*Lesson Plan*

*Semester II*

|  |  |
| --- | --- |
| *Course Title :- Engineering Drawing*  | *SEE : 3hours - Theory*  |
| *Total contact hours:34hrs* | *Duration : 3hrs* |
| *SEE Marks:60(theory) +15(Internal) +50 (Autocad Practical)* | *Shared with :*  |
| *Lesson Plan Author :- Prof. Saurabh Korgaonkar* | *Date: 5/1/2019*  |
| *Checked by:* | *Date:* |

Course Objectives:

1. To impart and inculcate proper understanding of the theory of projection.
2. To impart the knowledge of reading a drawing.
3. To improve the visualization skill.
4. To teach basic utility of computer aided drafting (CAD) tool.

 CO-PO-PSO mapping

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CO STATEMENT** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| To impart and inculcate proper understanding of the theory of projection. | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| To impart the knowledge of reading a drawing. | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| To improve the visualization skill. | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| To teach basic utility of computer aided drafting (CAD) tool. | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |

Syllabus

|  |  |  |
| --- | --- | --- |
| **Module** | **Detailed Contents** | **Hrs.** |
| **01** | **Introduction to Engineering Drawing:-** Types of Lines, Dimensioning Systems as per IS conventions.**Engineering Curves:-** Basic construction of Cycloid, Involutes and Helix (of cylinder) | **3** |
| only.\*\* **Introduction to Auto CAD:-** Basic Drawing and Editing Commands. Knowledge of setting up layers, Dimensioning, Hatching, plotting and Printing. |
| **02** | **Projection of Points and Lines:-** Lines inclined to both the Reference Planes | **6** |
| (Excluding Traces of lines) and **simple application based problems on Projection of lines**.**@Projection of Planes:-** Triangular, Square, Rectangular, Pentagonal, Hexagonal and Circular planes inclined to either HP or VP only. (Exclude composite planes) |
| **03** | **Projection of Solids:-** (Prism, Pyramid, Cylinder, Tetrahedron, Hexahedron and Cone only) | **14** |
| Solid projection with the axis inclined to HP and VP. (Exclude Spheres, Composite, Hollow solids and frustum of solids). Use change of position or Auxiliary plane method**Section of Solids:-** Section of Prism, Pyramid, Cylinder, Tetrahedron, Hexahedron & |
| Cone cut by plane perpendicular to at least one reference plane.( Exclude Curved Section Plane). Use change of position or Auxiliary plane method**Development of Lateral Surfaces of Sectioned Solids:-** Lateral surface development of |
| Prism, Pyramid, Tetrahedron, Hexahedron, Cylinder, Cone **with section plane** inclined to HP or VP only. (Exclude DLS of a solid with a hole in it and Reverse Development). (Exclude Reverse Development) |
| **04** | **Orthographic and Sectional Orthographic Projections:-** | **12** |
| * Different views of a simple machine part as per the first angle projection method recommended by I.S.
* Full or Half Sectional views of the Simple Machine parts.
* **\*\*Drawing of orthographic projections using Auto CAD.**
 |
| **Isometric Views:- Isometric View/Drawing of blocks of plain and cylindrical surfaces using plain/natural scale only. (Exclude Spherical surfaces).*** **\*\*Drawing of Isometric views using Auto CAD.**
* **@Reading of Orthographic Projections. [Only for Practical Exam (AutoCAD)**

**and Term Work]** |
| * **\*\*Orthographic Reading using Auto CAD.**

**\*\*Introduction to 3D in AutoCAD** **Working in 3-dimensions, Viewing 3D Objects, Basic wireframe models, Extruding, simple****revolved objects. Boolean operations.** |

