

## LESSON PLAN

<b>Name of Faculty</b>	Sh.VISHRUT
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	1st
<b>Subject</b>	FUNDAMENTALS OF IT
<b>Lesson plan Duration</b>	15 Weeks
<b>Work Load per week</b>	Theory(02)

WEEK	THEORY	
	Lecture	TOPIC
	Day	
1 <sup>st</sup>	1	Introduction Definition of automobile, Applications of automobiles, Classification of automobiles according to purpose, load capacity, fuel used, number of wheels, side of the drive, drive wheels, engine location & transmission;
2 <sup>nd</sup>	2	Leading manufacturers of scooter, motorcycles, car, bus and truck in India.
3 <sup>rd</sup>	3	Layout of two wheeler and four wheeler, Name and functions of their major assemblies,
4 <sup>th</sup>	4	assemblies, Types of drives – rear wheel drive, front wheel drive and four wheel drive.
5 <sup>th</sup>	5	Their merits and demerits. Chassis frame types - Conventional, semi-integral and integral.
6 <sup>th</sup>	6	<b>Internal Viva Voce – 1</b>
7 <sup>th</sup>	7	Automobile body and its types. Requirements of body,
8 <sup>th</sup>	8	Nomenclature of vehicle according to body. Types of car body, Constructional details of car body,
9 <sup>th</sup>	9	Body streamlining, Interior fittings -Rear view mirror, floor mats, upholstery, glove box, emergency flasher, air ventilators and Instrument panel.

10 <sup>th</sup>	10	<b>Internal Viva Voce – 2</b>
11 <sup>th</sup>	11	Introduction to power system, Various types of fuels, Internal and external combustion engines,
12 <sup>th</sup>	12	Major components of engine and their functions – cylinder, piston, connecting rod, crank shaft, piston pin, crank shaft pin, cylinder head, valves.
13 <sup>th</sup>	13	Engine terminology including bore, stroke, dead centres - TDC/BDC & ODC/IDC, engine capacity, Introduction to four stroke SI engine
14 <sup>th</sup>	14	Need of safety system, Active and passive safety, Various types of safety devices like helmet, seat belt, and air bags,
15 <sup>th</sup>	15	Definition of road safety, Road signs and signals. Road markings, Traffic light, Traffic police signals, Traffic rules, Tips for safe driving. <b>Internal Viva Voce – 3</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh.VISHRUT
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	1st
<b>Subject</b>	ENGINEERING GRAPHICS
<b>Lesson plan Duration</b>	15 Weeks
<b>Work Load per week</b>	Theory(06)

WEEK	THEORY	
	Lecture Day	TOPIC
1 <sup>st</sup>	1	<p><b>1. Introduction to Engineering Drawing and Graphics</b></p> <p>1.1 Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.</p>
2 <sup>nd</sup>	2	<p>1.2 Symbols and conventions</p> <p>a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines.</p> <p>b) Civil Engineering Sanitary fitting symbols</p> <p>c) Electrical fitting symbols for domestic interior installations.</p>
3 <sup>rd</sup>	3	<p>1.3 Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments.</p>
4 <sup>th</sup>	4	<p><b>2. Technical Lettering of Alphabet and Numerals</b></p> <p>Definition and classification of lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm) : upper case and lower case, single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4</p>
5 <sup>th</sup>	5	<p><b>3. Dimensioning</b></p> <p>3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions).</p> <p>3.2 Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.</p>
6 <sup>th</sup>	6	<b>Internal Viva Voce – 1</b>
7 <sup>th</sup>	7	<b>4. Scales</b>

		<p>4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.</p> <p>4.2 To draw/construct plain and diagonal scales.</p>
8 <sup>th</sup>	8	<p><b>UNIT II</b></p> <p><b>1. Orthographic Projections</b></p> <p>1.1 Theory of orthographic projections</p> <p>1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.</p> <p>1.3 Projection of Points in different quadrant</p> <p>1.4 Projection of Straight Line (1st angle) i. Line parallel to both the planes. ii. Line perpendicular to any one of the reference plane and parallel to others iii. Line inclined to any one of the references and parallel to another plane.</p>
9 <sup>th</sup>	9	<p>1.5 Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).</p> <p>1.6 Identification of surfaces</p>
10 <sup>th</sup>	10	<p><b>2. Sectioning</b></p> <p>2.1 Importance and salient features 2.2 Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).</p> <p>2.3 Orthographic sectional views of different objects.</p> <p><b>Internal Viva Voce – 2</b></p>
11 <sup>th</sup>	11	<p><b>UNIT III</b></p> <p><b>1. Introduction of projection of right solids</b> such as prism &amp; pyramid (square, Pentagon, Hexagonal) cube, cone &amp; cylinder (Axes perpendicular to H.P and parallel to V.P.)</p> <p><b>Introduction of sections of right solids</b>- Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.)</p>
12 <sup>th</sup>	12	<p><b>Development of Surfaces</b>– Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)</p>
13 <sup>th</sup>	13	<p><b>UNIT IV</b></p> <p><b>1.</b> Fundamentals of isometric projections and isometric scale</p> <p><b>2.</b> Isometric views of different laminas like circle, pentagon and hexagon.</p>
14 <sup>th</sup>	14	<p><b>Isometric views from given different orthographic projections(front, side and top view)</b></p>

15<sup>th</sup>

15

**Introduction to AutoCAD** Basic introduction and operational instructions of various commands in AutoCAD.

**Internal Viva Voce – 3**

## LESSON PLAN

<b>Name of Faculty</b>	Sh.VISHRUT
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	1st
<b>Subject</b>	FUNDAMENTALS OF IT
<b>Lesson plan Duration</b>	15 Weeks
<b>Work Load per week</b>	Theory(02)

