LESSON PLAN

**Name of Faculty:** Mr. Sudeep Khatri

**Discipline:** Mechanical Engineering

**Semester:** 1ST

**Subject:** Engineering Graphics

**Duration**: 15 Weeks

**Teaching Load:** 6 Hours practical/week

|  |  |  |
| --- | --- | --- |
| Week | Day Lecture | Topic |
| 1 | 1 | **UNIT-I**  **Introduction to Engineering Drawing and Graphics:** Introduction to Engineering Drawing and Graphics, Symbols and conventions-Conventions of Engineering Materials |
| 2 | Sectional Breaks and Conventional lines, Civil Engineering Sanitary fitting symbols,  Electrical fitting symbols for domestic interior installations. |
| 2 | 1 | **Geometrical construction**-geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc , division of line and circle with the help of drawing instruments. |
| 2 | **Technical Lettering of Alphabet and Numerals:** Definition and classification of  lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm) : upper case and lower case, single and double stroke |
| 3 | 1 | Vertical and inclined (Gothic lettering) at 75 degree to horizontal and with  suitable height to width ratio 7:4. |
| 2 | **Dimensioning:** Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). |
| 4 | 1 | Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles,  tapered surfaces, |
| 2 | Holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches. |
| 5 | 1 | **Scales: Scales –**Needs and importance (theoretical instructions), Type of scales,  Definition of Representative Fraction (R.F.) and Length of Scale. |
| 2 | To draw/construct plain and diagonal scales. |
| 6 | 1 | Doubt Session |
| 2 | 1st sessional |
| 7 | 1 | **UNIT II**  **Orthographic Projections:** Theory of orthographic projections (Elaborate theoretical instructions). Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle. |
| 2 | Projection of Points in different quadrant, Projection of Straight Line (1st angle),  Line parallel to both the planes |
| 8 | 1 | Line perpendicular to any one of the reference plane and parallel to others, Line inclined to any one of the references and parallel to another plane. |

|  |  |  |
| --- | --- | --- |
|  | 2 | **Projection of Plane** – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT). Identification of surfaces. |
| 9 | 1 | **Sectioning:** Importance and salient features, Drawing of full section, half section,  partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only). |
| 2 | Orthographic sectional views of different objects. |
| 10 | 1 | Doubt session |
| 2 | 2nd sessional |
| 11 | 1 | **UNIT III**  Introduction of projection of right solids such as prism & pyramid (square, Pentagon, Hexagonal) cube, cone & cylinder (Axes perpendicular to H.P and parallel to V.P.) Introduction of sections of right solids - Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.) |
| 2 | Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple  problems) |
| 12 | 1 | **UNIT IV: Isometric Views**  Fundamentals of isometric projections and isometric scale. Isometric views of different laminas like circle, pentagon and hexagon. |
| 2 | Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism. Isometric views from given different orthographic  projections(front, side and top view) |
| 13 | 1 | **UNIT-V: Introduction to AutoCAD**  Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets of different objects on AutoCAD (given pictorial/isometric view of a block). |
| 2 | AutoCAD skill of student is evaluated in internal assessment only not in external  exam. |
| 14 | 1 | Doubt session |
| 2 | 3rd sessional |
| 15 | 1 | Revision |
| 2 | Revision |