Lesson Plan

Discipline: Mechanical Engineering Semester : 06th	**Name of the teaching faculty:** **Bibekananda Rout**
Subject: Automobile Engineering And Hybrid Vehicles	**6TH Semester from to** 14/02/23 25/05/23

4 periods per week, total 60 periods in Semester

CLASSES	TOPICS	WEEK
	1.Introduction & Transmission System[12 Periods]	1ST
1	Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram)	
2	Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram)	
3	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch	
4	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch	
5	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box	2ND
6	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box	
7	Concept of automatic gear changing mechanisms.	
8	Concept of automatic gear changing mechanisms	
9	Propeller shaft: Constructional features .	3RD
10	Propeller shaft: Constructional features.	
11	Differential: Need, Types and Working principle.	
12	Differential: Need, Types and Working principle.	
	2.Braking System [5 Periods]	

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1	Braking systems in automobiles: Need and types .	
2	Mechanical Brake .	
3	Hydraulic Brake, Air Brake.	4TH
4	Air assisted Hydraulic Brake	
5	Vacuum Brake	
3. Ignition & Suspension System[10 periods]		
1	Describe the Battery ignition and Magnet ignition system	5TH
2	Describe the Battery ignition and Magnet ignition system	
3	Spark plugs: Purpose, construction and specifications	
4	State the common ignition troubles and its remedies	6TH
5	Description of the conventional suspension system for Rear and Front axle	
6	Description of the conventional suspension system for Rear and Front axle	
7	Description of independent suspension system used in cars (coil spring and tension bars)	
8	Description of independent suspension system used in cars (coil spring and tension bars)	
9	Constructional features and working of a telescopic shock absorber	7TH
10	Constructional features and working of a telescopic shock absorber	
4.Cooling and Lubrication [08 periods]		
1	Engine cooling: Need and classification .	8TH
2	Engine cooling: Need and classification .	
3	Describe defects of cooling and their remedial measures .	
4	Describe defects of cooling and their remedial measures.	
5	Describe the Function of lubrication	9TH

6	Describe the lubrication System of I.C. engine.	
7	Describe the lubrication System of I.C. engine.	
8	Describe the lubrication System of I.C. engine.	
	5.Fuel system[10 periods]	
1	Describe Air fuel ratio.	
2	Describe Carburetion process for Petrol Engine.	
3	Describe Carburetion process for Petrol Engine.	10TH
4	Describe Multipoint fuel injection system for Petrol Engine.	
5	Describe Multipoint fuel injection system for Petrol Engine.	
6	Describe Multipoint fuel injection system for Petrol Engine.	
7	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine.	11TH
8	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine.	
9	Describe the working principle of fuel injection system for multi cylinder Engine, Filter for Diesel engine.	
10	Describe the working principle of fuel injection system for multi cylinder Engine, Filter for Diesel engine.	
	6. Hybrid and Electric Vehicles [15 Periods]	12TH
1	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles.	
2	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles.	
3	Description of Electric Vehicles.	
4	Description of Electric Vehicles.	13TH
5	Operational advantages, present performance and applications of Electric Vehicles	
6	Operational advantages, present performance and applications of Electric Vehicles	

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7	Battery for Electric Vehicles.	
8	Battery for Electric Vehicles.	14th
9	Battery types and fuel cells.	
10	Battery types and fuel cells.	
11	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configuration.	
12	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations.	15th
13	Drive train.	
14	Solar powered vehicles .	
15	Solar powered vehicles .	

Bibekananda Rout
Sign. of Faculty

09/02/23
Sign. of HOD

Sign. of Academic Coordinator

Sign. of Principal