WEEK	THEORY	
	Lecture Day	TOPIC
1 <sup>st</sup>	1	Brief history of development of computers, Definition of Computer, Block diagram of a
		Computer, Hardware, Software,
2 <sup>nd</sup>	2	Booting: Cold and Hot Booting, Interaction between the CPU
		and Memory with Input/Output devices,
3 <sup>rd</sup>	3	Function of CPU and major functional parts of CPU.
		Memory, Bit, Nibble, Byte, KB, MB, GB, TB, PB, Functions of memory, Use of storage devices
		in a Computer, List types of memory used in a Computer, Importance of cache memory, CPU
		speed and CPU word length
4 <sup>th</sup>	4	Understanding browser, Introduction to WWW, efficient use of search engines, awareness about
		Digital India portals (state and national portals) and college portals.
5 <sup>th</sup>	5	Advantages of Email,
		Various email service providers, Creation of email id, sending and receiving emails, attaching
		documents with email and drive.
6 <sup>th</sup>	6	<b>Internal Viva Voce – 1</b>
7 <sup>th</sup>	7	Effective use of Gmail, G-Drive, Google Calendar, Google Sites, Google Sheets, Online mode of

		communication using Google Meet & WebEx
8 <sup>th</sup>	8	Introduction to Programming, Steps involved in problem solving, Definition of Algorithm,
		Definition of Flowchart,
9 <sup>th</sup>	9	Steps involved in algorithm development, differentiate algorithm and
		flowchart, symbols used in flowcharts, algorithms for simple problems, flowcharts for simple
		problems, Practice logic building using flowchart/algorithms
10 <sup>th</sup>	10	Office Tools like LibreOffice/OpenOffice/MSOffice.
		<b>Internal Viva Voce – 2</b>
11 <sup>th</sup>	11	OpenOffice Writer – Typesetting Text and Basic Formatting, Inserting Images, Hyperlinks,
		Bookmarks, Tables and Table Properties in Writer
12 <sup>th</sup>	12	Introducing LibreOffice/OpenOffice Calc, Working with Cells, Sheets, data, tables, using
		formulae and functions, using charts and graphics.
13 <sup>th</sup>	13	OpenOffice Impress – Creating and Viewing Presentations, Inserting Pictures and Tables, Slide
		Master and Slide Design, Custom Animation.
14 <sup>th</sup>	14	Introduction to Digital Marketing – Why Digital Marketing, Characteristics of Digital Marketing,
		Tools for Digital Marketing,
15 <sup>th</sup>	15	Effective use of Social Media like LinkedIn, Google+, Facebook, Twitter, etc.: Features of Social media, Advantages and Disadvantages of Social Media.
		<b>Internal Viva Voce – 3</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh. ARUN SYAN
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	3rd
<b>Subject</b>	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (02)

WEEK	THEORY	
	Lecture	TOPIC
	Day	
1 <sup>st</sup>	1	<b>Application and Advantage of Electricity</b>
	2	Difference between ac and dc, various applications of electricity, advantages of electrical energy over other types of energy
2 <sup>ND</sup>	3	<b>Basic Electrical Quantities</b>
	4	Definition of voltage, current, power and energy with their units, name of instruments used for measuring above quantities.
3 <sup>RD</sup>	5	Connection of these instruments in an electric circuit.
	6	AC Fundamentals, Electromagnetic induction-Faraday's Laws, Lenz's Law; Fleming's rules.
4 <sup>TH</sup>	7	Principles of a.c. Circuits; Alternating emf, Definition of cycle, frequency, amplitude and time period.
	8	Instantaneous, average, r.m.s and maximum value of sinusoidal wave; form factor and Peak Factor. Concept of phase and phase difference.
5 <sup>TH</sup>	9	Concept of resistance, inductance and capacitance in simple a.c. circuit. Power factor and improvement of power factor by use of capacitors.
	10	Concept of three phase system; star and delta connections; voltage and current relationship (no derivation).
6 <sup>TH</sup>	11	<b>Transformers</b> , Working principle and construction of single phase transformer, transformer ratio, emf equation.
	12	<b>Sessional Test-I</b>
7 <sup>TH</sup>	13	losses and efficiency, cooling of transformers, isolation transformer, CVT, auto transformer (brief idea), applications.
	14	<b>Distribution System</b>

8 <sup>TH</sup>	15	Difference between high and low voltage distribution system, identification of three-phase wires, neutral wire and earth wire in a low voltage distribution system.
	16	Identification of voltages between phases and between one phase and neutral.
9 <sup>TH</sup>	17	Difference between three-phase and single-phase supply.
	18	<b>Electric Motor</b> , Changing direction of rotation of a given 3 phase induction motor.
10 <sup>TH</sup>	19	Description and applications of single-phase and three-phase motors. Connection and starting of three-phase induction motors by star-delta starter.
	20	<b>Sessional Test-II</b>
11 <sup>TH</sup>	21	Motors used for driving pumps, compressors, centrifuge, dyers etc. Totally enclosed submersible and flame proof motors.
	22	<b>Domestic Installation</b>
12 <sup>TH</sup>	23	Distinction between light-fan circuit and single phase power circuit, sub-circuits.
	24	Identification of wiring systems. Common safety measures and earthing.
13 <sup>TH</sup>	25	<b>Electrical Safety</b>
	26	concept of fuses and their classification, selection and application, concept of earthing and various types of earthing, applications of MCBs and ELCBs.
14 <sup>TH</sup>	27	<b>Basic Electronics</b> , characteristics and applications of stepper motors and servo motors in process control. Basic idea of semiconductors – P and N type; diodes, zener diodes and their applications.
	28	<b>Sessional Test-III</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh. NAVNEET GUPTA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	3rd
<b>Subject</b>	BASICS OF THERMODYNAMICS, HYDRAULICS AND PNEUMATICS
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours+2 Practical)

WEEK	THEORY		Practicals
	Lecture Day	TOPIC	
1st	1	UNIT I- A. Thermodynamics, Introduction, Energy, work and heat, Thermodynamic state and system, boundary, surrounding, universe	Measurement of temperature by thermocouple, pyrometer and infrared thermometer.
	2	Types of thermodynamic systems: closed, open, isolated, adiabatic	
	3	Thermodynamic properties: pressure, volume, temperature, enthalpy, internal energy, entropy	
2nd	4	Gas Laws, Definition of gas, Boyle's law,	Measurement of pressure head by piezometer tube and manometer
	5	Charle's law, Joule's law, Avagadro's law,	
	6	Regnault's law, Ideal and real gas,	
3rd	7	Characteristics equation, gas constant, universal gas constant.	Viva & Copy Check
	8	Specific heat at constant pressure, specific heat at constant volume of gas,	
	9	Vander-Wall's equation	
4th	10	Laws of Thermodynamic, Zeroth law of thermodynamics (concept only),	Verification of Bernoulli's theorem.
	11	<b>First and second law of thermodynamics ( concept only),</b>	
	12	Steady flow energy equation,	
5th	13	Various thermodynamic processes - constant volume,	To study the hydraulic circuit of an automobile brake and hydraulic jack.
	14	constant pressure, isothermal,	
	15	and free expansion processes; P-V & T-S diagrams (No Derivation)	

