Discipline: Mechanical Engineering	Semester : 6th Semester-2020-21	Name of the Teaching Faculty: Shri Arun kumar Sahu, Ptgf mechanical engineering	
Subject: AUTOMOBILE ENGINEERING AND HYBRID VEHICLES	No. of Days/week Class Allotted: 60	Semester from date: 05/04/ 2021 to date: 30/06/2021 No of weeks: 18	
week	**Class Day**	**Theory Topics**	
1st	1st	Automobiles: Definition, need and classification	
	2nd	Layout of automobile chassis with major components (Line diagram)	
	3rd	Clutch System: Need, Types (Single & Multiple)	
	4th	Working principal with net sketch	
2nd	1st	Gear Box: Purpose of gear box	
	2nd	Construction and working of a 4 speed gear box	
	3rd	Concept of automatic gear changing mechanisms	
	4th	Propeller shaft: Constructional features	
3rd	1st	Differential: Need, Types	
	2nd	Working principle of Differential	
	3rd	Braking systems in automobiles: Need and types	
	4th	Mechanical Brake	
4th	1st	Hydraulic Brake	
	2nd	Air Brake	
	3rd	Air assisted Hydraulic Brake	
	4th	Vacuum Brake	
5th	1st	IGNITION & SUSPENSION SYSTEM	
	2nd	Describe the Battery ignition and Magnet ignition system	
	3rd	Spark plugs: Purpose	
	4th	Spark plugs construction and specification	
6th	1st	State the common ignition troubles and its remedies	
	2nd	Description of the conventional suspension system for Rear and Front axle	
	3rd	Description of independent suspension system used in cars (coil spring and tension bars)	
	4th	Constructional features and working of a telescopic shock absorber	
7th	1st	COOLING AND LUBRICATION	

	2nd	Engine cooling: Need and classification	
	3rd	Describe defects of cooling and their remedial measures	
	4th	Describe the Function of lubrication	
8th	1st	Describe the lubrication System of I.C. engine	
	2nd	FUEL SYSTEM	
	3rd	Describe Air fuel ratio	
	4th	Describe Carburetion process for Petrol Engine	
9th	1st	Describe Multipoint fuel injection system for Petrol Engine	
	2nd	Describe the working principle of fuel injection system for multi cylinder Engine	
	3rd	Filter for Diesel engine	
	4th	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine	
10th	1st	ELECTRIC AND HYBRID VEHICLES	
	2nd	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles	
	3rd	Description of Electric Vehicles, operational advantages	
	4th	**applications of Electric Vehicles**	
11th	1st	Battery for Electric Vehicles	
	2nd	Battery types and fuel cells	
	3rd	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series	
	4th	Parallel and series configuration	
12th	1st	Drive train	
	2nd	Different Solar powered vehicles	
	3rd	Revision of Chapter- 1.1,1.2	
	4th	Revision of Chapter – 1.3, 1.4	
13th	1st	Revision of Chapter – 1.5, 1.6	
	2nd	Revision of Chapter – 2.1, 2.2	
	3rd	Revision of Chapter – 2.3,2.4	
	4th	Revision of Chapter – 2.5,2.6	
14th	1st	Revision of Chapter – 3.1,3.2	
	2nd	Revision of Chapter – 3.3, 3.4	
	3rd	Revision of Chapter – 3.5, 3.6	
	4th	Revision of Chapter – 4.1,4.2	
15th	1st	Revision of Chapter – 4.3,4.4	
	2nd	Revision of Chapter – 5.1,5.2	
	3rd	Revision of Chapter – 5. 3,5.4	
	4th	Revision of Chapter – 5.5,5.6	
16th	1st	Revision of Chapter – 6.1	

	2nd	Revision of Chapter – 6.2	
	3rd	Revision of Chapter – 6.3	
	4th	Revision of Chapter – 6.4	
17th	1st	Revision of Chapter – 6.5	
	2nd	Revision of Chapter – 6.6	
	3rd	Discussion of Probable Questions and Answers (1)	
	4th	Discussion of Probable Questions and Answers(2)	
18th	1st	Discussion of Probable Questions and Answers (3)	
	2nd	Discussion of Probable Questions and Answers(4)	
	3rd	Discussion of Probable Questions and Answers (5)	
	4th	Discussion of Probable Questions and Answers (6)	