

Engineering Graphics

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|--|----------------------|---------------------------------|-------|----------------------|--------|
| Course Code | 19ES1103 | Year | I | Semester | I |
| Course Category | Engineering Sciences | Branch | IT | Course Type | Theory |
| Credits | 2.5 | L-T-P | 1-0-3 | Prerequisites | Nil |
| Continuous Internal Evaluation: | 30 | Semester End Evaluation: | 70 | Total Marks: | 100 |

| Course Outcomes | |
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| Upon successful completion of the course, the student will be able to | |
| CO1 | Conic sections and curves used in engineering practice. |
| CO2 | Orthographic projections of points, lines, planes and solids. |
| CO3 | Isometric and orthographic views. |
| CO4 | Development of lateral surfaces of solids. |
| CO5 | Features of CAD packages. |

| Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H:High, M: Medium, L:Low) | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | H | | | | | | | | | H | L | | L | |
| CO2 | H | | | | | | | | | H | L | | L | |
| CO3 | H | | | | | | | | | H | L | | L | |
| CO4 | H | | | | | | | | | H | L | | L | |
| CO5 | H | | | | H | | | | | H | L | | L | |

| Syllabus | | |
|-----------------|---|-----------|
| Unit No. | Contents | Mapped CO |
| I | <p>Introduction to Engineering Graphics: Principles of Engineering Graphics and their significance- Conventions in drawing, lettering, dimensioning, BIS conventions.</p> <p>a) Conic sections: Construction of ellipse, parabola and hyperbola (general method only)</p> <p>b) Cycloidal curves: Cycloid, Epicycloid and Hypocycloid</p> <p>c) Involutes: Involute of regular polygons and Circle.</p> | CO1 |
| II | <p>Projection of points, lines and planes: Projection of points in different quadrants, lines inclined to one and both the reference planes, finding true length and inclination made by the line. Projections of regular plane surfaces.</p> | CO2 |
| III | <p>Projections of solids: Projections of regular solids such as cube, prism, p cylinder and cone (Treatment limited to solids inclined to one of the referen</p> <p>Sections of solids: Section planes and sectional view of right regular solids- cube, prism, cylinder, pyramid and cone. True shape of the</p> | CO3 |

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| | section. (Treatment limited to the solids perpendicular to one of the principal planes) | |
| IV | Orthographic Views: Systems of projections, conversion of isometric view to orthographic view. Isometric Projections: Principles of isometric projection- isometric scale; isometric views: lines, planes and solids. (Treatment is limited to simple objects only) | CO4 |
| V | Development of surfaces: Development of lateral surfaces of right regular solids-prism, cylinder, pyramid, cone and their sectional parts. (Treatment limited to solids perpendicular to one of the principal planes) Introduction to CAD: Basic drawing, editing and dimensioning commands: line, circle, rectangle, erase, view, undo, redo, snap, edit, move, copy, rotate, scale, mirror, layer, template, polyline, trim, extend, stretch, fillet, array, dimension. | CO5 |

Learning Resources

Text Books

1. N.D. Bhatt, Engineering Drawing, 53/e, Charotar Publishers, 2016.
2. K.L. Narayana & P. Kanniah, Engineering Drawing, 3/e, Scitech Publishers, 2012.

Reference Books

1. Dhanajay A Jolhe, Engineering Drawing, Tata McGraw-Hill, 2009.
2. Shah and Rana, Engineering Drawing, 2/e, Pearson Education, 2009.
3. K. Venugopal, Engineering Drawing and Graphics, 6/e, New Age Publishers, 2011.
4. K.C. John, Engineering Graphics, 2/e, PHI, 2013.
5. Basant Agarwal and C.M. Agarwal, Engineering Drawing, Tata McGraw Hill, 2008.

e- Resources & other digital material

1. <http://www.youtube.com/watch?v=XCWJ XrkWco>, Accessed On 01-06-2017.
2. <http://www.me.umn.edu/courses/me2011/handouts/drawing/blanco-tutorial.html#isodrawing>, Accessed On 01-06-2017.
3. <http://www.slideshare.net>, Accessed On 01-06-2017.
4. <http://edpstuff.blogspot.in>, Accessed On 01-06-2017.