6th	16	Revision	Demonstration of use of hydraulic press.
	17	<b>Sessional test-I</b>	
	18	Air Standard Cycle	
7th	19	Definition of heat engine cycle	Dismantling and assembling of gear pump.
	20	Carnot cycle,	
	21	net work done and air standard efficiency of Carnot cycle.	
8th	22	UNIT III Hydraulics,Introduction	Viva & Copy Check
	23	Fluids and non-fluids,	
	24	Liquid, gas and vapour	
9th	25	Properties of fluids: Mass density, specific weight, pressure,	Demonstration of working of reciprocating air compressor.
	26	specific volume, specific gravity, viscosity,	
	27	compressibility, vapour pressure, Numerical Problems	
10th	28	surface tension, capillarity,Simple Numerical Problems	Inflating and deflating of tyre, checking of air pressure in tyre.
	29	<b>SESSIONAL TEST - 2</b>	
	30	Fluid statics , Concept of pressure, static pressure and pressure head ,Types of pressure: Atmospheric pressure, gauge pressure, vacuum, absolute pressure, Measurement of pressure: U tube manometer, Bourdon gauge ,Pascal's law and its applications	
11th	31	UNIT IV,Flow of Fluids,Types of fluid flow: steady and unsteady, uniform and non - uniform, laminar and turbulent	Viva & Copy Check
	32	Rate of flow and its units,Continuity equation of flow	
	33	Bernoulli's theorem (without proof) and its applications,Simple problems	
12th	34	Hydraulic Devices ,Principle of working,	Demonstration of layout of a pneumatic system/circuit used in garage.
	35	Layout of hydraulic system,	

	36	Various components of hydraulic system and function of each component	
13th	37	Types of hydraulic pumps – reciprocating pump, centrifugal pump, gear type pump, screw pump,	Practice on pneumatic tools like pneumatic screw driver & pneumatic wrench
	38	vane type pump and their working,Description,	
	39	operation and application of hydraulic machines – hydraulic jack, hydraulic brake, hydraulic press.	
14th	40	UNIT V PNEUMATICS,Introduction,Basic concept of pneumatics,Layout of pneumatic system,Various components of pneumatic system and their functions,Construction and working of reciprocating and rotary air compressor,Comparison of hydraulic system and pneumatic system.pneumatic system.	Viva & Copy Check
	41	Pneumatic tools,Construction and working of pneumatic gun,Application of pneumatic gun as pneumatic screw driver, pneumatic wrench and pneumatic nut runner.	
	42	<b>SESSIONAL TEST-III</b>	

## LESSON PLAN

<b>Name of Faculty</b>	Sh. AAKASHH GODARA/ROHTASH NEHRA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	3rd
<b>Subject</b>	AUTOMOBILE WORKSHOP PRACTICE
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Practical (04 Hours)

WEEK	THEORY	
	Lecture Day	TOPIC
1st	1	General safety procedures to be followed in automobile workshop; and familiarization to safety equipment and their uses.
	2	
	3	
2nd	4	Identification and sketching of general tools of automobile workshop and practice to use them.
	5	
	6	
3rd	7	Identification and sketching of special purpose tools and gauges of automobile workshop.
	8	
	9	
4th	10	Identification of IC engine components and chassis components.
	11	
	12	Cleaning of spark plug and gap adjustment.
5th	13	Removal and fitting of wheels and tyres of a two wheeler and repairing of punctures of Tube.
	14	
	15	
6th	16	Removal and fitting of wheels and tyres of car/jeep, tyre pressure measurement, repair of punctures of tubeless tyres.
	17	<b>SESSIONAL TEST –I</b>
	18	
7th	19	Washing, greasing, wiping and polishing of a vehicle.
	20	

	21	
<b>8th</b>	22	Washing, greasing, wiping and polishing of a vehicle.
	23	
	24	
<b>9th</b>	25	Removal, greasing and refitting of wheel bearing.
	26	
	27	
<b>10th</b>	28	Replacement of clutch wire and brake wire and transmission chain adjustment of a two wheeler.
	29	<b>SESSIONAL TEST - 2</b>
	30	
<b>11th</b>	31	Removal and refitting of radiator and water hoses.
	32	
	33	
<b>12th</b>	34	Removal and refitting of battery.
	35	
	36	
<b>13th</b>	37	Revision
	38	
	39	
<b>14th</b>	40	Revision
	41	
	42	<b>SESSIONAL TEST – 3</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh. AAKASH GODARA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	3rd
<b>Subject</b>	WORKSHOP TECHNOLOGY-II
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	THORY (03 Hours)

WEEK	THEORY	
	Lecture	TOPIC
	Day	
1st	1	Resistance welding: Principle, advantages, limitations, working and applications of spot welding and seam welding Other Welding Processes: Principle, advantages, limitations, working and applications of
	2	
	3	
2nd	4	Shielded metal arc welding, submerged arc welding. Welding defects, methods of controlling welding defects and inspection of welded joints.
	5	
	6	
3rd	7	Modern Welding Methods: Methods, Principle of operation, advantages, disadvantages and applications of, Tungsten inert gas (TIG) welding, Metal inert gas (MIG) welding, Thermit welding, Electro slag welding, Electron beam welding, Ultrasonic welding, Laser beam welding, Robotic welding
	8	
	9	
4th	10	UNIT II, Foundry Techniques, Pattern Making, Types of pattern, Pattern material, Pattern allowances, Pattern codes as per B.I.S., Introduction, to cores, core boxes and core materials, Core making procedure, Core prints, positioning of cores
	11	
	12	
5th	13	Mould Making: Types of moulds, Step involved in making a mould, Molding boxes, hand tools, used for mould making, Molding processes: Bench molding, floor molding, pit molding and machine molding. chamber, Centrifugal casting
	14	
	15	
6th	16	Melting Furnaces: Construction and working of Pit furnace, Cupola furnace, Crucible furnace – tilting type, Electric furnace