No of lectures available :

|  |  |  |  |
| --- | --- | --- | --- |
| Sr No.  | Date |  Topic Details  | Topics taken by |
| 1 | 9/1/2019 | Role of engineering Drawing  | Prof. Saurabh korgaonkar |
| 2 | 10/1/2019 | Lettering & Scales | Prof. Saurabh korgaonkar |
| 3 | 11/1/2019 | Orthographic Views | Prof. Saurabh Korgaonkar  |
| 4 | 16/1/2019 | Orthographic Views  | Prof. Saurabh korgaonkar |
| 5 | 17/1/2019 | Orthographic Views | Prof. Saurabh korgaonkar |
| 6 | 18/1/2019 | Sectional Views | Prof. Saurabh korgaonkar |
| 7 | 23/1/2019 | Sectional Views | Prof. Saurabh Korgaonkar  |
| 8 | 24/1/2019 | Missing Views | Prof. Saurabh korgaonkar |
| 9 | 25/1/2019 | Missing Views | Prof. Saurabh korgaonkar |
| 10 | 30/1/2019 | Isometric Views | Prof. Saurabh korgaonkar |
| 11 | 7/2/2019 | Isometric Views | Prof. Saurabh korgaonkar |
| 12 | 8/2/2019 | Engineering Curves -> Helix | Prof. Saurabh korgaonkar |
| 13 | 20/2/2019 | Engineering Curves -> Cycloid | Prof. Saurabh korgaonkar |
| 14 | 21/2/2019 | Engineering Curves -> Involute | Prof. Saurabh korgaonkar |
| 15 | 22/2/2019 | Projection of points | Prof. Saurabh korgaonkar |
| 16 | 27/2/2019 | Projection of lines | Prof. Saurabh korgaonkar |
| 17 | 28/3/2019 | Projection of lines | Prof. Saurabh korgaonkar |
| 18 | 1/3/2019 | Projection of lines | Prof. Saurabh korgaonkar |
| 19 | 6/3/2019 | **Projection of planes** | Prof. Saurabh korgaonkar |
| 20 | 7/3/2019 | Projection of solids | Prof. Saurabh korgaonkar |
| 21 | 8/3/2019 | Projection of solids | Prof. Saurabh korgaonkar |
| 22 | **13/3/2019** | Projection of solids | Prof. Saurabh Korgaonkar  |
| 23 | 14/3/2019 | Section of Solids | Prof. Saurabh korgaonkar |
| 24 | 15/3/2019 | Section of Solids | Prof. Saurabh korgaonkar |
| 25 | 20/3/2019 | Section of Solids | Prof. Saurabh korgaonkar |
| 26 | 22/3/2019 | Development of surfaces | Prof. Saurabh Korgaonkar  |
| 27 | 27/3/2019 | Development of surfaces | Prof. Saurabh korgaonkar |
| 28 | Remedial Classes | Question Paper solved | Prof. Saurabh korgaonkar |

\* Methods of Teaching include but are not limited to following list:

* Lecture
* Demonstration
* Models
* PPTs

**Tutorial / Practical’s Plan:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Duration (Hrs.)** | **Topic** | **Method of Conducting Tutorial / Practical** | **Remarks** **(If Any)** |
| **1** | **3** | **Orthographic Projection** | **Practical** |  |
| **2** | **3** | **Sectional Orthographic Projection** | **Practical** |  |
| **3** | **3** | **Isometric Drawing** | **Practical** |  |
| **4** | **3** | **Projection of lines** | **Practical** |  |
| **5** | **3** | **Projection of Solids**  | **Practical** |  |
| **6** | **3** | **Section of Solid and Development of Lateral Surface** | **Practical** |  |
| **7** | **3** | **Engineering Curves** | **Practical** |  |

\* Method of Conducting Practicals / Tutorials include but not limited to:

* Assignments

**Reference Books:**

1. N.d. Bhatt “Engineering Drawing (Plane and solid Geometry)”, Charotar Publishing House
2. N.D.Bhatt & V. M. Panchal , “Marketing Drawing”, Charotar Publishing House Pvt. Ltd
3. M.B. Shah & B.C. Rana “Engineering Drawing”, Pearson Publicatiions
4. P. J. Shah, “Engineering Graphics”, S. Chand Publications
5. Dhananjay A Jolhe, “Engineering Drawing” Tata McGraw Hill
6. Prof. Sham Tickoo (Perdue University) & Gaurav Verma (CAD Soft Technologies) : Auto CAD 2012 (For Engineers and Designers)”, Dreamtech Press New Delhi.