, Box and Handle jig, Template jig, Plate jig, Indexing jig, Universal jig, Vice jigs; General consideration in the design of drill jigs; Drill bush; Types of fixtures: Vice fixtures, Milling fixtures, Boring fixtures, Grinding fixtures; Basic principles of location; Locating methods and devices; Basic principles of the clamping; Types of clamps: Strap clamps, Cam clamps, Screw clamps, Toggle clamps, Hydraulic and Pneumatic clamps.	Production Technology, Tata Mc-Graw Hill	Production Technology, Tata Mc-Graw Hil	
2.	15-23	Plastic Processing	Processing of plastics; Moulding processes: Injection moulding, Compression moulding, transfer moulding; Extruding; Casting; Fabrication methods-Sheet forming, Blow moulding, Laminating plastics(sheets, rods & tubes),Reinforcing; Applications of Plastics.	Advance d manufact uring technolo gy– David L. Goetsch		
3	24-34	Modern Machining Processes	Principle, Description and applications of Ultrasonic Machining, Electric Discharge Machining, Wire cut EDM, Abrasive Jet Machining, Laser Beam Machining, Electro Chemical Machining.	Non conventi onal Machinin g–P.K. Mistra		

SYLLABUS COVERAGE		Total Periods:56		Theory:56		
Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remark
4	35-45	CNC Milling Machines	Vertical and horizontal machining center: Constructional features, Axis identification, Electronic control system. Automatic tool changer and to magazine. CNC programming: Preparatory functions (G code) , miscellaneous functions (M code), Part programming.	CNC machines– Pabla B.S. & M. Adithan.	Exploring Advanced Manufacturing Technologies– Stephen F.Krar & Arthur Gil	
5	46-56	Special Purpose Machines (SPM):	Concept, General elements of SPM, Productivity improvement by SPM, Principles of SPM design. Maintenance of Machine Tools: Types of maintenance, Repair cycle analysis, Repair complexity, Maintenance manual, Maintenance records, Housekeeping. Introduction to Total Productive Maintenance (TPM)	Manufacturing Technologies– Stephen F.Krar & Arthur Gil		

APPROVED	SIGN HOD
DATE :- 01/08/2026	

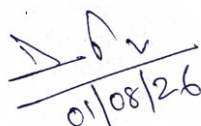
Lecture Planning**Branch:** Mechanical Engineering (5th Sem.)**Session:** Aug. - Nov. 2026**Teacher:** Er. Dinesh Kumar Patial,**Subject:** Theory of Machines & Mechanisms

Sr. No.	Dates	Chapter/ Unit Description	Detail of Contents	Reference Resources
1.	07 Aug. to 25 Aug. 26 (12 Hrs)	UNIT-I Cams and Followers	Concept; Definition and application of Cams and Followers; Classification of Cams and Followers; Different follower motions and their displacement diagrams like uniform velocity, SHM, uniform acceleration and Retardation; Drawing of profile of radial cam with knife-edge and roller follower without offset for reciprocating motion (graphical method for uniform velocity and SHM only).	R1,R2,
2.	26 Aug. to 18 Sep. 26 (15 Hrs)	Unit-II Power Transmission	Types of Drives: Belt Drives - flat belt, V- belt & its applications; Material for flat and V-belt; Angle of lap, Belt length. Slip and Creep; Determination of Velocity Ratio, Ratio of tight side and slack side tension; Centrifugal tension and Initial tension; Condition for maximum power transmission (Formula without proof) (Simple numerical); Chain Drives– Advantages & Disadvantages; Gear Drives – Spur gear terminology; Types of gears and gear trains; Train value & Velocity ratio for simple and compound gear train.	R2,R3
3.	19 Sep. to 12 Oct. 26 (15 Hrs)	Unit –V Flywheel and Governors	Flywheel - Concept, function and application of flywheel with the help of turning moment diagram for single cylinder 4-Stroke I.C. Engine; Co-efficient of fluctuation of energy, Coefficient of fluctuation of speed and its significance; Governors-Types and explanation with neat sketches (Centrifugal, Watt and Porter); Concept, function & Terminology of Governors; Comparison between Flywheel and Governor.	R1,R3,
4.	13 Oct. to 04 Nov. 25 (15 Hrs)	Unit-IV: Brakes, Clutches & Bearings	Function of brakes; Types of brakes; Comparison between brakes and dynamometers; Construction and working of i) shoe brake, ii) Band Brake, iii) Disc Brake; Concept of Self Locking & Self energizing brakes; Clutches- Function of Clutch and its application; Construction and working of i) Single plate clutch, ii) Multi plate clutch, iii) Centrifugal Clutch and iv) Cone clutch; Bearings – i) Simple Pivot, ii) Collar Bearing, iii) Conical pivot.	R1,R3,
5.	06 Nov. to 28 Nov. 26 (12 Hrs)	Unit-V: Balancing & Vibrations	Concept of balancing; Balancing of single rotating mass; Graphical method for balancing of several masses revolving in same plane; Vibrations, its type and concept of damping ; Causes of vibrations in machines; their harmful effects and remedies.	R1,R2,

R1.- Theory of machines–S.S.Rattan, Tata McGraw-Hill publications.

R2.- Theory of machines–R.K. Bansal, Laxmi publications

R3 - Theory of machines–R.S. Khurmi & J.K.Gupta, S.Chand publications.



Signature of Teacher with Date



Signature of H.O.D.