	17	Casting Defects: Different types of casting defects, Non destructive testing (NDT) of castings:die penetration test, radiography, magnetic particle inspection and ultrasonic inspection.
	18	<b>SESSIONAL TEST –I</b>
<b>7th</b>	19	UNIT III,Shaping, Slotting and Planing
	20	3.1 Working principle and construction of shaper, slotter and planer
	21	3.2 Type of shapers and slotters
<b>8th</b>	22	Type of planers
	23	3.4 Quick return mechanism applied to shaper and planer machine.
	24	3.5 Work holding devices used on shaper and planer
<b>9th</b>	25	Types of tools used and their geometry.
	26	3.7 Specification of shaper and planer.
	27	Speeds and feeds in above processes.
<b>10th</b>	28	Broaching,Introduction to broaching
	29	Nomenclature of broach tools, types and material
	30	<b>SESSIONAL TEST - 2</b>
<b>11th</b>	31	Types of broaching machines – single ram and duplex ram horizontal type, vertical type pull up, pull down and push down.
	32	UNIT IV Milling,Milling methods - up milling and down milling
	33	5.2 Specification and working principle of milling machine
<b>12th</b>	34	Classification, brief description and applications of milling machines Details of column and knee type milling machine
	35	5.4 Milling machine accessories and attachment – Arbors, adaptors, collets, vices, circular table, indexing head and tail stock, vertical milling attachment, rotary table.
	36	5.5 Identification of different milling cutters and work mandrels,Work holding devices
<b>13th</b>	37	Milling operations – face milling, angular milling, form milling, straddle milling and gang milling.
	38	5.9 Cutting parameters,UNIT V,6 Jigs and Fixtures,
	39	Importance and use of jigs and fixtures, difference between jig and fixture.
<b>14th</b>	40	Principal of location,Locating and clamping devices,Types of jigs – drilling jig, template jig and plate jig
	41	Types of fixtures – Milling and welding fixture

**LESSON PLAN**

<b>Name of Faculty</b>	Sh. AAKSH GODARA/ARUN SYAN
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	3rd
<b>Subject</b>	AUTO ENGINEERING DRAWING
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Practical (04 Hours)

WEEK	THEORY	
	Lecture Day	TOPIC
1st	1	<b>UNIT I,Limits and Fits, Limit, tolerance, Geometrical Tolerance,</b>
	2	deviation, allowance, fits: clearance, interference,
	3	transition fit, Hole and shaft basis system.
2nd	4	Drawings of the following joints and bearings
	5	Universal joint assembly
	6	Bush bearing
3rd	7	Ball bearing and Roller bearing
	8	
	9	
4th	10	UNIT II, Drawing layout of the following Engine components
	11	Four Stroke Petrol Engine Piston
	12	Diesel Engine Piston
5th	13	Connecting rod
	14	Fuel injector
	15	
6th	16	Cam shaft and Crank shaft – 4 cylinder Engine
	17	<b>SESSIONAL TEST –I</b>
	18	
7th	19	UNIT III, Drawing layout of following components/system

	20	Wheel cylinder and Master cylinder
	21	Leaf Spring
<b>8th</b>	22	Lighting circuit of a typical car
	23	Side valve and overhead valve mechanism
	24	
<b>9th</b>	25	UNIT IV,Cam Profile
	26	Different types of cams and followers
	27	Drawing of cam profile for following motion of follower (without offset) :
<b>10th</b>	28	Uniform velocity motion
	29	<b>SESSIONAL TEST - 2</b>
	30	
<b>11th</b>	31	Simple harmonic motion ( SHM)
	32	Uniformly accelerated and retarded motion.
	33	
<b>12th</b>	34	UNIT V,Gears
	35	Nomenclature of gears
	36	
<b>13th</b>	37	Profile of spur gear by 'Approximate method'
	38	
	39	
<b>14th</b>	40	Profile of spur gear by "Unwin's Method"
	41	Revision
	42	<b>SESSIONAL TEST – 3</b>

## Lesson Plan

Name of the Faculty : Sh. Arun Syan  
 Discipline : Automobile Engg.  
 Semester : 3rd  
 Subject : STRENGTH OF MATERIALS  
 Lesson Plan Duration : 14 weeks

Work Load (Lecture/ Practical) per week (in hours): 03 HOURS /2 HOURS

Week	Theory		
	Lecture day	Topic (including assignment/ test)	Covered on Date
1st	1	<b>UNIT I: STRESSES AND STRAINS</b> Introduction about subject. Stresses and Strains	
	2	Basic concept of load, stress and strain	
	3	Tensile, compressive and shear stresses	
	4	Linear strain, Lateral strain, Shear strain, Volumetric strain.	
2nd	5	Concept of Elasticity, Elastic limit and limit of proportionality	
	6	Hook's Law and Elastic Constants	
	7	Stress-strain curve for ductile and brittle materials	
	8	Nominal stress, Yield point, plastic stage	
3rd	9	Ultimate stress and breaking stress	
	10	Percentage elongation	
	11	Proof stress and working stress	
	12	Factor of safety, Poisson's Ratio	
4th	13	Thermal stress and strain	
	14	Longitudinal and circumferential stresses in seamless thin walled cylindrical shells.	
	15	Introduction to Principal stresses	
	16	<b>UNIT II: RESILIENCE</b> Strain Energy, Resilience, proof resilience and modulus of resilience	
5th	17	Strain energy due to direct stresses and Shear Stress	
	18	Stresses due to gradual, sudden and falling load.	
	19	Revision	
	20	1st Sessional Test	

