

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBILE ENGG

Semester: VI

Subject: EDM

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 3 PERIODS

WEEK	THEORY	
	LECTURE NOS	TOPIC
1 ST	1	UNIT-1. Introduction to EDM
	2	Concept /Meaning and its need
	3	Qualities and functions of entrepreneur and barriers in entrepreneurship
2 ND	4	Sole proprietorship and partnership forms of business organisations
	5	Schemes of assistance by entrepreneurial support agencies at National, State
	6	District level: NSIC, NRDC, DC:MSME, SIDBI
3 RD	7	NABARD, Commercial Banks
	8	SFC's TCO, KVIB, DIC, Technology Business Incubator (TBI)
	9	Science and Technology Entrepreneur Parks (STEP).
4 TH	10	CLASS TEST
	11	UNIT-2. Market Survey and Opportunity Identification
	12	Scanning of business environment
5 TH	13	Salient features of National and State industrial policies and resultant business opportunities
	14	Types and conduct of market survey
	15	Assessment of demand and supply in potential areas of growth
6 TH	16	Identifying business opportunity
	17	Considerations in product selection
	18	CLASS TEST
7 TH	19	UNIT-3. Project report Preparation
	20	Preliminary project report

	21	Detailed project report including technical, economic and market feasibility
8 TH	22	Common errors in project report preparations
	23	Exercises on preparation of project report
	24	UNIT-4. Introduction to Management
9 TH	25	Definitions and importance of management Functions of management: Importance and Process of planning, organising, staffing, directing and controlling
	26	Principles of management (Henri Fayol, F.W. Taylor) Concept and structure of an organisation
	27	Types of industrial organizations: Line organization, Line and staff organization, Functional Organisation
10 TH	28	UNIT-5: Leadership and Motivation Leadership: Definition and Need
	29	Qualities and functions of a leader
	30	Manager Vs leader
11 TH	31	Types of leadership
	32	Motivation: Definitions and characteristics
	33	Factors affecting motivation
12 TH	34	Theories of motivation (Maslow, Herzberg, McGregor)
	35	UNIT-6: Management Scope in Different Areas Human Resource Management : Introduction and objective, Introduction to Man power planning, recruitment and selection Introduction to performance appraisal methods
	36	Material and Store Management: Introduction functions, and objectives,
13 TH	37	ABC Analysis and EOQ
	38	Marketing and sales: Introduction, importance, and its functions
	39	Physical distribution, Introduction to promotion mix, Sales promotion
14 TH	40	Financial Management :Introductions, importance and its functions
	41	Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT
	42	UNIT-7: Miscellaneous Topics Customer Relation Management (CRM), Definition and need,Types of CRM
15 TH	43	Total Quality Management (TQM) :Statistical process control, Total employees Involvement, Just in time (JIT)
	44	Intellectual Property Right (IPR) :Introductions, definition and its importance, Infringement related to patents, copy right, trade mark
	45	CLASS TEST

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBILE ENGG.

Semester: VI

Subject: MOTOR VEHICLE ACT AND TRANSPORT MANAGEMENT

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: THEORY-3 PERIODS

WEEK	THEORY	
	LECTURE NO.	TOPIC
1 ST	1	UNIT 1: Garage location, layout and types, and change work procedure and record Location of garage/selection of site of garage
	2	Layout of garage, Types of garage
	3	Inspection of faulty vehicle, Estimation of repair
2 ND	4	Job control system, Work – order or job card
	5	Testing and test reports, Costing and billing
	6	UNIT 2: Garage stores Definition, Purpose of store keeping, Function of store keeping
3 RD	7	Location of store
	8	Layout of store
	9	Advantage of good store – keeping and recording
4 TH	10	Procurement of store, Prevention of pilferage of store
	11	Bin card, Store organisation
	12	CLASS TEST - I
5 TH	13	UNIT 3: Insurance of vehicle
	14	Meaning and necessity of vehicle insurance
	15	Types of vehicle insurance
6 TH	16	Duties of surveyor
	17	Duties of driver in case of accident and injury to a person
	18	Relation between surveyor and insurance cooperation

7 TH	19	Procedure to get accidental claim and compensation
	20	UNIT 4: Driving And Highway Code Principle of driving, Driving procedure
	21	Driving precautions, Emergency Driving situations
8 TH	22	Driving in abnormal conditions, like hilly area, night, fog, heavy traffic and rain
	23	Driving License - purpose, importance and requirements, Different types of driving license
	24	Procedure to get driving license
9 TH	25	Highway code – types with sketches with colour code
	26	CLASS TEST - II
	27	UNIT 5: Transport Management History of transport with special reference to road transport in India
10 TH	28	Modes of Road transport
	29	Service station and its functions, General layout of modern service station, Spare parts section and dealership service section
	30	Accounts and books, Different types of cards and their use in maintaining service station records
11 TH	31	Structure of fleet organization, State transport - optimum utilization of fleet
	32	Roadworthiness requirement of vehicle
	33	Maintenance of logbook, History sheet,
12 TH	34	Causes, and prevention of Road Accident
	35	Analysis of Accident, Economy of replacement
	36	UNIT 6: Motor Vehicle Act Definitions, Salient features of motor vehicle act
13 TH	37	Licensing of drivers and conductors of motor vehicles
	38	Registration of old and new vehicles, Transfer of vehicle – local and state to state
	39	Traffic offences, penalties procedure, Imposition of penalties of violation of rules
14 TH	40	Fitness of vehicle – meaning and purpose, provision in the act
	41	Vehicle permit – different types
	42	Different documents required for registration of vehicle
15 TH	43	Different documents required for transfer of vehicle
	44	Different documents required for driving license
	45	CLASS TEST - III

