Semester-III
Paper- Basic Engineering (Civil & Mechanical)
Full Marks-100 (80+20)
Total Hours : 42
Subject Code : ELE305

L T P **Full Marks 100 (T) + 50(Pr)**
3 2

Chapter	Name of Topics	Number of hrs
01	Basic Civil Engineering Materials: 1.1 Basic Knowledge of Civil Engineering Materials like sand, Cement, Stove eves Bricks, Tiles, Terra Coat, Lime, Mortar Concrete, Paints & Varnishes.	05
02	Timber: Type & Structure of Timber tree, Defects in timber, characteristics of good timber, seasoning of timber.	03
03	Surveying & Levelling: Surveying Instruments, Measurements of horizontal distance by chair or table. Measurement of horizontal & Vertical angle. Basic Knowledge of levelling and total station.	08
04	Foundations for Machines: 5.1 Fundamental of Mechanical Vibration 5.2 Need for Foundation 5.3 Martial Required for Foundation 5.4 Foundation battz & Sizes. 5.5 Crilina for design	03
05	Joints and Fabrications Types of joints, necessary precautions for working with metals, fabrication process concept.	02
06	I. C Engine: 5.1 Construction & Working of two strokes and four stroke petrol & Diesel Engine. 5.2 Reasons of Mal functioning & remedial measurement for IC Engine	04
07	6.1 Construction & Working of Cochran, Babcock & Wilcox Boilers. 6.2 Construction & Working Principle with velocity diagram of Pelton, impulse & Reaction turbine. 6.3 Construction & Working principle of steam turbine.	02 05 02
08	Introduction of Thermodynamics. 1st and 2nd Laws of thermodynamics. Basic Knowledge of Enthalpy, Entropy etc.	04
09	Pumps & Air Compressors: 9.1 Types of Pumps- Centrifugal Pump, Reciprocating Pump, Their Function. 9.2 Air Compressors, Classification of compressors, construction & working of single & Two Stage reciprocating compressors.	02 02
	Total	**42**

Semester-III
Paper- Basic Engineering Lab (Civil & Mechanical)
Subject Code : ELE310

List of Experiments :-

1. Field visit for identification & Physical Properties of sand, Brick, Cement, Lime Title and Point.
2. Field Survey of Distance measurement by chain and tape with correction.
3. Angle measurement by prismatic and surveyor compass.
4. Practice of making various types of joints
5. Practice of fabrication with metal flats.
6. Demonstration of Total Station.
7. Field visit of Machine Foundation.

Reference Books :

1. Constructions materials — Sushil Kumar'
2. Surveying and levelling — B C Poonamia
3. Mechanical Engg. — Rai Choudhary
4. Workshop Technology — Hazra Choudhary
5. Automobile Engg. — Kripal Singh Vol II
6. Thermal Engg. — R K Rajput
7. Hydrulics and Hydraulic Machine — R K Bansal