

**Draft-- NIRMA UNIVERSITY
INDUSTRIAL DESIGN PROGRAM
Bachelor of Design, Department of Design
Year II, Semester IV**

L	T	P	C
		6	4

Course Code	DSK 226
Course Title	Visualization and Representation II

Course Learning Outcomes (CLO):

At the end of the course the students will:

1. Be able to do Product renderings and will master presentation techniques
2. Be able to do three dimensional Visualization using software skills.
3. Be able to have an understanding and making of 3D exploded views of objects using 3D software.
4. Be able to use computers for 2 dimensional drafting

Syllabus:

Teaching Hours: 112.5

1. Introduction to Principles of light and shadow

- Introduction to principles of light and shadow lines, planes and simple solids due to near and distant sources of light.
- Rendering techniques using pen & ink, colour, values, tones etc.

2. Introduction to AutoCAD as 2D drafting tool

- Introduction to Digital drawing tools, drawing lines and shapes, modifying lines and shapes, drawing with accuracy and speed
- Representation of plan, elevation and section in product drawings, using software such as AutoCAD drawing and printing to scale
- Introduction to text styles and sizes, hatches and dashed lines, stencils and blocks, advanced editing tools and dimensioning drawings

2. Three Dimensional modeling using software

- Introduction to 3D-modelling techniques
- 3D basics: Axes, Planes and Faces
- 3D objects: Box, Wedge, Cone, Sphere, Cylinder, Cube and Pyramids
- 3D Object Modifications: Practice with tools -Rotate, Mirror, Array and Scale, 3D Boolean operations- Subtract, Intersect, Union etc.
- 3D Object Modifications: Practice with tools -Rotate, Mirror, Array and Scale, 3D Boolean operations- Subtract, Intersect, Union etc.
- Solid modeling: Revolve, Shell, Taper, Loft, Path extrusion, Sweep etc.

Suggested Readings:

1. Bhatt, N. D. (2003). *Engineering Drawing*, Charotar Publishing House, Anand
2. Dinsmore, G. A. (1968) *Analytical Graphics*, D.Van Nostrand, Company Inc., Canada
3. Holmes, J. M. (1954) *Applied Perspective*, Sir Isaac, Pitman and Sons Ltd., London
4. Norling, E. (1969) *Perspective drawing*, Walter Foster Art Books, California
5. Robert, W.G. (2006), *Perspective: from basic to creative*. 1st Ed., Thames and Hudson, London
6. Gindis, E. (2014), *Up and Running with AutoCAD 2015: 2D & 3D Drawing and Modeling*, Oxford: Elsevier
7. Seidler, D. R. (2007), *Digital Drawing for Designers: A Visual Guide to AutoCAD 2012*, Fairchild Publications, London
8. Tutorials: <http://www.lynda.com/>
9. *Inside Rhinoceros* by Ron Cheng

w.e.f. Academic year _2018 and onwards

Key: L= Lecture, T= Tutorial, P= Practical, C= Credit