LESSON PLAN

Name of Faculty: VIJAY SINGH

Discipline: AUTOMOBILE ENGINEERING

Semester: VI

Subject: TRACTOR AND SPECIAL PURPOSE VEHICLES

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: THEORY-3

WEEK	THEORY	
1 ST	LECTURE NO.	TOPIC
	1	UNIT 1: Tractors Classification of tractors
	2	Main tractor assemblies, types of engine used
	3	Human factor in tractor design
2 ND	4	Basics trends in tractor design
	5	Applications of tractors
	6	Forces acting on a tractor on move, parallel pull and rolling resistance
3 RD	7	Tractor stability, weight performance
	8	UNIT 2: Tractor Chassis: Types of clutch used in tractors
	9	Transmission system layout
4 TH	10	Final drive, reduction gear
	11	Tractor brake system
	12	Operator seat design
5 TH	13	CLASS TEST – I

	14	UNIT 3. Supplementary System Power take off shaft
	15	Draw bar working
6TH	16	Double clutch system
	17	Belt pulley drive
	18	Three point linkages
7TH	19	Traction control unit
	20	UNIT 4: Tractor Wheels and Tyres Salient features of wheels and tyres
	21	Wheel base/wheel tracks, height of frame, ground clearance
8TH	22	Specifications of wheels and tyres
	23	Dual versus tandem tyres
	24	Tread design
9TH	25	Effect of tyre inflation
	26	Differential lock
	27	CLASS TEST – II
10TH	28	UNIT 5: Hydraulic system Functions of hydraulic system
	29	Hydraulic system layout
	30	Various components of hydraulic system and their functions
11TH	31	Methods of attaching implements
	32	Various control systems – depth control, position control
	33	Draft control system – manual
12TH	34	Draft control system – automatic, combination control

	35	Working of hydraulic control levers
	36	Other uses of hydraulic control system
13TH	37	UNIT 6: Special purpose vehicle Description and working principle of Bull Dozer
	38	Description and working principle of Front end loader
	39	Description and working principle of Cranes
14TH	40	Description and working principle of Fire station vehicle
	41	UNIT 7: Repair and Maintenance Faults and their rectification in tractor
	42	Maintenance of tractor
15TH	43	Selection criteria of a tractor
	44	Prominent makes of Indian tractors
	45	CLASS TEST – III

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBIL ENGINEERING

Semester: VI

Subject: INDUSTRIAL ENGINEERING

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 4 periods

WEEK	THEORY	
1 ^T	LECTURE NO.	TOPIC
1 ^T	1	UNIT 1: Productivity
	2	Introduction to productivity, factors affecting productivity,
	3	Measurement of productivity
	4	Causes of low productivity
2 ND	5	Methods to improve productivity
	6	Revision, Checking of class work and home assignment
	7	UNIT 2: Work Study: Definition and scope of work study;
3 RD	8	Method study and work measurement;
	9	Human aspects of work study
	10	Role of work study in improving productivity
	11	Revision, Checking of class work and home assignment
4 TH	12	CLASS TEST – I
	13	UNIT 3: Objectives of Method Analysis
	14	Procedure for Method analysis
	15	Information collection
5 TH	16	Recording techniques.
	17	CLASS TEST – 2
	18	UNIT 4 :Motion Analysis
	19	Principles of Motion analysis;
6 TH	20	Therbligs and SIMO charts;
	21	Normal work area and design of work places.
	22	Ergonomics
	23	Revision, Checking of class work and home assignment
7 TH	24	UNIT 5 : Work measurement
	25	Objectives; work measurement techniques,
	26	Stop watch, time study; principle

	27	Equipment used and procedure;
	28	Systems of performance rating;
8TH	29	Calculation of basic times;
	30	Various allowances
	31	Calculation of standard time,
	32	Work sampling,
	33	Data and its usage.
9TH	34	Revision, Checking of class work and home assignment
	35	CLASS TEST – 3
	36	UNIT 6 : Wages and Incentive Schemes
	37	Introduction to wages,
10TH	38	Wage payment for direct and indirect labour,
	39	Wage payment plans and incentives,
	40	Various incentive plans,
	41	Incentives for indirect labour.
11TH	42	Incentives for indirect labour continued
	43	Revision, Checking of class work and home assignment
	44	UNIT 7 : Production Planning and Control
	45	Introduction,
12TH	46	Objectives and components (functions) of P.P.C,
	47	Objectives and components (functions) of P.P.C. contd..
	48	Advantages of production planning Production Control,
	49	Advantages of production planning Production Control contd..
13TH	50	Stages of P.P.C,
	51	Stages of P.P.C. contd..
	52	Process planning,
	53	Routing,
14TH	54	Scheduling,
	55	Dispatching and follow up,
	56	Routing purpose,
	57	Route Sheets
15TH	58	Revision, Checking of class work and home assignment
	59	Revision, Checking of class work and home assignment
	60	Class test - 4

