# ENGINEERING GRAPHICS

**I Year II-Semester: Common to All Branches**

| Course Code | Category | Hours / Week | | | Credits | Maximum Marks | | |
|---|---|---|---|---|---|---|---|---|
| | | L | T | P | C | CIA | SEE | Total |
| A5ME02 | ESC | 1 | - | 4 | 3 | 30 | 70 | 100 |

**COURSE OBJECTIVES:**

The course should enable the students to:

1. Create awareness and emphasize the need for Engineering Drawing in various branches of engineering.
2. Enable the student with various concepts of dimensioning, conventions and standards related to engineering drawings.
3. Follow the basic drawing standards and conventions.
4. Develop skills in three-dimensional visualization of engineering component.

| UNIT-I | INTRODUCTION TO ENGINEERING DRAWING | Classes: 07 |
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Introduction to Engineering Drawing: Principles of Engineering Graphics and their significance, usage of drawing instruments, lettering, Conic sections including the Rectangular Hyperbola (General method only); Cycloid, Epicycloid, Hypocycloid and Involute.

| UNIT-II | DRAWING OF PROJECTIONS OR VIEWS: ORTHOGRAPHIC PROJECTION IN FIRST ANGLE PROJECTION ONLY | Classes: 10 |
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Principles of orthographic projections – conventions – first and third angle projections. Projections of points-Projection of lines inclined to both the planes.

PROJECTIONS OF PLANES: Projections of regular planes, inclined to both planes.

| UNIT-III | PROJECTION OF REGULAR SOLIDS | Classes: 08 |
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PROJECTION OF SOLIDS**-**Solids inclined to one plane and both planes (Auxiliary plane method )

Sections or Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone

| UNIT-IV | DEVELOPMENT OF SURFACES/SOLIDS | Classes: 04 |
|---|---|---|

DEVELOPMENT OF SURFACE/SOLIDS: Theory of development, development of lateral surface along with base

| UNIT-V | ISOMETRIC DRAWINGS | Classes: 05 |
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Divisions of pictorial projection, theory of Isometric Drawing- Isometric view and Isometric projections; Drawing Isometric circles, Dimensioning, Isometric Objects; Conversion of Isometric view to Orthographic views and Orthographic to isometric views, Missing views.

**Text Books:**

1. Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House
2. Shah, M.B. & Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education
3. Agrawal B. & Agrawal C. M. (2012), Engineering Graphics, TMH Publication
4. Narayana, K.L. & P Kannaiah (2008), Text book on Engineering Drawing, Scitech Publishers .

**Reference Books:**

1. Johle (2009), Engineering Drawing, Tata Mc Graw Hill, New Delhi, India.

**Web References:**

1. nptel.ac.in/courses/112103019/
2. web.iitd.ac.in/~achawla/public_html/201/lectures/sp46.pdf

**E-Text Books:**

1. https://www.researchgate.net/publication/305754529_A_Textbook_of_Engineering_Drawing_A_Textbook
2. https://www.researchgate.net/publication/305754529_A_Textbook_of_Engineering_Drawing

**MOOC Course**

https://onlinecourses.nptel.ac.in/noc20_me79/preview

**COURSE OUTCOMES:**

At the end of the course the student should be able to:

1. Sketch the various curves used in engineering and their applications
2. Apply the knowledge of quadrant system and say to which quadrant and angle of project the object belongs.
3. Evaluate the given object position and draw the projections of objects
4. Analyze the given sectioned objects like in sheet metal applications.
5. Develop the new drawings for the industry requirements.