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

LESSON PLAN

SUBJECT: Th-2 (AUTOMOTIVE SYSTEM & HEAVY EQUIPMENTS)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	FRONT AXLE	5	6
2	STEERING & STEERING GEOMETRY	8	10
3	SUSPENSION SYSTEM	11	13
4	BRAKES SYSTEM	20	22
5	WHEEL & TYRES	6	8
6	CHASSIS & HEAVY EQUIPMENTS	10	12
	Total Period:	60	71

Discipline: AUTOMOBILE ENGINEERING	Semester: 6th	**Name of the Teaching Faculty:** Er. Nihar Ranjan Sahoo
		SESSION : 2023-24 **EXAMINATION :** 2024 (S)
Week	**Class Day**	**Theory Topics**
1st	**1st**	Introduction to Automotive System.
	2nd	**1. FRONT AXLE** Introduction & study of front axle assemblies.
	3rd	Front axle function, construction & Types of stub axle
	4th	Front axle function, construction & Types of stub axle
	5th	Front axle function, construction & Types of stub axle
2nd	**1st**	Front wheel assembly.
	2nd	Front wheel assembly.
	3rd	**2. STEERING & STEERING GEOMETRY** Introduction of steering system, function of steering
	4th	Principle of correct steering & Components of steering system & Types of steering gear.
	5th	Principle of correct steering & Components of steering system & Types of steering gear.
3rd	**1st**	Principle of correct steering & Components of steering system & Types of steering gear.
	2nd	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle
	3rd	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle
	4th	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle
	5th	Toe-in Toe-out,wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.
4th	**1st**	Toe-in Toe-out,wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.
	2nd	Toe-in Toe-out,wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.
	3rd	**3. SUSPENSION SYSTEM** Introduction & function & requirement of suspension system.
	4th	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.
	5th	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.

5th	1st	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.
	2nd	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.
	3rd	Types of suspension system such as independent suspension system, rigid axle Suspension system, its advantages and disadvantages
	4th	Types of suspension system such as independent suspension system, rigid axle Suspension system, its advantages and disadvantages
	5th	Types of suspension system such as independent suspension system, rigid axle Suspension system, its advantages and disadvantages
6th	1st	Types of suspension system such as independent suspension system, rigid axle Suspension system, its advantages and disadvantages
	2nd	Types of suspension system such as independent suspension system, rigid axle Suspension system, its advantages and disadvantages
	3rd	Stabilizer bar & shock absorber.
	4th	Stabilizer bar & shock absorber.
	5th	Stabilizer bar & shock absorber.
7th	1st	**4. BRAKE SYSTEM** Introduction, Principle of operation and requirements of brakes.
	2nd	Types of brakes such as drum brakes and its leading & trailing shoes, disc brakes. Brake fade.
	3rd	Types of brakes such as drum brakes and its leading & trailing shoes, disc brakes. Brake fade.
	4th	Types of brakes such as drum brakes and its leading & trailing shoes, disc brakes. Brake fade.
	5th	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades.
8th	1st	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades.
	2nd	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades.
	3rd	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades.
	4th	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades.
	5th	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades. Advantages and disadvantages of hydraulic brakes.
9th	1st	Hydraulic brakes and its components like master cylinder, tandem master cylinder, wheel cylinder, brake fluid and brake fluid grades. Advantages and disadvantages of hydraulic brakes.
	2nd	brake fluid and brake fluid grades. Advantages and disadvantages of hydraulic brakes.

9th	**3rd**	brake fluid and brake fluid grades. Advantages and disadvantages of hydraulic brakes.
	4th	Power brake types, working and construction of air brake & handbrake.
	5th	Power brake types, working and construction of air brake & handbrake.
10th	**1st**	Power brake types, working and construction of air brake & handbrake.
	2nd	Power brake types, working and construction of air brake & handbrake.
	3rd	Power brake types, working and construction of air brake & handbrake.
	4th	Adjustment and bleeding of brake.
	5th	Common brake problems.
11th	**1st**	Anti-lock braking system.
	2nd	Anti-lock braking system.
	3rd	**5. WHEEL & TYRES** Introduction Basic construction of a tyre
	4th	Tyre dimension Classification of tyre, advantages and disadvantages of radial ply tyres over cross ply tyre.
	5th	Tyre size designation
12th	**1st**	**INTERNAL ASSESMENT.**
	2nd	**INTERNAL ASSESMENT.**
	3rd	Different types of tyre damages
	4th	Different types of tyre damages
	5th	Wheel, and its type
13th	**1st**	Wheel, and its type
	2nd	Wheel dimensions Wheel designation
	3rd	**6. CHASSIS & HEAVY EQUIPMENTS** Introduction and lay out of chassis showing its main components.
	4th	Types of chassis, frame and important chassis layouts.
	5th	Types of chassis, frame and important chassis layouts.
14th	**1st**	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	2nd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.

14th	**3rd**	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	4th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	5th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
15th	**1st**	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	2nd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	3rd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	4th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	5th	REVISION