

**B. Tech – I (MECHANICAL & PRODUCTION)****L T P C****ENGINEERING DRAWING****2 0 4 4****CIME 105 ABC****CIME 205 DEF**

---

**THEORY:**

- Introduction: Importance of Engineering Drawing, Drawing instruments and materials, B.I.S. and ISO conventions, lines lettering and dimensioning.
- Plane Geometry : Geometrical Construction : line, arc and angle, divisions of straight line and circumference, construction of polygon, Scales : types of scales – plane scale, diagonal scale, vernier scale, functional scale, concept of conversion scale and nomogram
- Conic Sections: Ellipse, conjugate diameters, parabola, hyperbola, rectangular hyperbola.
- Orthographic Projection: Principle of first and third angle projection, projection of points, projection of straight lines, projection of planes.
- Building Drawing: Building components and terminology, building plans, elevation & sections.
- Solid Geometry: Projection of solids : polyhedral, prisms, pyramids, cylinder, cone, auxiliary projection method, one view, two view and three view drawings. Missing view, rules for selection of views.
- Section of Solids: Sectional view, section plane perpendicular to the HP & VP and other various positions, true shape of sections.
- Intersection: Classification, line of interaction, line/generator method and section plane method; intersection of two prisms, two cylinders, interaction of cone and cylinder.
- Development of Surface: Method of development, parallel line development, radial line development, developments of cylinder, cone, prism, pyramid, true length of edges – oblique surface.
- Isometric Projections: Terminology, isometric scale, isometric view and isometric projection, isometric axes and lines, missing view.

**PRACTICAL** : Based on above theory course.**BOOKS REFERENCES :**

1. K.L. Gopal Krishna, "Engineering Drawing", Subhas Publications, 1995.
2. N.D. Bhatt, "Engineering Drawing", Chrotar Publishing House, 1989.
3. K. Venugopal, "Engineering Drawing made Easy" Wiley Eastern Ltd., 1993.
4. M.L. Agrawal, R.K. Garg, "Engineering Drawing Vol -I", Dhanpatrai & Co., 1997.

**B. Tech – I (MECHANICAL & PRODUCTION)**

Basic Mechanical Systems

MED 210 ABC

MED 110 DEF

**L T P C****3 0 2 4****THEORY :**

- Conventional and non-conventional energy sources-types of fuels, Calorific value of fuels, calculation of minimum air required for Complete Combustion of fuel.
- Steam generators, Definition, Classification, general study of Cochran, Babcock Wilcox, Lancashire and Locomotive boilers, boilers mountings and accessories, Draught Classification, Calculation of Chimney height, boiler efficiency and numericals.
- Internal Combustion Engines – Definition, Classification, Components, Working of the two stroke and Four-stroke cycle engines, S.I. and C.I. Engines, various efficiencies. Air standard cycles – Otto, diesel & dual cycle & numerical.
- Layout of different types of power plants – Thermal power plant, Nuclear power plant, Hydro power plant.
- Machine tools: Introduction to different types of machine tool such as lathe, drilling machines, shaper, and various operations, and numericals on machining process.
- Refrigeration and air conditioning: Definition refrigeration and air conditioning, Vapour Compressor system, domestic refrigerator, Ice plant, Wiadool air conditioner.

**PRACTICALS / DRAWING + TUTORIAL ASSIGNMENT :**

Based on the theory course prescribed above.

**BOOKS REFERENCES :**

1. R.K. Rajput, "Thermal Engineering", Laxmi Publications, 1994.
2. T.S. Rajan, "Basic Mechanical Engineering", Wiley Eastern Ltd., 1996.
3. S.B. Mathur, S. Domkundwar, "Elements of Mechanical Engineering", Dhanpat Rai & Sons, 1999.
4. S.K. Hajra Chaudhry, "Elements of Workshop Technology Vol. I", Asia Publishing Co. Ltd., 1988.
5. W.A.J. Chapman, "Workshop Technology", ELBS Low Price Text, Edward Donald Pub. Ltd., 1961.
6. A.A. Memon, Sakaria, "Elements of Heat Power", Popular Publications, 1986.
7. H.R. Kapoor, "Thermal Engineering Vol. I and II", Tata McGraw Hill Co. Ltd., 1988.
8. H.S. Bawa, "Workshop Technology", Tata McGraw Hill Publishing Co. Ltd., 1995.
9. M.K. Bhatt, A.A. Memon, S.P. Dubey, "Basic Course in Mechanical Engineering", Popular Prakashan, Surat, 2001.

**B. Tech – I (MECHANICAL & PRODUCTION)****Workshop Practice  
MED 212 ABC  
MED 112 DEF**

L	T	P	C
0	0	4	2

**THEORY : NIL****PRACTICALS :**

Introduction, Demonstration of various trades such as carpentry, fitting, smithy, machine shop, soldering and other joining processes practice. Use of hand tools in various trades. Specific jobs in carpentry, fitting, smithy, machine shop, drilling – tapping on metallic and non-metallic components, soldering practice and other joining processes.

**BOOKS REFERENCES :**

1. H.S. Bava, "Workshop Technology", Tata McGraw Hill Publishing Co. Ltd., 1995.
2. S.K. Hajra Chaudhary, "Elements of Workshop Technology Vol. I", Asia Publishing House, 1988.
3. W.A.J. Chapman, "Workshop Technology", ELBS Low Price Text, Edward Donald Pub. Ltd., 1961.
4. Gupta K.N. & Kaushish J.P., "Workshop Technology Vol. I, II", New Delhi Heights Pub., New Delhi, 1991.
5. Raghuwanshi B.S., "Course in Workshop Technology", Dhanpat Rai & Sons, New Delhi, 1991.
6. Tejwani V.K., "Basic Machine Shop Practice Vol. I, II", Tata McGraw Hill Pub. Co., New Delhi, 1989.
7. Arora B.D., "Workshop Technology Vol. I, II", Satya Prakashan, New Delhi, 1981.