GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Design Syllabus

Subject Code : 1110003

Subject Name : Geometry I

WEF Academic Year :	2023-2024
Semester :	1
Category of the Course :	Core

Rationale :

The course aims to inculcate understanding and exploration of forms in nature and their inherent structural and perceptual principles and how natural forms can be used as inspirations and potential applications in form generation. This understanding of the structure and construction of natural forms can be the basis for visualizing design aesthetics of products and objects.

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Course Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
				Theory		Practical		
L	T	PR	C	ESE (E)	PA(M)	ESE (V)	PA (I)	
1	3	2	5	0	30	50	20	100

Course Content:

Sr. No.	Course Content	No. of Hours	% of Weightage
1	**Unit I: Tools, concepts, and terminology:** Learning how to use basic tools and principles of geometry to construct 2D shapes. Learning the vocabulary and terminology to understand the various elements of Geometrical construction.	15	20
2	**Unit II: Proportions:** Introduction to Golden ratio and Golden proportions.	15	20
3	**Unit III: Series and Progression:** Understanding and learning about the Fibonacci patterns in nature.	15	20
4	**Unit IV: Symmetry, Fractals and Tessellations:** Learning about different types of Symmetries, Patterns, Fractals, regular and semi-	15	20

	regular tessellations seen in nature.		
5	**Unit V: History of Geometry in Design:** Learning geometry has played a pivotal role in design, transcending cultures and time. From ancient civilizations crafting intricate patterns to modern architects shaping iconic structures, geometry's harmony and precision have been the foundation of aesthetic brilliance**.**	15	20
	Total	**75**	**100**

Reference Book:

1. Smith Paul, 2001, You can find inspiration in everything, Thames & Hudson
2. Tufte, Edward R., 2003, Visual explanations: images and quantities, evidence and narrative, Cheshire, USA, Graphic Press, ISBN 0-9613921-2-6
3. On Growth & Form by D'arcy Wentworth Thompson, Kroon M Thompson
4. Design drawing, Francis D. K. Ching, John Wiley& P. Juroszek with StevenSons.Inc
5. Engineering Drawing and Geometry by Randolph P. Hoelscher and Clifford H Springer.
6. Geometrical Drawing for Art Student by IH Morris.
7. The Life and Works of MC Escher
8. Critchlow, Keith, Islamic Patterns - An Analytical and Cosmological Approach 1983
9. Looking and Seeing Volume 1 To 4 by Rowland Kurt
10. A Primer of Visual Literacy by Denis A Dondis
11. Elements of Design – Line by Albert W Port
12. The Hidden Dimension by Edward T. Hall,1966,
13. Conceptual design & Preliminary Analysis of Structure, Module, Proportion, Symmetry, Rhythm by Fraser Donald J Kepes; Pitman Publishing, Marshal Mass (1981)

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level*
01	Enable students to develop the process of interpreting nature in their form generation.	
02	Develop appreciation and understanding of geometric principles of form in nature.	
03	Build conceptual clarity of various principles of geometric forms and how these have manifested in complex visual expressions in nature and human environments.	
04	Develop spirit of originality, exploration, inquiry and motivation with sensitivity to quality in skills and visualization.	

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create