BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF AUTOMOBILE ENGINEERING

LESSON PLAN

SUBJECT: **AUTOMOTIVE SYSTEM & HEAVY EQUIPMENTS (TH 2)**

FACULTY: **NILAKANTHA NAYAK**

DATE-**14/02/2023 - 23/05/2023**

ACCADEMIC SESSION: **2022-23(S)**

SEMESTER: **6TH**

Sd/-

H O D (Auto. Engg.)

Sr. Lecturer
Automobile Engg. Dept.
BOSE, Cuttack

AUTOMOBILE ENGINEERING DEPATMENT

VISSION:

To develop competent, disciplined imaginative Automobile engineers, equipped with core competency and technical skills useful to the learning / teaching community and the industrial fraternity.

MISSION:

M1: To provide with operational and technical inputs to get innovative and research ideas in the field of automotive engineering.

M2: To give inputs for higher education with management qualities for the betterment of the society.

M3: Skilling with modern engineering tools necessary to meet and solve engineering problems.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To provide technical skills to diagnose and apply the concept of automotive system

PEO2: To prepare to design, fabricate and innovate in automobile sector to face the industrial challenges.

PEO3: To inculcate with good communication skills, ethics and entrepreneurship skills to play the key role in automotive industry.

Discipline:-**Automobile Engineering .**	Semester :-**6TH**	Name of the teaching faculty :- **NILAKANTHA NAYAK**
Subject Name :- **AUTOMOTIVE SYSTEM & HEAVY EQIPMENTS**	No. Of Days/Week Class Allotted :- **04 Periods/Week (Monday, Tuesday ,Wednesday, Friday, – 1 Period Each)**	Semester from Date -**14/02/2023** To Date -**23/05/2023** **No. of Weeks:16**
WEEK	Class Day	Theory topics
1ST (3P)	14/02/2023	Introduction Class.
	15/02/2023	**1.FRONT AXLE** Introduction & study of front axle assemblies.
	17/02/2023	Front axle function, construction & Types of stub axle Front wheel assembly
2nd (4P)	20/02/2023	**2.STEERING & STEERING GEOMETRY** Introduction of steering system
	21/02/2023	Function of steering .Principle of correct steering.
	22/02/2023	Components of steering system.
	24/02/2023	Types of steering gear Box.
3rd (4P)	27/02/2023	Steering geometry i.e. camber, caster,king-pin Inclination, understeer, oversteer, combined angle Toe-in Toe-out, wheel alignment
	28/02/2023	Steering geometry i.e. camber, caster,king-pin Inclination, understeer, oversteer, combined angle Toe-in Toe-out, wheel alignment
	01/03/2023	Effects of incorrect wheel alignment, steering turning angle and turning radius
	03/03/2023	Power Point Presentation.

4th (2P)	06/03/2023	**3. SUSPENSION SYSTEM** Introduction & function & requirement of suspension system.
	10/03/2023	Types of suspension spring like leaf spring, coil spring, rubber torsion unit.
5th (4P)	13/03/2023	Types of suspension spring like leaf spring, coil spring, rubber torsion unit.
	14/03/2023	Torsion bar. Types of suspension system such as, independent suspension system, rigid axle Suspension system.
	15/03/2023	Torsion bar. Types of suspension system such as, independent suspension system, rigid axle Suspension system.
	17/03/2023	Its advantages and disadvantages. Stabilizer bar & shock absorber.
6th (4P)	20/03/2023	Class test.
	21/03/2023	**4. BRAKE SYSTEM** Introduction, Principle of operation and requirements of brakes.
	22/03/2023	Types of brakes such as drum brakes and its leading & trailing shoes,
	24/03/2023	Principles of brakes operation.
7th (4P)	27/03/2023	Construction and working principle of Disc brakes.
	28/03/2023	Brake fade. Construction and working principle of Hydraulic brakes
	29/03/2023	Hydraulic brakes and its components like master cylinder, Tandem master cylinder, wheel cylinder.
	31/03/2023	Hydraulic brakes and its components like master cylinder, Tandem master cylinder, wheel cylinder.
8th (3P)	03/04/2023	Brake fluid and brake fluid grades.
	04/04/2023	Advantages and disadvantages of hydraulic brakes, Power brake types.
	05/04/2023	Construction and working principle of Power brake.
9th (3P)	10/04/2023	Construction and working of air brake & hand brake.

	11/04/2023	Adjustment and bleeding of brake. Common brake problems.
	12/04/2023	Construction and working principle Anti-lock braking system
10th (4P)	17/04/2023	Class test
	18/04/2023	Power point presentation of modern Technology which is not in syllabus.
	19/04/2023	Power point presentation of modern Technology which is not in syllabus.
	21/04/2023	**5. WHEEL & TYRES** Introduction Basic construction of a tyre.
11th (4P)	24/04/2023	Tyre dimension and Classification of tyre.
	25/04/2023	Advantages and disadvantages of radial ply tyres over cross ply tyre.
	26/04/2023	Construction of tyre.
	28/04/2023	Tyre size designation Different types of tyre damages.
12th (4P)	01/05/2023	Wheel and its type Wheel dimensions Wheel designation.
	02/05/2023	**6. CHASSIS & HEAVY EQUIPMENTS** Introduction and lay out of chassis showing its main components. Types of chassis.
	03/05/2023	Frame and important chassis layouts.
13th (4P)	08/05/2023	Tractor and its construction, Classification.
	09/05/2023	Construction and description of dump truck.
	10/05/2023	Construction and description of grader.
	12/05/2023	Construction and description road roller.

14th (4P)	15/05/2023	Construction and description dozer, loader.
	16/05/2023	Construction and description cranes, scraper.
	17/05/2023	Doubt clearing class.
15th (2P)	22/05/2023	Previous year Questions Discussions.
	23/05/2023	Previous year Questions Discussions.