

Course Code				
Course Name	DESIGN DRAWING & VISUALIZATION			
Credits	4			
Course Offered to	UG			
Course Description	DESIGN DRAWING Based on the premise that drawing is central to the design process this course focuses on drawing as a medium for observing, representing, conceptualizing, visualizing and communicating design ideas. The emphasis is on drawing by hand, which is the most direct and intuitive means we have to express our visual thoughts and perceptions. In direct response to our visual thoughts and perceptions, we develop an understanding of spatial concepts and the critical ability to think and visualize in three dimensions through the tactile nature of drawing.			
	This course fosters understanding of drawing and sketching as a means to develop observational skills through the study of the environment and as a tool for visual representation, ideation/conceptualization, visualization and communication or presentation of design ideas through sketching and drawing from both observation and memory.			
	VISUALIZATION DRAWING Visualization is an act of thought or reflection. In design, we speculate and visualize what might be possible in the future. Drawing gives material existence to our conceptions so that they can be seen, assessed, and acted upon. The drawing out of these ideas, whether executed quickly or slowly, roughly or carefully, is necessarily speculative in nature. We can never determine beforehand precisely what the final outcome will be. The developing image on paper gradually takes on a life of its own and guides the exploration of a concept as it travels between mind and paper and back again. Drawing from the imagination addresses issues that arise as we think in a speculative manner to stimulate the design process, develop our design ideas through drawing, and plan how to present our design proposals in the best possible light. This course gives the students an overview of the generative and developmental stages of the design process and drawing as distinctly speculative in nature. Thoughts develop as a drawing progress, which can alter perceptions and suggest possibilities not yet conceived.			
Pre-requisites				
Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite(other)		
A Keen Eye				
A Curious and Open Mind	Attitude to practice regularly	Determination to learn		
*Please insert more rows if required				
Post Conditions*(For suggestions on verbs please refer the second sheet)				
CO1	CO2	CO3	CO4	CO5
• Students will develop the skill & ability to observe and visually represent all the elements in their environment with a focus on human forms, objects and nature and the way they interact.	• Students will inculcate skills and develop the ability to explain the importance of precision in design through drawings using instruments/tools and concept of figures/configuration through basic geometrical patterns on 2D surfaces.	• Students will develop the ability to discuss orthographic and isometric projections as fundamental tools of technical drawing and use technical drawings as a tool for visual communication.	• Students will develop the ability to analyse visual structure of 3D forms on 2D surfaces with an exposure to the complexities of imagination and visualization.	• Students will develop the ability to analyse complex images and in turn develop the ability to create mental imageries and visualise concepts.
Weekly Lecture Plan				
Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial	
1	<b>1. INTRODUCTION TO DESIGN DRAWING :</b> What does drawing mean to a design student? Drawing as an activity, sensitizes the student to observe accurately and represent visuals accurately. <b>1a. Introduction to Materials, Tools &amp; Methods :</b> i. Importance of different grades of pencils & exploring different ways of holding the pencil to develop control of drawing implements. ii. Developing free finger, wrist, hand & arm movement and initiate muscle-memory through making of markings iii. Introduction to Observation – Scrutinize, Examine, Study, Inspect, Perceive, Sense, Feel, Notice, Identify, Understand iv. Training the eye to observe accurately to educate the visual sense. v. Introduction to Perception – View, Opinion, Insight, Discernment. vi. Introduction to Perspective – Eye level, Vanishing Point	CO1	<b>1. PROCESS OF LEARNING TO DRAW &amp; SKETCH</b> i. Exploring different grades of pencils & different ways of holding the pencil to develop control of drawing implements. ii. Freehand doodling & sketching to encourage free finger, wrist, hand & arm movement and initiate muscle-memory through making of markings. iii. Introduction to Observational Sketching. Introduction to Perceptual Sketching v. Introduction to Perspective Drawing iv.	
2	<b>2. DRAWING OF CUBES and PERSPECTIVES :</b> i. Introduction to Vanishing Points, View Point, Eye Level, Horizon, Parallel & Converging Lines. ii. One Point Perspective. iii. Two Point Perspective. iv. Three Point Perspective. v. Perspective in the Environment, Interior Spaces and Objects.	CO1	<b>2. SKETCHING SIMPLE BASIC 3D CUBES TO UNDERSTAND DIFFERENT PERSPECTIVES</b> i. Demonstrating the understanding of Vanishing Points, View Point, Eye Level, Horizon, Parallel & Converging Lines. ii. Drawing Cubes in One Point Perspective. iii. Drawing Cubes in Two Point Perspective. iv. Drawing Cubes in Three Point Perspective. v. Applying the principles of perspective in sketches of man-made objects and environmental spaces (Buildings, Interior Spaces, etc).	
3	<b>3. OBJECT DRAWING :</b> i. Introduction to other geometric forms like cylinder, cuboids etc. ii. Introduction to Object Drawing iii. How to observe – shape, proportions, effect of light on the objects etc.	CO1	<b>3. SKETCHING MAN MADE OBJECTS</b> i. Sketching geometric forms like Cylinder, Cuboids etc. ii. Introduction to Object Drawing	
4	<b>4. HUMAN FORM DRAWING :</b> i. Introduction to Human Form proportions. ii. Human Form – Object Relationships	CO1	<b>4a. SKETCHING HUMAN FORMS</b> <b>4b. SKETCHING HUMAN FORMS WITH OBJECTS</b>	

