

GOVT. POLYTECHNIC, NAYAGARH
LESSON PLAN
6th SEMESTER MECHANICAL ENGINEERING (2022-23)
(w.e.f 14/02/2023)

SUBJECT-AUTOMOBILE ENGINEERING AND HYBRID VEHICLES(TH.2)
BRANCH- MECHANICAL ENGINEERING.
NAME- RAMYA RASHMI ROUT, Lecturer (PTGF)

TOTAL PERIODS-60
THEORY-4P/WEEK

| Week | Class Day | Theory / Practical Topics |
|------|-----------------|--|
| 1st | 1 st | Automobiles: Definition, need and classification. |
| | 2 nd | Layout of automobile chassis with major components (Line diagram). |
| | 3 rd | Clutch System: Need, Types (Single & Multiple) and Working principle with sketch |
| | 4 th | Clutch System: Need, Types (Single & Multiple) and Working principle with sketch |
| 2nd | 1 st | Gear Box: Purpose of gear box, Construction and working of a 4 speed gear Box. |
| | 2 nd | Gear Box: Purpose of gear box, Construction and working of a 4 speed gear Box. |
| | 3 rd | Concept of automatic gear changing mechanisms |
| | 4 th | Concept of automatic gear changing mechanisms |
| 3rd | 1 st | Propeller shaft: Constructional features |
| | 2 nd | Propeller shaft: Constructional features |
| | 3 rd | Differential: Need, Types and Working principle |
| | 4 th | Differential: Need, Types and Working principle |
| 4th | 1 st | Braking systems in automobiles: Need and types. |
| | 2 nd | Mechanical Brake, Hydraulic brake |
| | 3 rd | Air brake |
| | 4 th | Air assisted hydraulic brake |
| 5th | 1 st | Vacuum Brake |
| | 2 nd | Describe the Battery ignition and Magnet ignition system |
| | 3 rd | Spark plugs: Purpose, construction and specifications |
| | 4 th | State the common ignition troubles and its remedies |
| 6th | 1 st | Description of the conventional suspension system for Rear and Front axle |
| | 2 nd | Description of the conventional suspension system for Rear and Front axle |
| | 3 rd | Description of independent suspension system used in cars (coil spring and tension bars) |
| | 4 th | Description of independent suspension system used in cars (coil spring and tension bars) |
| 7th | 1 st | Constructional features and working of a telescopic shock absorber |
| | 2 nd | Constructional features and working of a telescopic shock absorber |
| | 3 rd | Engine cooling: Need and classification |
| | 4 th | Engine cooling: Need and classification |
| 8th | 1 st | Describe defects of cooling and their remedial measures |
| | 2 nd | Describe defects of cooling and their remedial measures |
| | 3 rd | Describe the Function of lubrication |
| | 4 th | Describe the Function of lubrication |
| 9th | 1 st | Describe the lubrication System of I.C. engine |
| | 2 nd | Describe the lubrication System of I.C. engine |
| | 3 rd | Describe Air fuel ratio |
| | 4 th | Describe Carburetion process for Petrol Engine |

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| 10 th | 1 st | Describe Carburetion process for Petrol Engine |
| | 2 nd | Describe Multipoint fuel Injection system for Petrol Engine |
| | 3 rd | Describe Multipoint fuel Injection system for Petrol Engine |
| | 4 th | Describe Multipoint fuel Injection system for Petrol Engine |
| 11 th | 1 st | Describe the working principle of fuel injection system for multi cylinder Engine |
| | 2 nd | Describe the working principle of fuel injection system for multi cylinder Engine |
| | 3 rd | Filter for Diesel engine |
| | 4 th | Describe the working principle of Fuel feed pump |
| 12 th | 1 st | Describe the working principle of Fuel Injector for Diesel engine |
| | 2 nd | What is electric and hybrid vehicles(Introduction) |
| | 3 rd | Social and Environmental importance of Hybrid and Electric Vehicles |
| | 4 th | Description of Electric Vehicles, operational |
| 13 th | 1 st | Advantages and disadvantages of Electric Vehicles |
| | 2 nd | present performance and applications of Electric Vehicles |
| | 3 rd | present performance and applications of Electric Vehicles |
| | 4 th | Battery for Electric Vehicles, Battery types and fuel cells |
| 14 th | 1 st | Battery for Electric Vehicles, Battery types and fuel cells |
| | 2 nd | Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations; |
| | 3 rd | Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations; |
| | 4 th | Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations; |
| 15 th | 1 st | Drive train |
| | 2 nd | Drive train |
| | 3 rd | Solar powered vehicles |
| | 4 th | Solar powered vehicles |

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 Dt - 13/02/2023