



**PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY, KANURU, VIJAYAWADA
(Autonomous)**

***DEPARTMENT OF MECHANICAL ENGINEERING
COURSE STRUCTURE WITH EFFECT FROM 2012-13***

I Year B.Tech. M.E.	T	P	C
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ME2T5- BASIC MECHANICAL ENGINEERING

UNIT-I

Casting: Introduction, General method in making a Casting, pattern: types, materials and allowances. Moulding materials and equipment, Preparation, properties of moulding sands.

UNIT-II

Welding: Principles of gas welding and arc welding, Soldering and Brazing;
Lathe: Description of basic machine tool- Lathe – operations – turning, threading, taper turning and drilling.

UNIT-III

Power Transmission: Introduction to belt and gears drives, types of gears, Difference between open belts and cross belts, power transmission by belt drives; (theoretical treatment only).

UNIT – IV

Power Plants: Introduction, working principle of hydro electric power plant and steam power plant, Alternate sources of energy – solar, wind and tidal power;

UNIT-V

Refrigeration & Air Conditioning: Definition – COP, Unit of Refrigeration, Applications of refrigeration system, vapour compression refrigeration system, simple layout of summer air conditioning system;

UNIT-VI

IC Engines: Introduction, Main components of IC engines, working of 4-stroke petrol engine and diesel engine, working of 2- stroke petrol engine and diesel engine, difference between petrol and diesel engine, difference between 4- stroke and 2- stroke engines.

UNIT-VII

Simple Stress and Strains: Elasticity and Plasticity – Types of stresses & strains – Hooke's law – stress – strain diagram for mild steel – Working stress – Factor of safety – Lateral strain, Poisson's ratio & volumetric strain- Elastic moduli & the relationship between them.



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UNIT-VIII

Properties of Materials: Physical properties - Mechanical properties – Electrical properties, Magnetic Properties and Chemical properties.

Text books:

1. Fundamentals of Mechanical Engineering / G.S.Sawheny- PHI.
2. An Integrated Course in Mechanical Engineering / R.K.Rajput /Biral Publications.
3. I.C. Engines / V. GANESAN- TMH.
4. Strength of Materials by R.K. Rajput, S.Chand & Company.
5. Thermal Engineering / R.K. Rajput / Lakshmi Publications.

References:

1. Thermodynamics and Heat Engines / R. Yadav / Central Book Depot.
2. Strength of Materials by R.K.Bansal, Laxmi Publishers.
3. Engineering Mechanics Statics and dynamics by A.K.Tayal, Umesh Publication, Delhi.
4. Fundamentals of I.C.Engines - P.W. Gill, J.H. Smith & Ziurys- IBH & Oxford pub.