**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. | |
| 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 Different  Types 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. |