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|  **BIT POLYTECHNIC, BALASORE**  **DEPARTMENT OF MECHANICAL ENGINEERING** **LESSON PLAN** **SUBJECT: AUTOMOBILE ENGINEERING****SEMESTER: 6TH NAME OF THE FACULTY: JAGAJYOTI SAHU**  |
| LECTURE NO.  | DATE  | MODULE  | TOPICS TO BE COVERED  |
| 1.  | 16.02.23  |       UNIT-1  | General introduction to automobile engineering, its definition, need and classification.  |
| 2.  | 17.02.23  | Layout of automobile chassis along with its components and functions in brief, line diagram of automobile chassis  |
| 3.  | 20.02.23  | Transmission system: major components of transmission system and their function  |
| 4.  | 23.02.23  | Clutch system: its definition, need and types of clutches  |
| 5.  | 24.02.23  | Working principle of clutch system along with its diagrams  |
| 6.  | 25.02.23  | Gearbox: definition and purpose of gearbox with sketch  |
| 7.  | 25.02.23  | 4 speed gearbox: its principle, construction and working of 4 speed gearbox  |
| 8.  | 27.02.23  | Gear mechanism: features of automatic gear & concept of automatic gear changing mechanism  |
| 9.  | 02.03.23  | Propeller shaft: necessity and its constructional features  |
| 10.  | 03.03.23  | Universal joint: necessity and its constructional features  |
| 11.  | 04.03.23  | Differential: its definition, need, types & working principle  |
| 12.  | 04.03.23  | Revision of Question and answers related to unit-1  |
| 13.  | 06.03.23  |   UNIT-2  | Braking system in automobile: functions of brake and its types  |
| 14.  | 09.03.23  | Mechanical brakes: constructional details and working mechanism along with its diagram  |
| 15.  | 10.03.23  | Hydraulic brakes: constructional details and working mechanism along with its diagram, importance of master cylinder and its construction  |
| 16.  | 11.03.23  | Air brake and air assisted hydraulic brake: constructional details and working mechanism along with its diagram  |
| 17.  | 11.03.23  | Vacuum brake: constructional details and working mechanism along with its diagram, Revision of Question and answers related to unit-2  |
| 18.  | 13.03.23  |      UNIT-3     | Introduction to ignition and suspension system: definition and purpose of ignition and suspension system  |
| 19.  | 16.03.23  | Description of battery ignition system along with its major components, schematic diagram  |
| 20.  | 17.03.23  | Working principle of battery ignition system, circuit diagram, advantages, disadvantages and applications  |
| 21.  | 18.03.23  | Description of magnet ignition system, major components, schematic diagram  |
| 22.  | 18.03.23  | Working principle of magneto ignition system, circuit diagram, advantages, disadvantages and applications  |
| 23.  | 20.03.23  |  Spark plug: description, construction, need importance and specifications of spark plug; List of common ignition troubles and its remedies to reduce troubles  |
| 24.  | 23.03.23  | Description of conventional suspension system for both rear as well as front axle  |
| 25.  | 25.03.23  | Description of independent suspension system used in cars which includes (coil spring and tension bars)  |
| 26.  | 27.03.23  | Constructional features & working of a telescopic shock absorber  |
| 27.  | 31.03.23  | Revision of Question and answers related to unit-3  |
| 28.  | 03.04.23  |     UNIT-4  | Introduction to cooling system, its need and classification  |
| 29.  | 06.04.23  | Air cooling, working principle, constructional features and diagrams  |
| 30.  | 08.04.23  | Water cooling, working principle, constructional features and diagrams  |
| 31.  | 08.04.23  | Thermosyphon, pump circulation type of water-cooling system, working principle and diagrams  |
| 32.  | 10.04.23  | Introduction to lubrication system, its need and classification  |
| 33.  | 13.04.23  | Description, importance of lubrication and its advantages  |
| 34.  | 15.04.23  | Overview of lubrication system of an IC engine  |
| 35.  | 15.04.23  | Revision of Question and answers related to unit-4  |
| 36.  | 17.04.23  |      UNIT-5  | Introduction to fuel system: Description of air-fuel ratio  |
| 37.  | 20.04.23  | Detailed study on air-fuel ratio, its principle of operation in carburetor, stoichiometric AFR  |
| 38.  | 21.04.23  | Description on carburetion process for petrol engine, types of carburetors and each carburetor’s principle of operation with diagrams  |
| 39.  | 24.04.23  | Description on multi point fuel injection system in petrol engine, working principle  |
| 40.  | 27.04.23  | MPFI: advantages and troubles, remedies, schematic diagram  |
| 41.  | 28.04.23  | Multi cylinder engine: description, working principle of fuel injection system, schematic diagram  |
| 42.  | 29.04.23  | Filter for diesel engine: basic working principle of diesel fuel filter, its components  |
| 43.  | 29.04.23  | Fuel feed pump: description of working principle, construction  |
| 44.  | 01.05.23  | Fuel injector for diesel engine: description of working principle, construction  |
| 45.  | 04.05.23  | Revision of Question and answers related to unit-5  |
| 46.  | 06.05.23  |        UNIT-6  | Introduction to electric and hybrid vehicle  |
| 47.  | 06.05.23  | Impact of hybrid cars on the environment, advantages and disadvantages  |
| 48.  | 08.05.23  | Description of electric vehicle, operational advantages, present performance  |
| 49.  | 11.05.23  | Applications of electric vehicle in aviation, military, public transportation etc.  |
| 50.  | 12.05.23  | Battery for electric vehicle, battery types and their parameters  |
| 51.  | 13.05.23  | Fuel cells, Working of fuel cell electric vehicle  |
| 52.  | 13.05.23  | Hybrid vehicles, types of electric and hybrid vehicles, key components  |
| 53.  | 15.05.23  | Energy flow diagram and description: series, parallel, series and parallel configuration  |
| 54.  | 18.05.23  | Drivetrain: its importance, series drivetrain, parallel drivetrain, series/parallel drivetrain  |
| 55.  | 19.05.23  | Solar powered vehicles: numerous benefits, engineering challenges  |
| 56.  | 20.02.23  | Several startup companies in EV  |
| 57.  | 20.05.23  | Overall, a sustainable, free power transportation, integrated solar technology  |
| 58.  | 22.05.23  | Revision of Question and answers related to unit-6  |
| 59.  | 25.05.23  | Semester Q &A discussion on unit 1 to 3  |
| 60.  | 26.05.23  | Semester Q &A discussion on unit 4 to 6  |
|  **SIGNATURE OF FACULTY MEMBER COUNTER SIGNATURE OF H.O.D**    |