**LESSON PLAN**

**Name of the Faculty** : Sh. Bijender Singh

**Discipline** : Mechanical Engineering

**Year** : 1st

**Subject** : Engineering Graphics

# Lesson Plan Duration : Sept. 2024 to Dec. 2024

# Work Load (Practical) per week (in hours) : 6 Hours

| **Week** | **Lecture** | **Theory Topic** | **Sign.**  |
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| 1 | 1st | **UNIT I** **1. Introduction to Engineering Drawing and Graphics** Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards. |  |
| 2nd | Symbols and conventions- Conventions of Engineering Materials, Sectional Breaks and Conventional lines. Civil Engineering Sanitary fitting symbols. Electrical fitting symbols for domestic interior installations.  |  |
| 2 | 3rd | Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves with the help of drawing instruments.  |  |
| 4th | Geometrical construction-geometrical figures such as hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments. |  |
| 3 | 5th | **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,  |  |
| 6th | Single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4. |  |
| 4 | 7th | **Dimensioning** Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches. |  |
| 8th | **Scales** Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale. |  |
| 5 | 9th | To draw/construct plain and diagonal scales. |  |
| 10th | Sheets Checking & Revision |  |
| 6 |  | 1st Sessional |  |
| 7 | 11th | Theory of orthographic projections (Elaborate theoretical instructions) ; Projections of points in different quadrants ; Projection of line (1st angle and 3rd angle) ; Line parallel to both planes |  |
| 12th | Line perpendicular to any one of the principal plane ; Line inclined to any one of the principal plane and parallel to other  |  |
| 8 | 13th | Three views of orthographic projections of different objects (At least one sheet in 3rd angle) ;  |  |
| 14th | Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT). |  |
| 9 | 15th | Identifications of surfaces, Importance and salient features of sectioning of objects; |  |
| 16th | Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).  |  |
| 10 | 17th | Orthographic sectional views of different objects |  |
| 18th | Sheets Checking & Revision |  |
| 11 |  | 2nd Sessional |  |
| 12 | 19th | **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.)  |  |
| 20th | 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.)  |  |
| 13 | 21st | Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)  |  |
| 22nd | **UNIT IV** **Isometric Views**  Fundamentals of isometric projections and isometric scale. Isometric views of different laminas like circle, pentagon and hexagon.  |  |
| 14 | 23rd | 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)  |  |
| 24th | **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) |  |
| 15 | 25th | 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) |  |
| 26th | Sheets Checking & Revision |  |
| 16 |  | 3rd Sessional |  |