



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY  
SERGARH-756060, BALASORE (ODISHA)  
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



## **LESSON PLAN**

**SUBJECT: Th-2 (Automobile Engg And Hybrid Vehicles)**

### **CHAPTER WISE DISTRIBUTION OF PERIODS**

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per	No. of periods actually
1	Introduction and Transmission system	12	12
2	Braking system	05	05
3	Ignition and Suspension system	10	10
4	Cooling and Lubrication	07	07
5	Fuel system	10	10
6	Hybrid and Electric Vehicles	15	15
TOTAL		60	60

Discipline: Mechanical ENGINEERING	Semester: 6TH	Name of the Teaching Faculty: Er. Ranjit Giri
		SESSION : 2023-24 EXAMINATION : 2023 (s)
Week	Class Day	Topics to be Covered
1 <sup>st</sup>	1 <sup>st</sup>	1.1 Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram).
	2 <sup>nd</sup>	1.1 Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram).
	3 <sup>rd</sup>	1.2 Clutch System: Need, Types (Single & Multiple) and Working principle with sketch
	4 <sup>th</sup>	1.2 Clutch System: Need, Types (Single & Multiple) and Working principle with sketch.
2 <sup>nd</sup>	1 <sup>st</sup>	1.3 Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box.
	2 <sup>nd</sup>	1.3 Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box.
	3 <sup>rd</sup>	1.3 Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box.
	4 <sup>th</sup>	1.4 Concept of automatic gear changing mechanisms.
3 <sup>rd</sup>	1 <sup>st</sup>	1.4 Concept of automatic gear changing mechanisms.
	2 <sup>nd</sup>	1.5 Propeller shaft: Constructional features.
	3 <sup>rd</sup>	1.6 Differential: Need, Types and Working principle.
	4 <sup>th</sup>	1.6 Differential: Need, Types and Working principle.
4 <sup>th</sup>	1 <sup>st</sup>	2.1 Braking systems in automobiles: Need and types.
	2 <sup>nd</sup>	2.2 Mechanical Brake.
	3 <sup>rd</sup>	2.3 Hydraulic Brake.
	4 <sup>th</sup>	2.4 Air Brake.
5 <sup>th</sup>	1 <sup>st</sup>	2.5 Air assisted Hydraulic Brake. 2.6 Vacuum Brake.
	2 <sup>nd</sup>	3.1 Describe the Battery ignition and Magnet ignition system.
	3 <sup>rd</sup>	3.1 Describe the Battery ignition and Magnet ignition system.
	4 <sup>th</sup>	3.2 Spark plugs: Purpose, construction and specifications.

Week	Class Day	Topics to be Covered
6 <sup>th</sup>	1 <sup>st</sup>	3.2 Spark plugs: Purpose, construction and specifications.
	2 <sup>nd</sup>	3.3 State the common ignition troubles and its remedies.
	3 <sup>rd</sup>	3.4 Description of the conventional suspension system for Rear and Front axle
	4 <sup>th</sup>	3.5 Description of independent suspension system used in cars (coil spring and tension.
7 <sup>th</sup>	1 <sup>st</sup>	3.5 Description of independent suspension system used in cars (coil spring and tension.
	2 <sup>nd</sup>	3.6 Constructional features and working of a telescopic shock absorber.
	3 <sup>rd</sup>	3.6 Constructional features and working of a telescopic shock absorber.
	4 <sup>th</sup>	4.1 Engine cooling: Need and classification.
8 <sup>th</sup>	1 <sup>st</sup>	INTERNAL ASSESMENT
	2 <sup>nd</sup>	INTERNAL ASSESMENT
	3 <sup>rd</sup>	4.2 Describe defects of cooling and their remedial measures
	4 <sup>th</sup>	4.3 Describe the Function of lubrication.
9 <sup>th</sup>	1 <sup>st</sup>	4.3 Describe the Function of lubrication.
	2 <sup>nd</sup>	4.4 Describe the lubrication System of I.C. engine.
	3 <sup>rd</sup>	4.4 Describe the lubrication System of I.C. engine.
	4 <sup>th</sup>	5.1 Describe Air fuel ratio.
10 <sup>th</sup>	1 <sup>st</sup>	5.2 Describe Carburetion process for Petrol Engine.
	2 <sup>nd</sup>	5.2 Describe Carburetion process for Petrol Engine.
	3 <sup>rd</sup>	5.3 Describe Multipoint fuel injection system for Petrol Engine.
	4 <sup>th</sup>	5.3 Describe Multipoint fuel injection system for Petrol Engine.

Week	Class Day	Topics to be Covered
11 <sup>th</sup>	1 <sup>st</sup>	5.4 Describe the working principle of fuel injection system for multi cylinder Engine .
	2 <sup>nd</sup>	5.4 Describe the working principle of fuel injection system for multi cylinder Engine.
	3 <sup>rd</sup>	5.5 Filter for Diesel engine.
	4 <sup>th</sup>	5.6 Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine
12 <sup>th</sup>	1 <sup>st</sup>	5.6 Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine
	2 <sup>nd</sup>	6.1 Introduction, Social and Environmental importance of Hybrid and Electric Vehicles.
	3 <sup>rd</sup>	6.1 Introduction, Social and Environmental importance of Hybrid and Electric Vehicles.
	4 <sup>th</sup>	6.1 Introduction, Social and Environmental importance of Hybrid and Electric Vehicles.
13 <sup>th</sup>	1 <sup>st</sup>	6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles.
	2 <sup>nd</sup>	6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles.
	3 <sup>rd</sup>	6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles.
	4 <sup>th</sup>	6.3 Battery for Electric Vehicles, Battery types and fuel cells.
14 <sup>th</sup>	1 <sup>st</sup>	6.3 Battery for Electric Vehicles, Battery types and fuel cells.
	2 <sup>nd</sup>	6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel
	3 <sup>rd</sup>	6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel
	4 <sup>th</sup>	6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configuration.
15 <sup>th</sup>	1 <sup>st</sup>	6.5 Drive train.
	2 <sup>nd</sup>	6.6 Solar powered vehicles.
	3 <sup>rd</sup>	6.6 Solar powered vehicles.
	4 <sup>th</sup>	6.6 Solar powered vehicles

