NIRMA UNIVERSITY

Institute:	**INSTITUTE OF DESIGN**
Name of Programme:	**BACHELOR OF DESIGN**
Course Code:	
Course Title:	**Materials and Space Making**
Course Type:	(■ **Core**/ ☐ Value Added Course/ ☐ Departmental Elective/ Institute Elective/ ☐ University Elective/ ☐ (Open Elective ☐ Any other)
Year of introduction:	**Academic Year 2024-25**

Credit Scheme

L	**T**	**Practical component**				**C**
		LPW	**PW**	**W**	**S**	
			6			**3**

Course Learning Outcomes (CLOs):

At the end of the course the student will be able to:

1. Understand and explain properties and limitations for space-making materials such as bamboo, PVC pipes, canvas, and construction wire and their spatial impact.
   BL 2
2. Understand the elements and principals of space and space making.
   BL 2
3. Develop theoretical understanding of scale, proportions, dimensions, and template making for practical application.
   BL 2, BL 3, BL 4
4. Select and use appropriate materials, tools, and techniques to create simple structures.
   BL 2, BL 3, BL 4

Contents: **Total Teaching Hours: 90**

Units	**Contents**	**Teaching hours**
Unit 1	**Introduction to modeling materials and their classification based on their properties:** Bamboo, PVC pipes, aluminium and MS rods and pipes etc. Relationship of material properties to machines and tooling techniques such as Splitting, Bending, Joinery etc. **Properties and Limitations of Materials:** Structural Element, Behaviors, tensile, compression, shear, torsion, bending for bamboo, wood, and wire	10
Unit 2	Generating Structural form - solid, surface, skeleton, membrane, hybrid etc. Achieve synthesis of design criteria and parameters like spatial quality, form, function, response to site, etc.	20

Unit 3	**Structure Making Practice** Elements of geometry and geometrical construction Visualizing a structure through sketches and 1:10 scale models Incorporating the understanding of scale, proportions, dimensions (mm) to ideas for building 1:1 scale model using different materials. Test for loading and other physical parameters	30
Unit 4	**Simple spatial design problems** Exploration of spatial qualities like spatial enclosure, depth, volume, view, orientation, etc. and tectonic characteristics like form, surfaces, material, shape, texture, etc. by transforming structures into spaces. Impact of the materials and space on human behaviour and psyche.	30

Self-Study	
Suggested Readings/ References	1. Ching, F., Ching, F. D. K., Adams, C. (2001). *Building Construction Illustrated.* Germany: Wiley. 2. Dunn, N. (2014). *Architectural Modelmaking*. United Kingdom: Laurence King Publishing. 3. Ranjan, M. P., Iyer, N., Pandya, G. (1986). *Bamboo and Cane Crafts of Northeast India*. India: Development Commissioner of Handicrafts, Government of India. **Viewing list** PVCPipe Projects https://www.youtube.com/watch?v=a0ZEWjg59E8&list=PLkhA_dZqA2pENSl4-t6i9l4DZTDO5nOeJ&ab_channel=Thaitrick 10 Eco-Friendly Building Materials https://www.youtube.com/watch?v=bsQBSVJoV04&ab_channel=GoingGreen Working With Bamboo for Models Making https://www.youtube.com/watch?v=S5tL-RuRLDM&ab_channel=BambooU Online Resources Core77 - Design Blog (For Good Design Project Globally): https://www.core77.com/
Suggested List of Assignments	
Suggested Case List	
Suggested field visits	Visit to Sunday Market, Ahmedabad Visit to Mangalbag Bucky Dome, Ahmedabad