<b>6th</b>	21	<b>UNIT III: MOMENT OF INERTIA</b> Concept of moment of inertia and second moment of area	
	22	Radius of gyration	
	23	Theorem of perpendicular axis and parallel axis (with derivation)	
	24	Second moment of area of common geometrical sections : Rectangle, Triangle, Circle (without derivation)	
<b>7th</b>	25	Second moment of area for L,T and I section	
	26	Section modulus	
	27	<b>UNIT IV: Bending Moment and Shearing Force</b> Concept of various types of beams	
	28	forms of loading	
<b>8th</b>	29	Concept of various form of loading	
	<b>30</b>	Concept of end supports-Roller, hinged and fixed	
	<b>31</b>	Concept of bending moment and shearing force	
	<b>32</b>	B.M. and S.F. Diagram for cantilever subjected to concentrated load and U.D.L.	
<b>9th</b>	<b>33</b>	B.M. and S.F. Diagram for simply supported beams with overhang subjected to concentrated and U.D.L.	
	<b>34</b>	B.M. and S.F. Diagram for simply supported beams without overhang subjected to concentrated and U.D.L.	
	<b>35</b>	<b>UNIT V: Bending stresses</b> Theory of simple bending,	
	<b>36</b>	Derivation of Bending Equation	
<b>10th</b>	<b>37</b>	Using bending equation	
	<b>38</b>	Concept of moment of resistance	
	<b>39</b>	Bending stress diagram	
	<b>40</b>	Section modulus for rectangular section	
<b>11th</b>	<b>41</b>	Section modulus for circular section.	
	<b>42</b>	Section modulus for symmetrical I section.	
	<b>43</b>	Calculation of maximum bending stress in beams of rectangular section.	
	<b>44</b>	Calculation of maximum bending stress in beams of circular section.	
<b>12th</b>	<b>45</b>	Calculation of maximum bending stress in beams of T section.	
	<b>46</b>	<b>2nd Sessional Test</b>	

	<b>47</b>	<b>UNIT VI: Columns</b> Concept of column,	
	<b>48</b>	Types of columns,	

<b>13th</b>	<b>49</b>	modes of failure of columns	
	<b>50</b>	Buckling load, crushing load Slenderness ratio, Effective length	
	<b>51</b>	End restraints, Factors effecting strength of a column,	
	<b>52</b>	Strength of column by Euler Formula without derivation, Rankine Gourdan formula ( without derivation)	
<b>14th</b>	<b>53</b>	<b>UNIT VII: TORSION</b> Concept of torsion	
	<b>54</b>	Difference between torque and torsion.	
	<b>55</b>	Derivation of Torsion Equation, use of torsion equation for circular , shaft, (solid and hollow)	
	<b>56</b>	Comparison between solid and hollow shaft with regard to their strength and weight.	
<b>15th</b>	<b>57</b>	Power transmitted by shaft	
	<b>58</b>	Concept of mean and maximum torque	
	<b>59</b>	<b>UNIT VIII: SPRINGS</b> Closed coil helical springs subjected to axial load and calculation of: stress deformation Stiffness and angle of twist and strain energy and proof resilience.	
	<b>60</b>	calculation of: Stiffness and angle of twist and strain energy and proof resilience.	
<b>16th</b>	<b>61</b>	Problems on Helical spring	
	<b>62</b>	Determination of number of plates of laminated spring (semi-elliptical type only)	
	<b>63</b>	Problems on Leaf springs	
	<b>64</b>	<b>3rd Sessional Test</b>	



## LESSON PLAN

<b>Name of Faculty</b>	Sh. Navneet Gupta
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	Garage Equipment
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours)

WEEK	THEORY	
	Lecture Day	TOPIC
<b>1st</b>		<b>UNIT - 1. Hand Tools/Measuring Tools</b>
	1	Specifications, types and applications of
		1. Screw drivers
	2	2. Spanners and wrenches
	3	3. Pliers
<b>2nd</b>	4	4. Hammers
	5	5. Chisels          6. Files          7. Hacksaw
	6	8. Taps and dies    9. Reamers    10. Feeler gauge
<b>3rd</b>	7	11. Tube flaring tools    12. Tommy bar    13. Cleaning tools
	8	Measuring tools- vernier calipers,
	9	inside and outside micrometers
<b>4th</b>		<b>UNIT – 2. General Equipment</b>
	10	Specifications, working principle and uses of
		1. Drilling machine (portable) along with set of drills
		2. Bench grinder
	11	3. Air compressor          4. Pneumatic gun
12	5. Hydraulic                  6. electric hoists	
<b>5th</b>	13	7. High pressure washing equipment (Car washer, Car vacuum cleaner, Buffing tool)
	14	8. Oil sprayers

		9. Guns-manual and bucket type, pneumatic
	15	10. Tyre inflation gauge (Manual and Digital type automatic)
		11. Tyre Changer (Manual and Automatic)
6th	16	Creepers, Fire extinguisher, First aid box
	17	<b>SESSIONAL TEST –I</b>
	18	<b>UNIT – 3.Turning and Testing Equipment</b>
		Specifications, working principle and applications of of Vacuum Gauge and Compression Gauge (Pressure Gauge)
7th	19	Specifications, working principle and applications of Distributor Tester; cam (dwell) angle tester, r.p.m. tester.
		Specifications, working principle and applications of Spark plug cleaner and tester
	21	Specifications, working principle and applications of Ignition timing light, Fuel injector tester
		Specifications, working principle and applications of Fuel consumption tester
	8th	23
Specifications, working principle and applications of Torque wrench, pneumatic wrench		
24		Specifications, working principle and applications of Piston ring compressor, expander Valve lifter and valve spring tester
		Construction and use of Piston ring files, groove cleaner, Scrappers Piston ring remover
9th		26
	Specifications, working principle and applications of Exhaust gas analyzer	
	27	Specifications, working principle and applications of Exhaust gas analyzer
10th	28	Specifications, working principle and applications of Engine Scanner; Part degreasing tank