5	<b>5. GEOMETRY &amp; STRUCTURE (Analogue) :</b> i. Construction of Basic Polygons ii. Proportioning Systems : Golden Proportion	C02	<b>5. GEOMETRICAL CONSTRUCTION (Analogue)</b> 5a. Construction of straight lines, parallel lines, perpendicular lines & inclined lines. 5b. Construction of circles and tangent lines. 5c. Construction of triangles, squares and polygons.
6	<b>6. GEOMETRY &amp; STRUCTURE (Digital) :</b> i. Interrelation of Polygons	C02	<b>6. GEOMETRICAL CONSTRUCTION (Digital)</b> 6a. Creating Tessellations
7	<b>7. MID TERM REVIEW</b>	OPEN HOUSE Presentation of Students' Work	<b>7. MID TERM ASSESSMENT</b>
8	<b>8. PROJECTION DRAWINGS :</b> i. Orthographic Projection of Planes and Solids.	C03	<b>8. DRAWING OF ORTHOGRAPHIC PROJECTION OF PLANES AND SOLIDS</b>
9	<b>9. ANALYTICAL DRAWING :</b> i. Isometric Projection ii. Architectonic Drawing	C04	<b>9. FREEHAND ANALYTICAL SKETCHING</b> 9a. Isometric Projection : Understand the concept of planes and 3D visualization within a space. 9b. Architectonic Drawing : Understand and visualize the concept of 3D spaces.
10	<b>10. ANALYTICAL DRAWING CONT'D :</b> i. Isometric Circles. ii. Architectonic Planes with rounded surfaces, tube with square cross section with ellipse at different planes and tube with circular cross-section.	C04	<b>10. FREEHAND ANALYTICAL SKETCHING CONT'D.</b> 10a. Isometric Circles : Understand and visualize planes in isometric grid and constructing ellipses at different planes in isometric grid. 10b. Architectonic Planes with rounded surfaces, tube with square cross section with ellipse at different planes and tube with circular cross-section : Understand the construction of ellipse in 3 dimension and different planes and also turning and bending of circular cross-sections in 3D.
11	<b>11. VISUALISATION DRAWING :</b> i. Introduction to Mental Imagery	C05	<b>11. DRAWING FROM IMAGINATION</b>
12	<b>12. DRAWING COMPOSITIONS FROM MEMORY :</b> i. Compositions inclusive of human forms, object, perspective etc.	C05, C04, C03, C02, C01	<b>12. SKETCHING FROM OBSERVATION &amp; MEMORY</b> 12a. Sketching from Observation: Visual study of human interaction in a mini environment on campus. 12b. Sketching from Memory: Sketching the same mini environment from memory.
13	<b>13. DRAWING COMPOSITIONS FROM MEMORY Contd. :</b> Sketching a mini environment outside the campus from memory.	C05, C04, C03, C02, C01	<b>13. SKETCHING FROM OBSERVATION &amp; MEMORY</b> 13a. Drawing Compositions from Observation. Visual study of human interaction in a mini environment outside the campus. 13b. Sketching from Memory: Sketching the same mini environment from memory.
14	<b>14. DRAWING VISUALISED COMPOSITIONS :</b> Sketching a visualised composition from imagination.	C05, C04, C03, C02, C01	<b>14. DRAWING FROM MEMORY &amp; IMAGINATION</b> 14a. Fantasy Drawing of the same mini environment previously done.
15	<b>15. END TERM PROJECT</b> Presentation and display of final Fantasy Drawings of a mini environment along with all rough concept sketches.	C05, C04, C03, C02, C01	<b>15. END TERM PROJECT</b> Presentation and Display of final Fantasy Drawings of a mini environment along with all rough sketches.

\*Please insert more rows if required

Weekly Lab Plan			
Week Number	PRACTICE SESSIONS	COs Met	Platform (Hardware/Software)
1	<b>1. PROCESS OF LEARNING TO DRAW</b>	C01	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
2	<b>2. SKETCHING TO UNDERSTAND DIFFERENT PERSPECTIVES</b>	C01	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
3	<b>3. SKETCHING OBJECTS</b>	C01	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
4	<b>4. SKETCHING HUMAN FORMS</b>	C01	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
5	<b>5. GEOMETRICAL CONSTRUCTION</b>	C02	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board with T-Scale and Board Clips, Half Imperial Size Cartridge Paper, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale, Geometry Box Set with Compass, Divider and Set Squares.