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBILE ENGINEERING

Semester: VI

Subject: EMPLOYABILITY SKILLS - II

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 2

WEEK	PRACTICAL	
	PRACTICAL DAY	TOPIC
1 ST	1	Mock Interview concept, benefits
2 nd	2	How to face interview
3 RD	3	Holding Mock interview
4 TH	4	Preparing for meeting, agenda preparation
5 TH	5	Holding meeting, preparing minute of meeting
6 TH	6	Group discussion – concept, types of group discussion
7 TH	7	Preparation for group discussion, Taking turns
8 TH	8	Holding group discussion
9 TH	9	Seminar preparation
10 TH	10	Holding seminars
11 TH	11	Presentation : Elements of good presentation
12 TH	12	Structure and tools of presentation
13 TH	13	Paper reading
14 TH	14	Power point presentation
15 TH	15	Viva voce and evaluation

LESSON PLAN

Name of Faculty: Sh. Satyawan

Discipline: AUTOMOBILE ENGG.

Semester: VI

Subject: FAULT DIAGNOSIS AND TESTING LAB

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 5 PERIODS (3+2)

WEEK	PRACTICAL	
	PRACTICAL DAY	TOPIC
1 ST	1	Practical 1: Basic electrical checks:- Battery connections, electrical bulbs and units, circuit protection devices and wiring connections (Theory, demonstration, groupwise practice and observation)
	2	Practical 1: Checking of practical file, viva and evaluation
2 ND	3	Practical 2: Testing of battery:- Specific gravity test, high rate discharge test, open circuit voltage test; charging of battery (Theory, demonstration, groupwise practice and observation)
	4	Practical 2: Checking of practical file, viva and evaluation
3 RD	5	Practical 3: Testing and setting of ignition timing, cam angle (Theory, demonstration, groupwise practice and observation)
	6	Practical 3: Checking of practical file, viva and evaluation
4 TH	7	Practical 4: Testing of field winding of alternator and armature of starter motor for open circuit, short circuit and earthing (Theory, demonstration, groupwise practice and observation)
	8	Practical 4: Checking of practical file, viva and evaluation
5 TH	9	Practical 5: Engine testing and finding out fuel consumption (Theory, demonstration, groupwise practice and observation)
	10	Practical 5: Checking of practical file, viva and evaluation
6 TH	11	Practical 6: Diagnosing battery ignition system (Theory, demonstration, groupwise practice and observation)
	12	Practical 6: Checking of practical file, viva and evaluation
7 TH	13	Practical 7: Diagnosing and rectifying high oil consumption (Theory, demonstration, groupwise practice and observation)
	14	Practical 7: Checking of practical file, viva and evaluation
8 TH	15	Practical 8: Diagnosing and rectifying high fuel consumption (Theory, demonstration, groupwise practice and observation)

	16	Practical 8: Checking of practical file, viva and evaluation
9TH	17	Practical 9: Diagnosing and rectifying engine noises and knocks (Theory, demonstration, groupwise practice and observation)
	18	Practical 9: Checking of practical file, viva and evaluation
10TH	19	Practical 10: Diagnosing and rectifying engine starting troubles (Theory, demonstration, groupwise practice and observation)
	20	Practical 10: Checking of practical file, viva and evaluation
11TH	21	Practical 11: Diagnosing and rectifying engine running faults (Theory, demonstration, groupwise practice and observation)
	22	Practical 11: Checking of practical file, viva and evaluation
12TH	23	Practical 12: Diagnosing and rectifying engine overheating (Theory, demonstration, groupwise practice and observation)
	24	Practical 12: Checking of practical file, viva and evaluation
13TH	25	Practical 13: Measuring of bore for wear, ovality and taperness (Theory, demonstration, groupwise practice and observation)
	26	Practical 13: Checking of practical file, viva and evaluation
14TH	27	Practical 14: Inspection of crankshaft - bearing replacement and setting of journal bearings, crank pin bearings and crank shaft bearings, measuring bearing clearances by gauges (Theory, demonstration, groupwise practice and observation)
	28	Practical 14: Checking of practical file, viva and evaluation
15TH	29	Practical 15: Demonstration of body repair techniques (Theory, demonstration, groupwise practice and observation)
	30	Practical 15: Checking of practical file, viva and evaluation

LESSON PLAN

Name of Faculty: MR. PARVEEN MALIK

Discipline: AUTOMOBILE ENGG.