	29	<b>SESSIONAL TEST - 2</b>
	30	<b>UNIT – 5. Electrical Repair Equipment</b>
		Specifications, working principle and applications of Electrical Test Bench
<b>11th</b>	31	Specifications, working principle and applications of Battery Charger, Battery Tester
	32	Specifications, working principle and applications of Head Lights Beam Aligner and Tester (Electronic and Digital type)
	33	Specifications, working principle and applications of Growler
<b>12th</b>	34	<b>UNIT – 6. Reconditioning/Testing Equipment for Chassis and Body</b>
		Uses/applications, working principle of Brake Efficiency Tester (Chassis Dynamometer) or brake testing equipment
	35	Jacks – mechanical, hydraulic, trolley type, Paint chamber, Paint Spray Gun, Paint Drying Equipment, Axle/chassis stands
	36	Computerized wheel balancer –static and dynamic
Computerized wheel alignment equipment		
<b>13th</b>	37	<b>UNIT – 7 Engine Reconditioning and Testing Equipment Specifications, working principle and use of Cylinder Boring Machine and Honing Machine</b>
	38	Camshaft Grinding Machine, Connecting Rod Aligner
	39	Fuel Injection Pump Calibrating Machine
<b>14th</b>	40	Valve Refacer, Valve Seat Cutting and Grinding, Radiator Tester, Arbor Press
	41	Fuel injector tester, Nozzle cleaning equipment, Crankshaft grinder
	42	<b>SESSIONAL TEST – 3</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh. RAJNISH GUPTA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	Chasis Body and Transmission-II
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours+3 Practical)

WEEK	THEORY		Practicals
	Lecture Day	TOPIC	
1st	1.	<b>UNIT-1 : Suspension System</b>	1. Study and sketching of independent suspension system 2. Checking and servicing of telescopic shock absorber.
		Functions of suspension system, Definition of sprung weight, unsprung weight, spring rate	
	2.	Types of suspension springs – coil spring, leaf spring, torsion bar, air spring	
2nd	3.	Constructional details of leaf spring,	3. Removal, dismantling, servicing, assembling and refitting of leaf spring assembly
	4.	Function and construction of variable rate spring and helper spring	
	5.	Spring materials and their characteristics	
3rd	6.	Function of shock absorber, Principle, construction and working of telescopic shock absorber, concept of gas filled shock absorber	4. Wheel balancing using computerised wheel balancing machine and tyre rotation
	7.	Types of suspension systems – Rigid axle & Independent suspension system,	
	8.	Independent suspension system – types and advantages Camber grading and nippling spring seats, Stabilizer bar	
4th	9.	Pneumatic suspension system	5. Replacement of brake shoe and adjustment of brake shoe clearance
	10.	Diagnosis of common faults and their rectifications	
	11.	<b>UNIT-II: Wheels and Tyres-</b>	
5th	12.	Introduction to wheel assembly, Wheels – function, requirement and types	6. Servicing of mechanical brakes, adjustment of brake pedal
	13.	Constructional details of various types of wheels; wheel materials	
	14.	Types of rim, Wheel specification	
	15.	Tyre – purpose & classification of tyres	

			freeplay.
6th	16.	Constructional details of tubed tyre and tubeless tyre & their comparison	7.Servicing and repair of hydraulic brake system, bleeding of brakes.
	17.	<b>Sessional test-I</b>	
	18.	Types of carcass – Cross ply, Radial ply and Mixed ply; Comparison of cross- ply and radial-ply tyres	
7th	19	Run flat tyres; Tyre materials, tyre dimension & specification Inflation pressure, under – inflation & over – inflation, Factors affecting excessive tyre wear	Viva & Copy Check
	20	Concept of balancing; Wheel balancing - Static and dynamic	
	21	Tyre care & maintenance, Retreading of tyres.	
	22	Hand brake or parking brake – Purpose, layout & working <b>UNIT III: Braking System – I</b>	
8th	23	Purpose of Brakes; Principle of braking; stopping time & stopping distance Requirements of good braking system; Classification of brakes	Assignment Check
	24	Drum brakes - Construction & working, leading & trailing shoes	
	25	Disc brakes – Construction & working; Materials of brake shoe, brake drum, brake pad & brake lining	
9th	26	Mechanical braking system – Layout & working, Hydraulic brakes – Principle, layout & working;	8.Study of mechanical hand brake system and required adjustments.
	27	Constructional details of master cylinder and wheel cylinder; Tandem master cylinder	
	28	Brake fluid – specification and characteristics, Bleeding of brakes, Pedal travel; Heat generation and dissipation; brake fade	
10th	29	<b>SESSIONAL TEST - 2</b>	
	30	<b>UNIT IV: Braking System – II</b> Power brakes – definition, requirement & classification	
	31	Vacuum Brakes – Principle, layout & working, Air Brakes – layout, components & working	
11th	32	Air Hydraulic brakes – Layout, components & working Anti-skid & anti-lock devices; Brake tests	9.Visit to local motor market to learn retreading of tyres
	33	Common braking system faults, their causes & rectification	
	34	<b>UNIT V: Automotive Safety</b>	
12th	35	Meaning of automotive safety; Active safety systems - Preventive design,	

	36	Antilock Brake System, Electronic brake force distribution	
13th	37	Electronic vehicle stability (EVS), Traction Control System	10. Study of various safety systems i.e. seat belt, air bag etc. of a vehicle.
	38	Smart cruise control, Rear detection system, Night vision system, Pedestrian protection system,	
		Rear detection system, Night vision system	
39	Passive safety systems – Design of vehicle for minimum injury, Seat belts		
14th	40	Air bag; Crash test for safety, Burglar alarm & Immobilizer system for vehicle theft control	
	41	Revision	
	42	<b>SESSIONAL TEST-III</b>	

## LESSON PLAN

<b>Name of Faculty</b>	Sh.H.S. SINDHU
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	AUTO ENGINE - II
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours+ 02 Practicals)

