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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** | | | | |