Semester: 6TH

Subject: DRIVING PRACTICE

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: PRACTICAL-5 (3+2)

WEEK	PRACTICAL	
1 ST	PRACTICAL DAY	TOPIC
	1	Driving practice on road to gain proficiency
	2	Driving practice on road to gain proficiency
2 ND	3	Driving practice on road to gain proficiency
	4	Driving practice on road to gain proficiency
3 RD	5	Driving practice on road to gain proficiency
	6	Driving practice on road to gain proficiency
4 TH	7	EVALUATION
	8	EVALUATION
5 TH	9	Maneuver in: Passing, Merging, Diverging,
	10	Maneuver in: Passing, Merging, Diverging,
6 TH	11	Maneuver in: Passing, Merging, Diverging
	12	Maneuver in: Passing, Merging, Diverging
7 TH	13	EVALUATION
	14	EVALUATION

8TH	15	Maneuver in: Overtaking, Crossing, Turning,
	16	Maneuver in: Overtaking, Crossing, Turning,
9TH	17	Maneuver in: Overtaking, Crossing, Turning,
	18	Maneuver in: Overtaking, Crossing, Turning,
10TH	19	EVALUATION
	20	EVALUATION
11TH	21	Maneuver in: Cornering, Reversing and Emergency stopping
	22	Maneuver in: Cornering, Reversing and Emergency stopping
12TH	23	Maneuver in: Cornering, Reversing and Emergency stopping
	24	Maneuver in: Cornering, Reversing and Emergency stopping
13TH	25	EVALUATION
	26	EVALUATION
14TH	27	Driving on gradient
	28	Driving on gradient
15TH	29	Driving during abnormal conditions like rain and fog
	30	EVALUATION

LESSON PLAN

Name of Faculty: Sh. Satyawan

Discipline: AUTOMOBILE ENGG.

Semester: VI

Subject: OVERHAULING LAB

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 5 PERIODS (3+2)

WEEK	PRACTICAL	
	PRACTICAL DAY	TOPIC
1 ST	1	Practical 1: Diagnosing the engine for overhauling (Theory, demonstration, groupwise practice and observation)
	2	Practical 1: Checking of practical file, viva and evaluation
2 ND	3	Practical 2: Removal of engine from vehicle (Theory, demonstration, groupwise practice and observation)
	4	Practical 2: Checking of practical file, viva and evaluation
3 RD	5	Practical 3: Dismantling of engine. (Theory, demonstration, groupwise practice and observation)
	6	Practical 3: Checking of practical file, viva and evaluation
4 TH	7	Practical 4: Overhauling of petrol engine (Theory, demonstration, groupwise practice and observation)
	8	Practical 4: Checking of practical file, viva and evaluation
5 TH	9	Practical 5: Overhauling of diesel engine (Theory, demonstration, groupwise practice and observation)
	10	Practical 5: Checking of practical file, viva and evaluation
6 TH	11	Practical 6: Decarbonising of engine blocks, combustion chamber, piston crown and valve parts (Theory, demonstration, groupwise practice and observation)
	12	Practical 6: Checking of practical file, viva and evaluation
7 TH	13	Practical 7: Surfacing of cylinder heads, cylinder blocks and manifolds on cylinder head refacing machine (Theory, demonstration, groupwise practice and observation)
	14	Practical 7: Checking of practical file, viva and evaluation
8 TH	15	Practical 8: Replacing of piston and piston rings – removal and refitting (Theory, demonstration, groupwise practice and observation, Checking of practical file, viva and evaluation)

	16	Practical 9: Practice on cylinder boring machine (Theory, demonstration, groupwise practice and observation, Checking of practical file, viva and evaluation)
9TH	17	Practical 10: Practice in fitting cylinder liners- sleeving and desleeving. (Theory, demonstration, groupwise practice and observation)
	18	Practical 10: Checking of practical file, viva and evaluation
10TH	19	Practical 11: Testing and aligning of connecting rod (Theory, demonstration, groupwise practice and observation)
	20	Practical 11: Checking of practical file, viva and evaluation
11TH	21	Practical 12: Overhauling of valves and valve mechanism (Theory, demonstration, groupwise practice and observation)
	22	Practical 12: Checking of practical file, viva and evaluation
12TH	23	Practical 13: Overhauling of gear box (Theory, demonstration, groupwise practice and observation)
	24	Practical 13: Checking of practical file, viva and evaluation
13TH	25	Practical 14 Overhauling of differential and propeller shaft (Theory, demonstration, groupwise practice and observation)
	26	Practical 14: Checking of practical file, viva and evaluation
14TH	27	Practical 15: Overhauling of wheels and axles (Theory, demonstration, groupwise practice and observation)
	28	Practical 16: Overhauling of brakes (Theory, demonstration, groupwise practice and observation)
15TH	29	Practical 17: Overhauling of clutch (Theory, demonstration, groupwise practice and observation)
	30	Checking of practical file, viva and evaluation

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBILE ENGG.