6	6. GEOMETRICAL CONSTRUCTION Cont'd	CO2	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board with T-Scale and Board Clips, Half Imperial Size Cartridge Paper, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale, Geometry Box Set with Compass, Divider and Set Squares.
8	8. ORTHOGRAPHIC PROJECTION OF PLANES AND SOLIDS	CO3	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board with T-Scale and Board Clips, Half Imperial Size Cartridge Paper, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale, Geometry Box Set with Compass, Divider and Set Squares.
9	9. FREEHAND ANALYTICAL SKETCHING	CO4	Note Pad, Journal, A3 Size Bond Paper, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
10	10. FREEHAND ANALYTICAL SKETCHING CONT'D.	CO4	Note Pad, Journal, A3 Size Bond Paper, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
11	11. DRAWING FROM IMAGINATION	CO5	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
12	12. SKETCHING FROM MEMORY	CO5, CO4, CO3, CO2, CO1	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale
13	13. SKETCHING FROM MEMORY	CO5, CO4, CO3, CO2, CO1	Note Pad, Journal, A4 & A3 Sketch Book, Half Imperial Size Drawing Board, Pencils Grade H,F,B,2B,4B,6B, 8B, Eraser, Plastic 12" Ruler/Scale, Steel 12" Ruler/Scale

\*Please insert more rows if required

#### Assessment Plan

Type of Evaluation	% Contribution in Grade
1. Continuous Assessment of Assignments	40% (20% before mid semester & 20% before end semester)
2. Mid Semester Exam	10%
3. Maintenance of a Sketchbook & Journal	10%
4. Attendance	10%
5. End Term Project	20%
6. End Term Exam	10%

\*Please insert more row for other type of Evaluation

#### Resource Material

Type	Title
Textbook	1. Erik Olofsson, Klara Sjolen, <b>Design Sketching</b> , KEEOS Design Books.
Textbook	2. K. Morling, <b>Geometric and Engineering Drawing</b> , Third Edition, Graduate of the Institution of Mechanical Engineers, SI Units, Elsevier, 2010. <a href="http://ebooks.bharathuniv.ac.in/gdic1/gdic4/Engineering%20Drawing/Geometric%20and%20Engineering%20Drawing.pdf">http://ebooks.bharathuniv.ac.in/gdic1/gdic4/Engineering%20Drawing/Geometric%20and%20Engineering%20Drawing.pdf</a>
Textbook	3. Norling, Ernest, <b>Perspective Made Easy</b> - Ebook download as PDF File (.pdf) or read book online.
	<a href="http://www.storytellerartist.com/documents/Perspective_Made_Easy.pdf">http://www.storytellerartist.com/documents/Perspective_Made_Easy.pdf</a>

	1. Flint, Tom, <b>Anatomy for the Artist: The Dynamic of the Human Form</b> , London, Arcturus Publishing.
	2. Koos Eissen, Rosellen Steur, <b>Sketching: The Basics</b> , BIS Publishers
	3. Edwards, Betty, <b>Drawing on the Artist Within : An Inspirational and Practical Guide to Increasing Your Creative Powers</b> , Simon & Schuster Inc., New York
	4. Edwards, Betty, <b>New Drawing on the Right Side of the Brain</b> , Publisher: Tarcher; 2002.
	5. Edwards, Betty, <b>New Drawing on the Right Side of the Brain</b> - Ebook download as PDF File (.pdf) or read book online. <a href="https://aimeeknight.files.wordpress.com/2016/01/edwards-the-new-drawing-on-the-right-side-of-the-brain-viny.pdf">https://aimeeknight.files.wordpress.com/2016/01/edwards-the-new-drawing-on-the-right-side-of-the-brain-viny.pdf</a>
	6. Edwards, Betty, <b>Color: A Course in Mastering the Art of Mixing Colors</b> , Publisher: Tarcher/Penguin, New York.
	7. Edwards, Betty, <b>Color - A Course in Mastering the Art of Mixing Colors</b> - Ebook download as PDF File (.pdf) or read book online. <a href="https://www.scribd.com/document/55190529/Betty-Edwards-Color">https://www.scribd.com/document/55190529/Betty-Edwards-Color</a>
	8. Norling, Ernest, <b>Perspective Made Easy</b> , Dover Publication, Inc, New York.
	9. <b>Technical Drawing</b> , by Frederick E Giesecke.
	10. <b>Design Handbook: Engineering Drawing and Sketching</b> by Ernesto E. Blanco, David Gordon Wilson, Sherondalyn Johnson, and LaTaunynia Flemings.
	11. Klara Sjolen, Allan Macdonald, <b>Learning Curves</b> , KEEOS Design Books.
	12. John Locke, <b>Isometric, Perspective Designs</b> , Dover Publication.
	13. Robertson, Scott; <b>How to Draw: Drawing and Sketching Objects and Environments from your Imagination</b> , Design Studio Press, (2013).
Other Resources	14. McKim, Ribert, <b>Experiences in Visual Thinking</b> , Publisher: Brooks/ Cole Publishing Company, (1980).