**Lesson Plan** Name of the Faculty : Jagdeep Sangwan Discipline : Mechanical Engg.

Semester : 6th

 Subject : Automobile Engg. (Theory &Practicals) Lesson plan duration : 16 weeks(from06 March2023 to 23June 2023)

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| **Week** | **Theory** | **Practical** |
| Lecture Day | Topic (including assignments /tests) | Practical Day | Topic |
| Week-1st | 1st | Automobile and its development | 1st | Overview of the subject, Importance in industry & Applications of the subject. |
| 2nd | Various types of automobiles manufactured in India. |
| 3rd | Layout of chassis |
| Week 2nd | 1st | * 1. Types of drives-front wheel, rear wheel, four wheel.
 | 1st | Fault and their remedies in Battery Ignition system Magnetic Ignition system |
| 2nd | * 1. Introduction to electric and hybrid vehicles.
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| 3rd | Governing of fuel- carburettor, |
| Week 3rd | 1st | electronic control module (ECM i.e, 8 bit, 16 bit and 32 bit computers) | 1st | Demonstration of (i) Head Light Model (ii) Wiper and Indicators. |
| 2nd | Conceptof Double overhead cam, single overhead cam, |
| 3rd  | Twin cam 16 valve technology in 4 cylinder engine |
| Week 4th | 1st | **Chapter-2 Transmission System**Clutch - Function, Constructional details of single plate and multiplatefriction clutches, | 1st | Demonstration of (i) Head Light Model (ii) Wiper and Indicators. |
| 2nd | Centrifugal and semi Centrifugal clutch, HydraulicClutch |
| 3rd | Gear Box- Function, Concept of Sliding mesh, Constant mesh |
| Week 5th | 1st | Synchromesh gear box, Torque converter andOverdrive | 1st | Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders. |
| 2nd | Types of drives – Front wheel, Rear wheel, Four Wheel. |
| 3rd | Function of Propeller shaft, Universal joint,)Differential and DifferentTypes of Rear axles and Front Axles. |
| Week 6th | 1st | Wheels and Tyres - Types ofwheels, Types andspecifications of tyres used in Indian vehicles, Wheel balancing | 1st | Demonstration of (i) rear axle (ii) differential (iii) steering system. |
| 2nd | Assignment on Chapter -3 |
| 3rd | **Steering System-3**Function and principle of Ackerman and Davis steeringmechanism, |
| Week 7th | 1st | Types of Steering Gear boxes – Worm andnut, worm andwheel, Worm and Roller | 1st | Fault finding practices on an automobile - fourwheelers(petrol/ diesel vehicles). |
| 2nd | Rack and pinion, Power steering system |
| 3rd | Alignment of wheels – Toe in, toe out, camber, caster, kingpin inclination |
| Week 8th | 1st | **TEST ON CHAPTER -3** | 1st | Fault finding practices on an automobile - fourwheelers(petrol/ diesel vehicles). |
| 2nd | **Braking system-4**Constructional details and working of Mechanical, Hydraulic brake. |
| 3rd | Concept of Air and Vacuum brake, brake adjustment |
| Week 9th  | 1st | Introduction to Anti lockBrake system and its working | 1st | Tuning of an Automobile engine. |
|  2nd | Assignment |
| 3rd | Mock Test |
| Week 10th | 1st | **Suspension System-5**Function, Types of Suspension System | 1st | Driving practice on a 4-wheeler |
|  2nd | Working of coil spring, leaf spring. |
|  3rd | Concept of Air suspension |
| Week 11th |  1st | Shock absorber. | 1st | Driving practice on a 4-wheeler |
| 2nd | Revision |
| 3rd | Test onChapter |

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| Week 12th | 1st | **Auto Electrical System: -6**Constructional details of lead Acid cell Battery | 1st | Charging of an Automobile Battery andMeasuringcellvoltageand SpecificGravityofElectrolyte. |
| 2nd | Specific gravity of electrolyte, effect of temperature on specific gravity,, |
| 3rd | Specification of battery-capacity, rating , number of plates, |
| Week 13th | 1st | selection of battery for particular use, Battery charging, | 1st | Changing of wheels and inflation of Tyres, Balancing of Wheels |
|  | chemical reactions during charge and discharge,  |
| 3rd | Maintenance of batteries |
| Week 14th | 1st | Checking of batteries for voltage and specific gravity | 1st | Checking spark gap and valve clearance |
| 2nd | Batteries for electrical and hybrid vehicle |
| 3rd | Assignment |
| Week 15th | 1st |  Chapter-7 Dynamo - Function and details, | 1st | Cleaning and Adjusting a Carburetor |
| 2nd | Regulators - voltage current and compensated type, |
| 3rd | Cutout - construction, working and their adjustment, |
| Week 16th | 1st | Alternator - Construction and working, | 1st | Visit to Automobile Workshop |
| 2nd | Charging of battery by alternator. Introduction to Integrated starter-alternator, |
| 3rd | wiring Diagram of an Automobile. |