



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)

Name Of The Faculty :- Er. Nihar Ranjan Sahoo

Branch :- Automobile Engineering

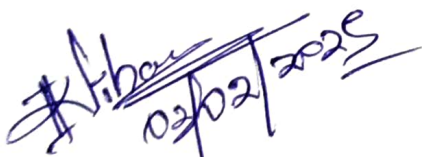
Session :- 2024-25

Semester :- 6th

Examination :- 2025 (S)

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


Sign of Faculty

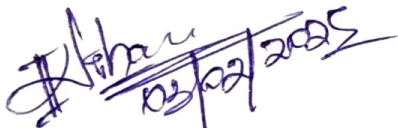

Sign of H.O.D.

Discipline: AUTOMOBILE ENGINEERING	Semester: 6th	Name of the Teaching Faculty: Er. Nihar Ranjan Sahoo	
		SESSION : 2024-25	EXAMINATION : 2025 (S)
Week	Class Day	Topics to be Covered	
1 st	1 st	Introduction to Automotive System.	
	2 nd	1. FRONT AXLE Introduction & study of front axle assemblies.	
	3 rd	Front axle function, construction & Types of stub axle	
	4 th	Front axle function, construction & Types of stub axle	
	5 th	Front axle function, construction & Types of stub axle	
2 nd	1 st	Front wheel assembly.	
	2 nd	Front wheel assembly.	
	3 rd	2. STEERING & STEERING GEOMETRY Introduction of steering system, function of steering	
	4 th	Principle of correct steering & Components of steering system & Types of steering gear.	
	5 th	Principle of correct steering & Components of steering system & Types of steering gear.	
3 rd	1 st	Principle of correct steering & Components of steering system & Types of steering gear.	
	2 nd	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle	
	3 rd	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle	
	4 th	Steering geometry i.e. camber, caster, king-pin, Inclination, understeer, oversteer, combined angle	
	5 th	Toe-in Toe-out, wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.	
4 th	1 st	Toe-in Toe-out, wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.	
	2 nd	Toe-in Toe-out, wheel alignment & effects of incorrect wheel alignment, steering turning angle and turning radius.	
	3 rd	3. SUSPENSION SYSTEM Introduction & function & requirement of suspension system.	
	4 th	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.	
	5 th	Types of suspension spring like leaf spring, coil spring, rubber torsion unit, Torsion bar.	

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

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

Week	Class Day	Topics to be Covered
14 th	2 nd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	3 rd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	4 th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	5 th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
15 th	1 st	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	2 nd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	3 rd	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	4 th	Tractor and its construction, Classification, construction and description of dump truck, grader, road roller, dozer, loader, cranes, scraper.
	5 th	REVISION


 Sign of Faculty


 Sign of H.O.D.