WEEK	THEORY		Practicals
	Lecture Day	TOPIC	
1st	1	<b>UNIT-1. Combustion in I.C. Engines</b> Phenomenon of combustion in S.I. engine :	Study & servicing of fuel feed system of diesel engine
	2	Phases of combustion – Ignition lag, flame propagation and after burning;	
	3	Turbulence, Abnormal combustion,	
2nd	4	Pre ignition and Detonation;	Replacing fuel filter, inspection of fuel feed pump
	5	Octane rating	
	6	Phenomenon of combustion in C.I. engines :	
3rd	7	C.I. engines : phases of combustion;	Revision & Evaluation, Viva-Voce
	8	Ignition delay, uncontrolled combustion,	
	9	controlled combustion, after burning	
4th	10	Methods of producing air movements namely squish and swirl	Study & sketching of common rail direct injection (CRDI) fuel system
	11	Various types of combustion chambers for diesel engine Diesel knock, cetane rating	
	12	<b>UNIT-II: Fuel Supply System in Diesel Engine</b>	
5th	13	Layout of fuel supply system in diesel engine and their types	Phasing and calibration of fuel injection pump
	14	Modern common rail direct injection (CRDI) system and individual pump system	
	15	Fuel filters – primary and secondary,	
6th	16	Fuel feed pumps; priming	Revision & Evaluation, Viva-Voce
	17	<b>Sessional Test-I</b>	
	18	Fuel injection pumps – plunger and barrel	

		type, distributor type	
7th	19	Fuel injectors and their working	Cleaning and testing fuel injectors used in petrol engines
	20	Governing and types of governors	
	21	Supercharging of engines – function, advantages and disadvantages; types and location of superchargers	
8th	22	Turbochargers – types, function, working and advantages	Servicing of air cleaner – wet type and dry type
	23	<b>UNIT III: Specialized Types of Engine</b>	
	24	Wankel engine	
9th	25	Electrical / hybrid system/plug-in hybrid system, Fuel cell engine	Revision & Evaluation, Viva-Voce
	26	Homogeneous Charge Compression Ignition (HCCI) engine	
	27	Wheel motors,CNG/LPG engine	
10th	28	dual fuel operated engines	Study of turbochargers
	29	<b>Sessional Test-II</b>	
	30	<b>Unit -IV. Engine faults and their rectifications Causes and rectification of:High oil consumption</b>	
11th	31	Causes and rectification of: Engine starting troubles, Causes and rectification of Engine overheating	Analysis of exhaust gases of diesel engine using smokemeter
	32	<b>UNIT V: Emission Control</b>	
	33	Exhaust pollutants from petrol engines,Exhaust pollutants from diesel engines	
12th	34	Pollutants' effects on human beings and other materials, Sources of automotive emission	Revision & Evaluation, Viva-Voce
	35	Methods of emission control : improvement in engine design, exhaust gas treatment,	
	36	positive crankcase ventilation, exhaust gas recirculation,catalytic converters for petrol and diesel engines	
13th	37	particulate filter, selective catalytic reduction technique, NOX absorbers Emission norms (Bharat Stage).	Revision & Evaluation, Viva-Voce
	38	<b>UNIT VI: Miscellaneous Topics</b>	
	39	Technologies to improve engine economy and output	
14th	40	Alternative automotive fuels; Engine specifications of an Indian car	Evaluation, Viva-Voce
	41	Camless engine,Opposed piston opposed cylinder (OPOC) engine	
	42	<b>Sessional Test-III</b>	

## LESSON PLAN

<b>Name of Faculty</b>	Sh. RAVINDER SAI
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	AUTO ELECTRICAL AND ELECTRONIC SYSTEMS
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours+ 02 Practicals)

WEEK	THEORY		Practicals
	Lecture Day	TOPIC	
1	1	<b>Unit-I Introduction</b>	1. Testing of battery - specific gravity test using hydrometer, voltage test, high rate discharge test; Charging of battery using battery charger.
	2	Various Electrical and Electronics equipment components/systems in automobile, their functions and demands	
	3	Earth return system, types of earthing, 6V, 12V and 48 V systems	
2	4	<b>Unit-II Batteries,Lead Acid Batteries: Construction</b>	2. Testing of field winding of alternator and armature of starter motor for open circuit, short circuit and earthing.
	5	Lead Acid Batteries: working; elements, materials used	
	6	Electrolyte and its strength	
3	7	Effect of added plate area and temperature, rating,	Viva & Copy Check
	8	capacity, efficiency, temperature characteristics, terminal voltages	
	9	Battery Testing: Electrolyte testing by hydrometer, voltage test, high rate discharge and cadmium test	
4	10	Battery Charging: Constant potential and constant current, initial charging, normal charging, trickle charging, intermittent charging, boost charging	3. Study and sketching of various lighting circuits on a working model circuit board.
	11	Battery Defects	
	12	Alkaline Batteries: Basic description, types, merits and	
5	13	demerits.	4. Basic electrical checks:- Battery connections, electrical bulbs and units, circuit protection devices, wiring harness connections, colour coding.
	14	Lithium ion battery: Construction and working	
	15	Concept of less maintenance and maintenance-free batteries	
6	16	Fuel cells- Principle of working and types of fuel cell	Viva & Copy Check
	17	<b>Sessional Test-I</b>	

	18	<b>Unit-III Charging System,Circuits, function and various components</b>	
7	19	Types, construction, working, advantages and disadvantages of dynamo	5. Replacement of head lamps, tail lamps, indicator lamps, fog lamps and lamp holders.
	20	Types, construction, working, advantages and disadvantages of alternators,Charging system drives, cut out relay	
	21	Regulation: Functions of various components of two unit, three unit and heavy duty Regulators,Regulators for alternators	
8	22	<b>Unit-IV Starting System,Function of various components, torque terms</b>	6. Head light beam alignment and setting
	23	Principle and constructional details of starter motor,Switch types,Starter to engine drive and their types,Integrated starter generator.	
	24	<b>Unit-V Lighting System,Various lighting circuits</b>	
9	25	head lamp: types and constructional details; sealed beam, double filament head lamps; Vertical and side control of lamps;	Viva & Copy Check
	26	Fog light, side light, brake light, instrument light, indicator lights, reversing light, warning light, interior lights, LED lights.	
	27	Wiring: HT and LT, their specifications, Cable colour codes, wiring Harness, Cable connections,	
10	28	Wiring diagrams of cars Wiring diagrams of two wheeler Fuses, faults and rectification	Testing and setting of horn and relay
	29	<b>Sessional Test-II</b>	
	30	<b>Unit-VI Electrical &amp; Electronics Accessories</b>	
11	31	Speedometer - digital and analog, tachometer, Wind screen and rear wipers and washers,	Servicing of windscreen wiping system; replacement of wiper blade assembly.
	32	Horn relay, defogger and defroster,Electric door locks, window actuation, key less entry,	
	33	Electric adjustable & foldable ORVM, parking sensor, follow me home headlamps, rain sensor.	
12	34	<b>Unit-VII Electronic Control Devices,Familiarization with automobile electronic devices,</b>	Location and identification of various types of sensors.
	35	Working of ECU, Sensoring units	
	36	Rectifiers, Analog and digital devices, immobilizer	
13	37	Microprocessor and microcontroller – their applications,	Viva & Copy Check
	38	<b>Unit-VIII Introduction to Electrical Vehicles</b>	
	39	Types of EV; pure electrical EV	
14	40	Hybrid, plug-in hybrid,Control of EV	Viva & Copy Check
	41	Batteries of EV's, Charging station	
	42	<b>Sessional Test-III</b>	

