LESSON PLAN

SUBJECT :- STRENGTH OF MATERIAL

10/1/2021

AUTOMOBILE ENGG.

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

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 Engg.**	Semester :-**3rd**	Name of the teaching faculty :- **SUDHANSU SEKHAR SAHOO**
Subject Name :- **STRENGTH OF MATERIAL**	No. Of Days/Week Class Allotted :- **04 Periods/Week (Mon, Tue, Wed, Fri – 1 Period Each)**	Semester from Date - **01/10/2021** To Date - **08/01/2021**
Week	Class Day	Theory topics
1st	1.10.2021	Introduction of strength of material
2nd		**Simple stress & strain**
	4.10.2021	1.1 Types of load, stresses & strains,(Axial and tangential) Hooke's law, Young's modulus, bulk modulus, modulus of rigidity, Poisson's ratio, derive the relation between three elastic constants,
	5.10.2021	1.2 Principle of super position, stresses in composite section
	6.10.2021	1.3 Temperature stress, determine the temperature stress in composite bar (single core)
	8.10.2021	1.4 Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
3rd		
	23.10.2021	1.5 Simple problems on above.
4th		
	25.10.2021	1.5 Simple problems on above.
	26.10.2021	1.5 Simple problems on above.
	27.10.2021	1.5 Simple problems on above.
	29.10.2021	1.5 Simple problems on above.
5th		**2.0 Thin cylinder and spherical shell under internal pressure**
	1.11.2021	2.1 Definition of hoop and longitudinal stress, strain
	2.11.2021	2.2 Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	3.11.2021	2.3 Computation of the change in length, diameter and volume
	5.11.2021	2.4 Simple problems on above
6th		
	8.11.2021	2.4 Simple problems on above
	9.11.2021	2.4 Simple problems on above
	10.11.2021	2.4 Simple problems on above

	12.11.2021	**ASSIGNMENT AND TEST**
7th		**3.0 Two dimensional stress systems**
	15.11.2021	3.1 Determination of normal stress, shear stress and resultant stress on oblique plane
	16.11.2021	DO
	17.11.2021	3.2 Location of principal plane and computation of principal stress
	19.11.2021	DO
8th		DO
	22.11.2021	3.3 Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
	23.11.2021	DO
	24.11.2021	DO
	26.11.2021	DO
9th		**4.0 Bending moment& shear force**
	29.11.2021	4.1 Types of beam and load
	30.11.2021	4.2 Concepts of Shear force and bending moment
10th		
	3.12.2021	4.3 Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load
11th		
	6.12.2021	DO
	7.12.2021	DO
	8.12.2021	DO
	10.12.2021	DO
12th		**5.0 Theory of simple bending**
	13.12.2021	5.1 Assumptions in the theory of bending,
	14.12.2021	5.2 Bending equation, Moment of resistance, Section modulus& neutral axis
	15.12.2021	5.3 Solve simple problems
	17.12.2021	DO
13th		
	20.12.2021	DO
	21.12.2021	**6.0 Combined direct & bending**

		stresses 6.1 Define column 6.2 Axial load, Eccentric load on column
	22.12.2021	6.3 Direct stresses, Bending stresses, Maximum& Minimum stresses. Numerical problems on above.
	24.12.2021	DO
14th		
	27.12.2021	6.4 Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions.
	28.12.2021	7.0 Torsion 7.1 Assumption of pure torsion 7.2 The torsion equation for solid and hollow circular shaft
	29.12.2021	7.3 Comparison between solid and hollow shaft subjected to pure torsion
	31.12.2021	DO
15th		
	1.1.2022	DOUBT CLEARING CLASS
16th		
	3.01.2022	ASSIGNMENT & TEST
	4.01.2022	REVISION
	5.01.2022	PREVIOUS YEAR QUESTION PAPER DISCUSSION
	7.01.2022	PREVIOUS YEAR QUESTION PAPER DISCUSSION & MCQ TEST