Semester: IV

Subject: MATERIALS AND METALLURGY

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 3 PERIODS

Week	THEORY		PRACTICAL	
	Lecture DAY	TOPIC	Practical DAY	TOPIC
1 ST	1	Unit 1: Introduction Material, History of Material Origin, Scope of Material Science	1	Classification of about 25 specimens of materials/machine parts into (i) Metals and non metals (ii) Metals and alloys
	2	Overview of different engineering materials and applications		
	3	Classification of materials		
2 ND	4	Thermal and chemical properties of materials	2	Classification of about 25 specimens of materials/machine parts into (i) Ferrous and non ferrous metals (ii) Ferrous and non ferrous alloys
	5	Electrical and mechanical properties of materials		
	6	Future need of materials, Overview of Biomaterials and semi-conducting materials		
3 RD	7	Various issues of Material Usage - Economical, Environment and Social	3	Given a set of specimen of metals and alloys (copper, brass, aluminium, cast iron, HSS, Gun metal); identify and indicate the various properties possessed by them
	8	Unit 2: Crystallography Fundamentals: Crystal, Unit Cell, Space Lattice		
	9	Arrangement of atoms in Simple Cubic Crystals, BCC, FCC and HCP Crystals, Number of atoms per unit Cell		
4 TH	10	Atomic Packing Factor, Overview of deformation behaviour and its mechanisms	4	Continued...Given a set of specimen of metals and alloys (copper, brass, aluminium, cast iron, HSS, Gun metal); identify and indicate the various properties possessed by them
	11	Behaviour of material under load and stress-strain.		
	12	Failure Mechanisms: Overview of failure modes, fracture, fatigue and creep		
5 TH	13	CLASS TEST 1	5	Study of heat treatment furnace
	14	Unit 3: Metals And Alloys Introduction: History and development of iron and steel, Different iron ores		
	15	Raw Materials in Production of Iron and Steel, Basic Process of iron-making and steel-making		

6 TH	16	Classification of iron and steel	6	Study of a metallurgical microscope and a specimen polishing machine
	17	Cast Iron: Different types of Cast Iron, manufacture and their usage		
	18	Cast Iron manufacture and their usage		
7 TH	19	Steels: Steels and alloy steel, Classification of plain carbon steels	7	To prepare specimens of following materials for microscopic examination and to Examine the microstructure of the specimens of (i) Brass (ii) Copper
	20	Availability, Properties and usage of different types of Plain Carbon Steels		
	21	Effect of various alloys on properties of steel		
8 TH	22	Uses of alloy steels (high speed steel, stainless steel, spring steel, silicon steel)	8	To prepare specimens of following materials for microscopic examination and to Examine their microstructure (iii) Grey (iv) Malleable (v)Low carbon steel (vi)High carbon steel (vii) HSS
	23	Non Ferrous Materials: Properties and uses of Light Metals and their alloys		
	24	Properties and uses of White Metals and their alloys.		
9 TH	25	CLASS TEST 2	9	To measure hardness of a given specimen and anneal it.
	26	Unit 4: Theory of Heat Treatment Purpose of heat treatment, Solid solutions and its types		
	27	Iron Carbon diagram,		
10 TH	28	Formation and decomposition of Austenite	10	To find out the difference in hardness as a result of annealing
	29	Martensitic Transformation – Simplified Transformation, Cooling Curves		
	30	Various heat treatment processes - hardening and tempering,		
11 TH	31	Various heat treatment processes - annealing and normalizing	11	To measure hardness of a given specimen and normalize it.
	32	Various heat treatment processes - Case hardening and surface hardening		
	33	Types of heat treatment furnaces		
12 TH	34	Unit 5: Engineering Plastics Important sources of plastics, Classification	12	To find out the difference in hardness as a result of normalizing
	35	Thermoplastic and thermo set; their uses		
	36	Various Trade names of engineering Plastics, Plastic Coatings		
13 TH	37	Unit 6: Advanced Materials Composites-Classification, properties and applications	13	To measure hardness of a given specimen and harden & temper it.
	38	Ceramics-Classification, properties and applications		
	39	Heat insulating materials		
14 TH	40	Unit 7: Miscellaneous Materials Properties and uses of Asbestos and Glass wool	14	To find out the difference in hardness as a result of hardening and tempering
	41	Properties and uses of thermocole, cork, mica		
	42	Overview of tool and die materials, Materials for bearing metals		
15 TH	43	Spring materials, Materials for Nuclear Energy	15	Viva voce and final evaluation
	44	Refractory materials		
	45	CLASS TEST 3		

LESSON PLAN

Name of Faculty: GUEST FACULTY

Discipline: AUTOMOBILE ENGG.

