

Course Type	Course Code	Name of Course	L	T	P	Credit
SEC1	NCES101	Engineering Graphics	1	0	3	2.5

Course Objective
To provide knowledge about the basic concepts of engineering drawing and the methods of generating Engineering drawing using CAD software
Learning Outcomes
Upon completion of this course, student will <ul style="list-style-type: none"> Understand the various drawing techniques and ISO conventions. Develop drawings of one dimensional and two-dimensional engineering object Develop multi-view projection of 3D Engineering components. To use the AutoCAD to create machine drawings

Unit No.	Topics to be Covered	Lectures	Learning Outcome
1	Introduction: Guidelines (BIS Standards) for Drawing, Lettering, Lines and its types, Labelling & Dimensioning. Scale and its types	2	Drawing techniques and ISO (BIS) conventions, Drawing scales
2	Curves used in engineering practices: Conic sections and Cycloid.	1	Lines for Engineering drawing, Conic section Structure, components Cycloid-Gear System and pumps, turbines
3	Projection of points and lines: Projection of points in different quadrants, projection of line inclined to one plane, Orthographic projection of lines inclined to both the reference planes	1	Visualization for drawing 3D object in 2D surface
4	Projection of Planes: Orthographic projection of planes inclined to one plane and inclined to both the planes	1	Features of plane/Lamina/Plate
5	Introduction to CAD tools: Introduction to Layout, co- ordinate system, lines, polygons, curves, Editing of existing drawings	1	Basic drawing tools in CAD environment
6	Projection of Solids: Orthographic projection of solids inclined to one plane and inclined to both the planes Section of Solids: Section of Regular solids. Development of surface: Prism, Cylinder/Cone, Pyramids and truncated solids.	3	Multi-view projection of 3D Engineering components. Internal features of 3-D objects. Manufacturing of 3D. Engineering system from 2D sheets

7	Isometric Projection: Isometric scale, Orthographic to Isometric Projection- Real Examples, Isometric to Orthographic Projection- Real Examples, Orthographic to Isometric Projection- Example	5	Creating 3D view of objects from multi-view, 2D projection, Creating 2D layouts for 3D objects
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TEXT BOOKS:

1. Bhatt, N. D. and Panchal V. M., "Engineering Drawing", Charator Publishing House
2. Ryan D. L. "Computer-aided graphics and design", CRC press

REFERENCE BOOKS:

1. Chandra, A. M. and Chandra, Satish, "Engineering Graphics", Narosa Publishing House, New Delhi 2011
2. Giesecke, Mitchell, "Technical Drawing", Spencer, Hill, Dygdon and Novak, Macmillan Publishing Company. 2003
3. Venugopal K., "Engineering Drawing And Graphics + Autocad", New Age International Publishers

