



**GOVERNMENT POLYTECHNIC, KORAPUT DEPARTMENT CIVIL
ENGINEERING**


| | | |
|--|--|--|
| Discipline: MATH AND SCIENCE | Semester: 1ST | Name of the Teaching Faculty: ABHISEK MOHANTY, PTGF |
| Subject: ENGINEERING DRAWING | No. of days/perweek class allotted: 06 | Semester From date: 16.08.2023 To Date: 12.12.2023 No. of Weeks: 15 |
| PRE-REQUISITE | Basic knowledge about drawing equipments and unit,dimensions. | |
| COURSE OUTCOMES | CO1. Understand the importance of Engineering Drawing. CO2. Demonstrate the use of different drawing instrument. CO3. Make free hand lettering and numbering. CO4. Practice of dimensioning of drawing. CO5. Undertake different geometric constructions, projections of straight line, planes and solids. CO6. Take up different orthographic projections. CO7. Draw sectional views, development of surface of different solids. CO8. Develop the concept of building drawing. CO9. Prepare 2D engineering drawing using Auto CAD software. | |
| Week | Class Day | Theory / Practical Topics |
| 1st | 1st | 1. INTRODUCTION & DEMONSTRATION 1.1 Identify various sizes of drawing boards, drawing sheets as pr BIS. |
| | 2nd | 1.2 List the types of pencils, instruments, and scales (RF). |
| | 3rd | 1.3 Demonstrate lying of drawing sheet, margin, standard layout and title block as per BIS, folding principle of drawings (blue prints, print outs etc). |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS and MARKING |
| 2nd | 1st | 2. TYPES OF LINES, LETTERING & DIMENSIONING 2.1 Demonstrate and explain the use of various types of lines. |
| | 2nd | 2.2 Demonstrate the principle of single stroke, gothic lettering & numerals as per BIS. |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS and MARKING |
| 3rd | 1st | 3. SCALES 3.1 Significance of scales in drawing; different scales. |
| | 2nd | 3.2 Define and draw plain sale and diagonal sale. |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS and MARKING |
| | 1st | 4. CURVES 4.1 Explain Conic sections with illustration, Explain terms like focus, vertex, directrix and eccentricity. |

| | | |
|-----|-----|---|
| 4th | 2nd | 4.2 Draw conics sections by eccentricity method – Ellipse, Parabola and Hyperbola. |
| | 3rd | 4.3 Draw Ellipse by concentric circle method and arc of circle method. |
| | 4th | 4.4 Draw parabola by Rectangle Method and Tangent Method. |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS |
| 5th | 1st | DRAWING SHEETS |
| | 2nd | DRAWING SHEETS AND MARKING |
| | 3rd | 5. ORTHOGRAPHIC PROJECTIONS 5.1 Demonstrate the principles of 1st angle and 3rd angle projections with the help of models and draw symbols. |
| | 4th | 5.2 Draw projection of points. |
| | 5th | 5.3 Draw projection of straight line (parallel to both planes, parallel to one and perpendicular to other, parallel to one and inclined to other and inclined to both reference planes). |
| | 6th | 5.4 Draw plane figure such as squares, rectangles, triangles, circle, Pentagon and hexagon (perpendicular to one plane and inclined to other). |
| 6th | 1st | 5.5 Draw projections of solids such as prism, cylinder, cone, tetrahedron and pyramid in simple position (with axis parallel to one reference plane and perpendicular to other reference plane). |
| | 2nd | DRAWING SHEETS |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS AND MARKING |
| 7th | 1st | 6. SECTION & DEVELOPMENTS 6.1 Draw the sectional projection & development of prism, cylinder, cone and pyramid in simple position by a cutting plane perpendicular to one reference plane and inclined to other reference plane. |
| | 2nd | 6.2 Draw true shape of the cutting sections. |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS AND MARKING |
| 8th | 1st | 7. ISOMETRIC PROJECTIONS Draw isometric view & Isometric projection of prism, pyramid, cone & cylinder with axis horizontal and vertical with construction of isometric scales. |
| | 2nd | DRAWING SHEETS |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS AND MARKING |
| 9th | 1st | 8. BUILDING DRAWING 8.1 Explain terms related to building drawing. |
| | 2nd | 8.2 Draw plan, elevation of single room building with verandah (Flat roof according to given line plan and specification). |
| | 3rd | DRAWING SHEETS |
| | 4th | DRAWING SHEETS |
| | 5th | DRAWING SHEETS |
| | 6th | DRAWING SHEETS AND MARKING |
| | 1st | 9. PRACTICES ON AUTO CAD 9.1 Introduction-Settings, Limits etc. |

| | | |
|------|-----|--|
| 10th | 2nd | 9.2 Auto CAD commands Draw commands (Line, circle, arc polygon, ellipse, rectangle) |
| | 3rd | Edit command, Dimension commands and Modify Commands for two dimensional drafting only. |
| | 4th | DRAWING PRACTICE |
| | 5th | DRAWING PRACTICE |
| | 6th | DRAWING PRACTICE |
| 11th | 1st | DRAWING PRACTICE |
| | 2nd | DRAWING PRACTICE |
| | 3rd | DRAWING PRACTICE |
| | 4th | DRAWING PRACTICE |
| | 5th | DRAWING PRACTICE |
| | 6th | DRAWING PRACTICE AND MARKING |
| 12th | | 9.3 Exercise for practice using Auto CAD. 9.3.1 Orthographic projections of lines, planes and solids as per chapter 5.0. |
| | | 9.3.2 Isometric projection as per Chapter 7.0. |
| | | DRAWING PRACTICE |
| | | DRAWING PRACTICE |
| | | DRAWING PRACTICE |
| 13th | | DRAWING PRACTICE |
| | | DRAWING PRACTICE |
| | | DRAWING PRACTICE |
| | | DRAWING PRACTICE |
| | | DRAWING PRACTICE AND MARKING |
| | | DRAWING PRACTICE AND MARKING |
| 14th | 1st | DRAWING SHEET PRACTICE |
| | 2nd | DRAWING SHEET PRACTICE |
| | 3rd | DRAWING SHEET PRACTICE |
| | 4th | DRAWING SHEET PRACTICE |
| | 5th | DRAWING SHEET PRACTICE |
| | 6th | DRAWING SHEET PRACTICE |
| 15th | 1st | DRAWING SHEET PRACTICE |
| | 2nd | DRAWING SHEET PRACTICE |
| | 3rd | DRAWING SHEET PRACTICE |
| | 4th | DRAWING SHEET PRACTICE |
| | 5th | DRAWING SHEET PRACTICE |
| | 6th | FINAL VIVA |

Learning Resources:

1. Machine Drawing by Basudeb Bhattacharya, Oxford University Press.
2. A Text Book of Engineering Drawing by Dr. R.K. Dhawan.
3. A Text Book of Engineering Graphics & Auto CAD by K Venugopal.
4. A Text book of Engineering Drawing by N.D. Bhatt.
5. Engineering Drawing by P.S. Gill.
6. A Introduction to Auto CAD – 2012 by George Omura, Willey India Publishers


 Sign. of Faculty concerned 16/08/23


 Sign. of HOD