## LESSON PLAN

<b>Name of Faculty</b>	Sh. AAKSH GODARA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	ADVANCED MANUFACTURING PROCESSES
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Theory (03 Hours)

WEEK	THEORY	
	Lecture Day	TOPIC
<b>1st</b>	1	<b>UNIT I: Introduction</b>
		Introduction to Numerical Control; Principle of & Need of NC
	2	NC system: Types – NC,CNC, DNC; Components of NC
	3	Advantages of NC, Difference between NC and conventional system
<b>2nd</b>	4	Advantages & Applications of CNC.
	5	Working principle of CNC machine,
	6	Basic components of CNC machines
<b>3rd</b>	7	Types of CNC machines
	8	Motion control system - point to point, straight line, Continuous path (Contouring)
	9	The coordinate system in CNC – cartesian and polar,
<b>4th</b>	10	Coordinate data input – absolute and incremental,
	11	Axis identification
	12	<b>UNIT II Part Programming</b>
<b>5th</b>		Introduction to Part programming,
	13	Basic concepts of part programming, NC words
	14	Part programming formats
<b>6th</b>	15	Linear and circular interpolation, Simple programs for drilling and turning
	16	Tool off sets, cutter radius compensation and tool wear compensation.
	17	<b>1st Sessional Test</b>

	18	UNIT III: CNC Milling:
7th	19	Working principle of milling machine
	20	CNC Milling: Constructional details of CNC milling machine
	21	Milling machine accessories and attachments: Arbors, adaptors, collets
8th	22	Milling machine accessories and attachments:
	23	vices, indexing head, rotary table
	24	Milling methods- up milling and down milling
9th	25	Types of milling cutters
	26	Types of milling operations
	27	Part programs for milling
10th	28	More Part programs for milling
	29	<b>2nd Sessional Test</b>
	30	<b>UNIT IV: Advanced Machining Processes, Introduction &amp; Classification</b>
11th	31	Ultrasonic machining (USM): Introduction, principle, process Advantages and limitations, applications of USM
	32	Electro chemical machining (ECM): Introduction, principle, process Advantages and limitations, applications of ECM
	33	Electrical Discharge Machining (EDM) - Introduction, basic EDM circuit, Principle
12th	34	EDM metal removing rate, dielectric fluid, Advantages and limitations, applications of EDM
	35	Laser beam machining (LBM) – Introduction, machining process
	36	Advantages and applications of LBM Electron beam machining (EBM)- Introduction, principle,
13th	37	Process and applications of EBM Advantages and applications of EBM
	38	<b>UNIT IV: Industrial Robotics</b> :Definition and concept
	39	Robot configurations, Basic robot motions
14th	40	Robotic sensors ,Industrial applications
	41	Revision
	42	<b>3rd Sessional Test</b>

## LESSON PLAN

<b>Name of Faculty</b>	Sh. ROHTASH NEHRA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	AUTO PROFESSIONAL PRACTICES – I
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Practical (04 Hours)

<b>WEEK</b>	<b>THEORY</b>	
	<b>Lecture Day</b>	<b>TOPIC</b>
<b>1st</b>	1	Study of service manual of a new vehicle (Maruti/Tata/Hyundai etc.) as per manufacturer's recommendation
<b>2nd</b>	2	Testing and setting of Ignition timing, measurement and adjustment of spark plug gap
<b>3rd</b>	3	Setting of valve timing and adjustment of tappet clearance
<b>4th</b>	4	Engine testing and finding out fuel consumption
<b>5th</b>	5	Removal and refitting of various auto body assemblies
<b>6th</b>	6	Servicing and repair of body locks and window mechanism
<b>7th</b>	7	Demonstration of body repair techniques
<b>8th</b>	8	Replacement of tappet cover gasket and oil sump gasket
<b>9th</b>	9	Removal and refitting of propeller shaft and universal joints
<b>10th</b>	10	Removal, inspection and refitting of steering wheel, steering box, pitman arm, tie rod and knuckle joint
<b>11th</b>	11	Removal, inspection and refitting of rockers and rocker shaft
<b>12th</b>	12	Removal and refitting of piston rings
<b>13th</b>	13	Service and repair of starter motor drive

<b>14th</b>	14	Replacement of drive axles
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## LESSON PLAN

<b>Name of Faculty</b>	Sh. RAVINDER SAI/ NAVNEET GUPTA
<b>Discipline</b>	Automobile Engineering
<b>Semester</b>	5th
<b>Subject</b>	DRIVING PRACTICE – Ii
<b>Lesson plan Duration</b>	14 Weeks
<b>Work Load per week</b>	Practical (04 Hours)

WEEK	THEORY	
	Lecture	TOPIC
	Day	
<b>1st</b>	1	Identification of various controls of vehicle
<b>2nd</b>	2	Knowledge of general road safety and personal safety
<b>3rd</b>	3	Setting of valve timing and adjustment of tappet clearance
<b>4th</b>	4	Knowledge of Traffic rules and signals
<b>5th</b>	5	Pre-driving checks
<b>6th</b>	6	Starting the engine and warming up
<b>7th</b>	7	Operation of engaging and disengaging the clutch
<b>8th</b>	8	Gear changing from low to high and high to low
<b>9th</b>	9	Braking and use of brakes on the road, stopping distance and following distance
<b>10th</b>	10	Driving practice on road for steering control

<b>11th</b>	11	Checking of engine oil, brake oil, coolant, tyre pressure, light and horn
<b>12th</b>	12	More Driving practice on road
<b>13th</b>	13	More Driving practice on road
<b>14th</b>	14	Evaluation & Viva-Voce