Government Polytechnic Hamirpur
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

Name of Faculty	Mohan Lal	Academic Session	August – November 2026
Course Name	Fluid Mechanics & Hydraulic Machinery Lab	Scheme	N-2022
Course Code	MEPC309	Semester	5th
Course Type	Program Core Course	Semester Start Date	01-08-2026
L-T-P	0-0-2 (L:0, P:2)	Semester End Date	28-11-2026

STUDY AND EVALUATION SCHEME

Teaching Hours/Week		Internal Assessment		External Assessment				Total		Credit
Theory	Practical	Theory	Practical	Theory	Hrs.	Practical	Hrs.	Theory	Practical	
NA	02 Hrs.	NA	40	NA	NA	60	03 Hrs.	NA	100	01

COURSE OUTCOMES (COs)

On successful completion of this course, students will be able to:-

CO1	Measure various properties such as pressure, velocity and flow rate using various instruments.
CO2	Calculate different parameters such as coefficient of friction, power, efficiency etc. of various systems.
CO3	Understand the need and importance of calibration of pressure gauges.
CO4	Describe the construction and working of turbines and pumps.
CO5	Understand the concept of turbines and pumps.

Recommended Books

1	Fluid Mechanics and Machinery Laboratory Manual – N. Kumara Swamy, Charotar Publishing House Pvt. Ltd., Anand – 388001, Ed. 2008
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Practical Performing Plan

No. of Lab. Classes Planned	Practical to be perform/conduct	Proposed date (as per time table)		Actual Date		Remarks
		G-I	G-II	G-I	G-II	
1	Measurement of pressure head by employing: i) Piezometer tube ii) U-tube manometer iii) Differential U-tube manometer	06.08.2026	10.08.2026			
2	Verification of Bernoulli's theorem	13.08.2026	17.08.2026			
3	Determination of Coefficient of Discharge of Venturimeter	20.08.2026	24.08.2026			
4	Determination of Coefficient of Discharge, coefficient of contraction and coefficient of velocity of Orifice meter	03.09.2026	07.09.2026			
5	Determination of coefficient of friction of flow through pipes	10.09.2026	21.09.2026			
6	Determination of minor losses of flow through pipes	17.09.2026	28.09.2026			
7	Calibration of pressure gauge using dead weight pressure gauge tester	24.09.2026	05.10.2026			
8	Conduct performance test on centrifugal pump	08.10.2026	12.10.2026			
9	Study of a single acting reciprocating pump	22.10.2026	16.11.2026			
10	Study of Pelton wheel and Francis/Kaplan turbine with the help of models	19.11.2026	23.11.2026			

Signature of Course Teacher with Name
Approved by

OIC/HoD/Principal

Govt. Polytechnic Hamirpur (H.P.)

Lesson Planning (Practical)

Branch : Mechanical Engineering

Semester: 5th

Subject : Automotive Lab

Session: Aug – Dec 2026

Teacher: Er. Vikas Thakur

Sr. No.	Week	Detail of Contents	Remarks
1	1-4	• Study of different types of clutches and adjust the clutch pedal play. • Study of front axle, rear axle and differential of an automobile.	
2	5-6	• Study of different types of gear box. • Study of steering system of the automobile.	
3	7-8	• Study of hydraulic brake system of an automobile, bleeding of hydraulic brakes	
4	9-12	• Procedure of rotation of wheels, balancing of wheels and alignment of wheels. • Study of drive train of Electric Vehicles and its various parts	
5	14-16	• Spark plug cleaning and gap setting. • Driving practice on four wheelers one hour/student in the semester.	

Signature of Teacher with Date 1.5.26

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : Mechanical Engineering

Semester: 5th

Subject : Vehicular Systems

Session: Aug – Dec 2026

Teacher: Er. Vikas Thakur

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	10	Unit-1: Introduction	- Types of automobiles, different layouts of vehicle, chassis, frame and body - Spark Ignition (SI) & Compression Ignition (CI) engines.	R1& R2	
2	14	Unit- 2 Automotive Engine Parts	- Automotive Engine Parts Cylinder – arrangements and their relatives merits, Liners, Piston, connecting rod, crankshaft, valves - valve actuating mechanisms.	R1& R2	
3	10	Unit- 3 Transmission Systems	- Transmission Systems Clutch-types and construction of single plate clutch, propeller shaft, slip joints - universal joints, Differential, and rear axle.	R1& R2	
4	12	Unit- 4 Brakes and Suspension Systems	- Brakes and Suspension Systems Requirements, leaf spring, coil spring. - Types of brakes, mechanical and hydraulic braking systems, brake shoe arrangements, Disk brakes, drum brakes, Antilock – Braking systems - purpose and operation of antilock-braking system.	R1& R2	
5	10	Unit- 5 Safety and Comfort Systems	- Safety and Comfort Systems Passive Safety Systems – Airbags, Seatbelts, Crumple Zones, Active Safety Systems – - Automatic Driver Assist Systems (ADAS), Antilock Braking System, Reverse parking system, Anti-collision system, Traction control system, Comfort Systems – Cruise control system, Heating, ventilation and Air-conditioning system (HVAC), - Autonomous Driving Cars – Level of Driving Automation.(Basic definitions and functions only)	R1& R2	

REFERENCE RESOURCES

R1 Automobile Engineering-R. B. Gupta, Satya Prakashan.

R2 Automobile Engineering-Kirpal Singh. Vol I and II.

Signature of Teacher with Date

Signature of H.O.D.