Semester: IV

Subject: MECHANICS OF VEHICLES

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 4 PERIODS

WEEK	THEORY	
	LECTURE NO.	TOPIC
1 ST	1	UNIT 1: Simple Mechanism Definition of link, kinematic pair
	2	Kinematic chain, Mechanism
	3	Inversions and machines.
	4	Simple examples of mechanism with Lower pairs, Higher pairs
2 ND	5	Simple examples of mechanism with Four bar chain
	6	Simple examples of mechanism with Slider crank chain
	7	Simple examples of mechanism with Double slider crank chain
	8	UNIT 2: Motion and Turning Moment Displacement, velocity and acceleration of piston
3 RD	9	Angular velocity and angular acceleration of connecting rod
	10	Calculations of piston effort and crank effort at different angles
	11	Fly wheel - its types, weight and moment of inertia
	12	Fluctuation of energy for fly wheel
4 TH	13	Turning moment diagrams with reference to internal combustion engines.
	14	Analysis of Hooke's Joint.
	15	CLASS TEST 1
	16	UNIT 3: Power Transmission Flat belt, V-belt and chain drives
5 TH	17	Ratio of tension of two sides of the belt with and without centrifugal tension
	18	Horse power transmitted and condition for maximum horse power transmitted
	19	Velocity ratios transmitted by Belts
	20	Simple and compound gear boxes
6 TH	21	Epicyclic gear box.
	22	UNIT 4: Vehicle in Motion - Air, grade, and rolling resistances
	23	Tractive effort, traction,
	24	Inertia load, Draw bar pull
7 TH	25	Power required to proper a vehicle

	26	Calculations of acceleration and tractive effort required in case of front wheel drive
	27	Calculations of acceleration and tractive effort required in case of rear wheel drive and four wheel drive
	28	Centrifugal force and its effect on vehicle stability on banked road.
8 TH	29	Centrifugal force and its effect on vehicle stability on unbanked road.
	30	UNIT 5: Vehicle Control Braking friction and limits of braking
	31	Retardation and Braking force, calculations in case of front wheel,
	32	Retardation and Braking force, calculations in case of rear wheel and all wheel braking.
9 TH	33	Weight transfer during braking
	34	Stopping distance and stopping time
	35	Davis and Ackermann Steering Mechanism
	36	Correct Steering angle
10 TH	37	Class test 2
	38	Unit 6: Balancing Concepts of static and dynamic balancing,
	39	working of static balancing machine.
	40	working of dynamic balancing machine.
11 TH	41	Balancing of rotating masses-single rotating mass by a single mass rotating in the same plane
	42	Balancing of rotating masses by two masses rotating in different planes
	43	Numerical problems, Allot home assignment
	44	balancing of several masses rotating in the same plane
12 TH	45	Balancing of several masses rotating in different planes.
	46	Numerical problems
	47	Checking home assignment
	48	Class test
13 TH	49	Unit 7: Vibration Introduction, Types of vibrating motion,
	50	Types of free vibrations
	51	Natural Frequency of Free longitudinal Vibrations
	52	Natural frequency of free, Transverse vibrations
14 TH	53	Numerical problems, Home assignment
	54	Causes of vibration in rotating bodies
	55	damping of vibrations
	56	Free damped vibrations (Vacuum Damping)
15 TH	57	Checking of home assignment
	58	Checking of class work
	59	Revision of syllabus, problem solving
	60	Class test 3

LESSON PLAN

Name of Faculty: Mr. Jogesh Dahiya (THEORY+PRACTICAL)

Discipline: Automobile engineering

Semester: 4th

Subject: Auto Engine-I

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: Lecture-04, Practical -04

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1 ST	1	UNIT-1.Introduction of Engine	1	Servicing of lubricating system
	2	Engine as a power source		
	3	Concept of internal combustion engine		
	4	Engine dimensions: Bore, stroke, dead centers, compression ratio		
2 ND	5	clearance volume, engine capacity,	2	Servicing of fuel systems in petrol engines
	6	engine torque engine power shaft		
	7	Classification of engines as per stroke, cycle, fuel, ignition, cooling number		
	8	Class test		
3 RD	9	Arrangement of cylinders, reciprocating and rotary	3	Servicing of fuel injector
	10	Concept of 2 stroke and 4 stroke engines And their comparison.		
	11	Working principles of petrol and diesel engines		
	12	Class test		
4 TH	13	UNIT-2.Constructional details Constructional details of cylinder block	4	Viva
	14	cylinder head		
	15	cylinder liner piston		
	16	Class test		
5 TH	17	piston rings,gudgeon pin	5	Servicing of F.I.P (Fuel Injection Pump)
	18	connecting rod, crankshaft		
	19	camshaft		
	20	valve mechanisms		
6 TH	21	flywheel and damper	6	Engine tune up
	22	Class test		
	23	EVALUATION		
	24	UNIT-3.Fuel System Fuel system in spark ignition engine: Fuel feed system		
7 TH	25	fuel pumps-its types	7	Viva
	26	fuel tank, fuel lines		

