

# **BASIC MECHANICAL ENGINEERING 2-0-0**

**For 1<sup>st</sup> Semester Code (RBM1B001)**

**For 2<sup>nd</sup> Semester Code (RBM2B001)**

## **MODULE-I (8 classes)**

### **Thermodynamics:**

Systems, Properties, Process, State, Cycle, Internal energy, Enthalpy, Zeroth Law, First law and Second Law of Thermodynamics, Basic Concept of Entropy, Properties of ideal gas., Properties of pure substances, Steam formation, Types of Steam, Enthalpy, Specific volume, Internal energy and dryness fraction of steam, use of Steam tables. Related numericals.

## **MODULE-II (6 classes)**

### **Application of Thermodynamics:**

Air compressors, Steam Power Plant, Refrigerators and Heat pump, I.C. Engines (Brief Description of different components of above mentioned systems and working principles with Schematic diagram only)

## **MODULE-III (5 Classes)**

### **Basic Power transmission devices:**

Belt, Rope, Gear drives. Coupling, clutch, brakes. (Working principle only)

### **Introduction to Robotics:**

Robot anatomy, joints and links and common robot configurations

## **MODULE-IV (5 Classes)**

### **Mechanical Measurements:**

Temperature, pressure, velocity, flow, strain, force, torque measurements. (Working principle only).

### **Text books**

- i. Basic Mechanical Engineering by Pravin Kumar, Pearson
- ii. Basic Mechanical Engineering by A R Israni, P K Shah, BS Publications
- iii. Text book of Elements of Mechanical Engineering, S T Murthy, Universities press
- iv. Basic and applied Thermodynamics by P. K. Nag, Tata McGraw Hill

### **Reference books**

- i. Basic Mechanical Engineering by .D. Mishra, P.K Parida, S.S.Sahoo, India Tech Publishing company
- ii. Elements of Mechanical Engineering by J K Kittur and G D Gokak, Willey
- iii. Basic Mechanical Engineering by BasantAgrawal, C M Agrawal, Willey
- iv. Engineering Thermodynamics by P. Chattopadhaya, Oxford University Press