ENGINEERING DRAWING

Course Code: 22ES11ED

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1	0	4	3

Note: Part A is common to all branches and Part B is specific to the respective branch.

PART- A
(Common to all branches)

Course Outcomes: At the end of the course, the student will be able to
CO1: use engineering drawing instruments to draw various engineering curves (L3)
CO2: show projections of lines, planes and solids (L3)
CO3: draw conversion of orthographic to isometric views and vice versa (L3)

List of Exercises (Manual Drawing)

Introduction to engineering drawing and its significance – Conventions in drawing, lettering and BIS conventions.

1. Geometrical constructions: construct regular polygons
2. Construction of conic curves, cycloid and involute of the circle.
3. Projection of lines.
4. Projections of planes.
5. Projections of solids and section of solids in simple positions.
6. Conversion of Orthographic to Isometric views.
7. Conversion of Isometric to Orthographic views.

Text Books:

1. N. D. Bhatt, *Engineering Drawing*, 53rd Edition, Charotar Publishers, 2016.
2. K. L. Narayana and P. Kannaiah, *Engineering Drawing*, 3rd Edition, Scitech Publishers, Chennai, 2012.

Reference Books:

1. Dhanajay A Jolhe, *Engineering Drawing*, 1stEdition, Tata McGraw-Hill, 2007.
2. Venugopal, *Engineering Drawing and Graphics*, 5rd Edition, New Age Publishers, 2004.
3. Basant Agarwal and C. M. Agarwal, *Engineering Drawing*, 2nd Edition Tata McGraw-Hill, 2013.

Common to CSE, IT, CSE(AI&ML), CSE(DS)

Course Outcomes: At the end of the Course the student shall be able to:

CO4: model 3D objects for real world applications. (L3)
CO5: use motion effects for a real time animation. (L3)
CO6 :apply effects of modifiers to simulate a real time game environment.(L3)

List of Activities: (Any **Six** activities should be carried out)

1. Develop 3D Modeling Basics with following effects:
   - The 3D View.

- Adding and Transforming Objects.
- Edit Mode.
- Light, Material, and Texture.
- Saving Your Work.

2. Design 3D Modeling application with following features:
   - Text.
   - Curves.
   - Proportional Editing.
   - Extruding Meshes.
3. Design 3D Modeling application with Mesh Modifiers and Light & Material effects.
4. Develop a low poly model (house, vehicle, things, etc.).
5. Design an Animation with following effects:
   - Keyframe Animation and F-Curves.
   - Tracking.
   - Path Animation.
   - Particle Systems.
   - Rendering an Animation.
6. Design a game environment (low poly).
7. Modifiers [50 modifiers in total].
8. Design realistic models (high poly) [ex: glass tumbler, wooden bridge, hammer].
9. Rigging and short animations.

Reference Books:

1. Lance Flavell, *Beginning Blender Open Source 3D Modeling, Animation, and Game Design*, 1st Edition, Apress, 2011.
2. James Chronister, *Blender Basics Classroom Tutorial Book*, 5th Edition, A Creative Commons Attribution-NonCommercial-Share Alike 4.0 International, License, 2017.

Web References:

1. http://math.hws.edu/graphicsbook/a2/index.html
2. https://docs.blender.org/manual/en/latest/
3. https://cloud.blender.org/training/
4. http://www.cdschools.org/blenderbasics