	27	fuel filters		
	28	Concept of carburetion. Working and construction of a simple carburetor		
8TH	29	Advantages of using fuel injection system in spark ignition engines	8	Study of turbocharger
	30	Concept of MPFI system		
	31	Constructional details of an MPFI system		
	32	Class test		
9TH	33	Dry and wet air cleaners	9	Servicing of cooling system
	34	Concept VVT technology		
	35	UNIT-4.Ignition System in S.I. Engine Concept of ignition system		
	36	battery and magneto types of ignition systems		
10TH	37	Function of ignition coil	10	Viva
	38	condenser		
	39	contact breaker point		
	40	Distributors		
11TH	41	spark plugs	11	Study of engine block
	42	Distribution less ignition system.		
	43	Electronic ignition system		
	44	Class test		
12TH	45	UNIT-5.Cooling System Necessity of cooling system	12	Servicing of fuel system in diesel engine
	46	Air cooling		
	47	Water cooling system		
	48	Components of water cooling system- Radiators		
13TH	49	thermostat	13	Viva
	50	water pump		
	51	fan, pressure cap ,water jackets		
	52	Antifreeze solution. Trouble shooting		
14TH	53	Class test	14	Study of M.P.F.I engine
	54	UNIT-6.Lubrication System Necessity of lubrication system, pressure lubrication system		
	55	Splash lubrication. Components of lubrication system-oil pump		
	56	oil lines, oil filters, oil coolers		
15TH	57	classification and service ratings of lubricating oil	15	Viva
	58	additives for lubricants		
	59	Class test		
	60	EVALUATION		

LESSON PLAN

Name of Faculty: Sh. Satyawan (4th B Theory); Sh. Parveen Malik (4th A Theory); General Workshop (Practical)

Discipline: AUTOMOBILE ENGG.

Semester: IV

Subject: MANUFACTURING TECHNOLOGY - II

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 4 PERIODS

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1 ST	1	UNIT I: Drilling and Boring Introduction, Types of drills	1	To be provided by Workshop Supdt.
	2	Types of drilling machines i.e. portable, bench type, pillar and radial,		
	3	drilling speeds and feeds, drill chucks and other accessories (jigs etc.) used in drilling machines		
	4	reaming, introduction to boring,		
2 ND	5	types of boring machines – horizontal and vertical, specifications,	2	
	6	boring bar and boring heads		
	7	Revision and copy checking classwork and home assignment		
	8	UNIT II: Machining Processes Types of milling machines		
3 RD	9	milling machines operations	3	
	10	speeds and feeds,		
	11	indexing (simple and compound)		
	12	types of milling cutters		
4 TH	13	Planning machines types	4	
	14	Planning machine operations		
	15	Grinding principle		
	16	cylindrical, centreless grinding		
5 TH	17	surface grinding machines	5	
	18	types of grinding wheels		
	19	grinding wheel specifications, grades and their selection		
	20	balancing of grinding wheels and their storage		
6 TH	21	CLASS TEST 1	6	

	22	UNIT III: Finishing Operations Lapping and its applications		
	23	Honing and its applications		
	24	Super finishing operation and its applications		
7TH	25	Types of abrasives used and their selection	7	
	26	Revision and copy checking classwork and home assignment		
	27	UNIT III: Gear Production Gear cutting		
	28	Gear shaving machines		
8TH	29	gear cutters and coolants	8	
	30	Revision and copy checking classwork and home assignment		
	31	UNIT IV: CNC Machines Introduction to CNC		
	32	CNC control systems		
9TH	33	Advantages of CNC	9	
	34	productivity, accuracy and cost		
	35	Revision and copy checking classwork and home assignment		
	36	CLASS TEST 2		
10TH	37	UNIT V: Bending and Forming Description of press brakes	10	
	38	bending dies,		
	39	forming machines		
	40	Revision and copy checking classwork and home assignment		
11TH	41	UNIT VI: Welding Introduction,	11	
	42	types of welding		
	43	gas welding		
	44	arc welding		
12TH	45	arc welding continued	12	
	46	resistance welding		
	47	butt welding, flash welding		
	48	projection, seam and spot welding		
13TH	49	Selection of electrodes	13	
	50	filter metals		
	51	types of welding defects and their remedies,		
	52	Soldering process and applications		
14TH	53	Brazing process and applications	14	
	54	Special welding processes for stainless steel and aluminium		
	55	Revision and copy checking classwork and home assignment		

	56	UNIT VI: Types of Coolants for various machining processes		
15TH	57	Types of Lubricants for various machining processes	15	
	58	Revision and copy checking classwork and home assignment		
	59	CLASS TEST 3		
	60	EVALUATION		

LESSON PLAN

Name of Faculty: Sh. S.L. Gupta

Discipline: AUTOMOBILE ENGINEERING

Semester: IV

Subject: CHASSIS, BODY AND TRANSMISSION

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 4 PERIODS

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1 ST	1	UNIT 1: CHASSIS AND BODY Classification of vehicles	1	Study and sketches of Light vehicle chassis.
	2	Types of chassis, layout of conventional type of chassis		
	3	function and arrangement of major assemblies		
	4	Alternate arrangement used such as engine position, drive types, their merits and demerits		
2 ND	5	Types of frame, materials of frame	2	Study and sketches of Heavy vehicle chassis.
	6	Types of body		
	7	Cross members, brackets, body streamlining		
	8	Body upholstery		
3 RD	9	UNIT 2: CLUTCH Necessity of clutch,	3	Identify and servicing of single plate clutch
	10	Requirements of a good clutch		
	11	Types of clutch		
	12	Construction, principle and working of single plate clutch		
4 TH	13	Construction, principle and working of multi plate clutch	4	Identify and servicing of multi plate clutch
	14	Hydraulic power assisted clutch; wet and dry plate clutch		
	15	Clutch plate construction, clutch lining material		
	16	Construction, principle and working of centrifugal clutch		
5 TH	17	Construction, principle and working of semi centrifugal clutch	5	Study and sketch of centrifugal clutch
	18	Construction, principle and working of fluid coupling		
	19	CLASS TEST – I		

	20	UNIT 3: TRANSMISSION Necessity and function of transmission, types of manual transmission		
6TH	21	Construction and working of sliding mesh gear box	6	Servicing and overhauling of sliding mesh gear box
	22	Construction and working of constant mesh gear box,		
	23	Construction and working of synchromesh gear box		
	24	description and operation of transfer gear box		
7TH	25	Types of automatic transmission and their main components	7	Servicing and overhauling of constant mesh gear box
	26	Epicyclic gear box – construction, working, overdrive		
	27	Determination of speed ratio in Epicyclic gear box		
	28	Necessity, construction and working of over running clutch		
8TH	29	Torque converter – construction, principle of working	8	Servicing and overhauling of synchromesh gear box
	30	Continuously variable transmission (CVT)		
	31	Automated Manual Transmission (AMT)		
	32	Common faults and their remedies		
9TH	33	UNIT 4: FINAL DRIVE Propeller shaft – function, construction details	9	Servicing of universal joints, slip joint
	34	Universal joints - functions and types		
	35	Final drive: Hotchkiss drive		
	36	Final drive: Torque tube drive		
10TH	37	Differential – principle, functions and its working	10	Servicing of propeller shaft
	38	Rear axles – semi floating, three quarter floating, fully floating		
	39	Common faults and their remedies		
	40	CLASS TEST - 2		
11TH	41	UNIT 5: FRONT AXLE Types – Stub double drop, fully dropped	11	Servicing of differential, adjustment of crown and pinion backlash
	42	Load distribution in front axle		
	43	Effect of braking on axle shape, steering head		
	44	Elliot and reverse Elliot stub axle		
12TH	45	Steering knuckle	12	Study of wheel alignment machine
	46	UNIT 6: STEERING Function, Steering mechanism		
	47	Davis and Ackerman's Principle of steering		
	48	Working and constructional details of steering gear boxes - I		
13TH	49	Working and constructional details of steering gear boxes - II	13	Checking and adjustment of steering geometry, camber, caster, Toe-in, Toe-out, kingpin inclination.
	50	Steering linkages, sector arm, center arm, drag link and tie rod steering stops		
	51	Front wheel geometry-caster, camber, steering axis inclination, toe in and toe out		
	52	Cornering force, cornering power and self-righting torque		

14TH	53	Over steering and under steering	14	Study of live axles
	54	Power steering – necessity, types		
	55	Construction features and working of hydraulic power steering – Integral type		
	56	Construction features and working of hydraulic power steering – Semi-integral type		
15TH	57	Construction features and working of electronic power steering system	15	Final viva voce and evaluation
	58	Common steering systems troubles and remedies		
	59	Brief revision of the subject		
	60	CLASS TEST - 3		

LESSON PLAN

Name of Faculty: Guest faculty

Discipline: Automobile Engineering

Semester: 4th

Subject: CAD Lab

Lesson plan Duration: 15 WEEKS

Work Load (Lecture/Practical) per week: 3 PERIODS

WEEK	PRACTICAL	
	PRACTICAL DAY	TOPIC
1 ST	1	Introduction to AutoCAD : Starting up, practice on – how to create a new drawing file, setting drawing limits & saving a file
2 ND	2	Drawing lines in different ways using absolute co-ordinates, user co-ordinates, WCS, UCS, drawing circles, drawing arcs, drawing ellipses. Drawing polygons, drawings splines, Drawing polylines, using window, zoom commands
3 RD	3	Practice on Edit commands such as erase, copy, mirror, array, offset, rotate, oops, undo, redo, scale, stretch command
4 TH	4	Practice on trim, break, extend, chamfer, fillet, O snap command; Draw orthographic views of simple objects
5 TH	5	Practice on Text commands: editing text, text size, text styles, change properties commands
6 TH	6	Practice on Layer Commands: creating layer, freeze, layer on/off, lock & unlock layer, move from one layer to other.
7 TH	7	Practice on Layer Commands: colour assigning, current layer, load line type; Practice on hatching,
8 TH	8	Practice on Dimensioning, linear dimensioning, angular dimensioning radius/diameter dimensioning, snap command, aligned dimensioning; applying tolerance; Editing of dimensioning

9TH	9	Practice on print commands. Export commands Practice on plot commands. Import commands
10TH	10	Practice on making complete drawings of Stepped pulley and V-belt pulley using AUTOCAD (2D)
11TH	11	Practice on making complete drawings of Flanged coupling using AUTOCAD (2D)
12TH	12	Practice on making complete drawings of Screw jack using AUTOCAD (2D)
13TH	13	Practice on 3D drawing: drawing cube, sphere, cylinder, cone; 3D modeling: Transformation, translation, scaling, rotation etc. Isometric drawing
14TH	14	Introduction to CAD software like CATIA/ProE
15TH	15	Final viva and evaluation