



LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2021-22

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: I					
Course: B.A(H)- Product Design								Semester: I					
S N	Cate - gory	Course Code	Course Name	Periods			Credit s	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PC	BNT-151	Theory of Design-I	0	0	4	2	-	-	-	100	100	100
2	PC	BNT-153	Basic Design-I	0	0	8	4	-	-	-	100	100	100
3	PC	BNT-155	Anthropometrics and Ergonomics	0	0	6	3	-	-	-	100	100	100
4	PC	BNT-157	History of Design	0	0	4	2	-	-	-	100	100	100
5	PC	BNT-159	Graphic Design	0	0	4	2	-	-	-	100	100	100
6	PC	BNT-161	Drawing & Rendering-I	0	0	4	2	-	-	-	100	100	100
7	BS AE	BNT-163	Workshop & Model Making	0	0	4	2	-	-	-	100	100	100
8	SEC	BNT-165	Presentation Skills	0	0	2	1	-	-	-	100	100	100
			Total---->	0	0	36	18	-	-	-	800	800	800

Abbreviations:

PC: Programme Core Courses
 PE: Professional Elective Courses
 BS – AE: Building sciences and applied engineering
 SEC: Skill enhancement
 L: Lecture
 T: Tutorial
 P: Practical

CE: Continuous Evaluation
 MSE: Mid Semester Examination
 ESE: End Semester Examination
 IP: Internal Practical
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LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2021-22

School: School of Architecture and Planning									Batch: 2021				
Department:									Year: I				
Course: B.A(H)- Product Design									Semester: II				
S N	Cate - gory	Course Code	Course Name	Periods			Credit s	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PC	BNT-102	Theory of Design-II	1	0	2	2	20	-	-	80	100	100
2	SEC	BNT-104	Value and Ethics	1	0	2	2	20	-	-	80	100	100
3	PC	BNT-106	Creative Thinking	1	0	2	2	20	-	-	80	100	100
4	PC	BNT-108	History of Design-II	1	0	2	2	20	-	-	80	100	100
5	BS AE	BNT-110	Construction Techniques and Representations - I	1	0	4	3	20	-	-	80	100	100
6	BS AE	BNT-112	Environmental Science for design	1	0	2	2	20	-	-	80	100	100
7	SEC	BNT-152	Computer Design and Digital Fabrication-I	0	0	4	2	-	-	-	100	100	100
8	PC	BNT-154	Basic Design – II	0	0	6	3	-	-	-	100	100	100
			Total---->	6	0	24	18	120	-	-	680	800	800

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CE: Continuous Evaluation
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LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2022-23

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: II					
Course: B.A(H)- Product Design								Semester: III					
S N	Cate - gory	Course Code	Course Name	Periods			Credit s	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PC	BHP-201	History of design-III	1	0	2	2	20	-	-	80	100	100
2	BS AE	BHP-203	Development of product form and process	1	0	6	4	20	-	-	80	100	100
3	OE	BHI-207	Interior Photography	1	0	2	2	20	-	-	80	100	100
4	SEC	BHP-251	Computer design and digital fabrication-II	0	0	4	2	-	-	-	100	100	100
5	PC	BHP-253	Product design studio-I	0	0	16	8	-	-	-	100	100	100
			Total---->	3	0	30	18	60	-	-	440	500	500

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LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2022-23

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: II					
Course: B.A(H)- Product Design								Semester: IV					
S N	Cate - gory	Course Code	Course Name	Periods			Credit s	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	BS AE	BHP-202	Rapid prototyping	1	0	4	3	20	-	-	80	100	100
2	PC	BHP-204	History of Design-IV	1	0	2	2	20	-	-	80	100	100
3	BS AE	BHP-206	Layout drawing and display techniques	1	0	4	3	20	-	-	80	100	100
4	PE	BHP-208A	Representation Of spaces	1	0	2	2	20	-	-	80	100	100
		BHP-208B	Product Photography										
5	PC	BHP-252	Product Design Studio-II	0	0	16	8	-	-	-	100	100	100
			Total---->	4	0	28	18	80	-	-	420	500	500

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LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2023-24

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: III					
Course: B.A(H)- Product Design								Semester: V					
S N	Cate - gory	Course Code	Course Name	Periods			Credi ts	Evaluation Scheme					Subject Total Marks (CE+IP+E XP)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	BS AE	BHP-301	Manufacturing and assembly	1	0	2	2	20	-	-	80	100	100
2	BS AE	BHP-303	Sustainable design	1	0	2	2	20	-	-	80	100	100
3	OE	Open Elective - II		1	0	2	2	20	-	-	80	100	100
4	PC	BHP-351	Product illustrations	0	0	4	2	-	-	-	100	100	100
5	PC	BHP-353	Product Design Studio-III	0	0	20	10	-	-	-	100	100	100
			Total----->	3	0	30	18	60	-	-	440	500	500

Abbreviations:

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CE: Continuous Evaluation
 MSE: Mid Semester Examination
 ESE: End Semester Examination
 IP: Internal Practical
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LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2023-24

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: III					
Course: B.A(H)- Product Design								Semester: VI					
S N	Cate- gory	Course Code	Course Name	Periods			Credits	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PC	BHP-302	Product branding and identifying	1	0	2	2	20	-	-	80	100	100
2	BS AE	BHP-304	Product packing design	1	0	2	2	20	-	-	80	100	100
3	PAEC C	BHP-306	Dissertation	1	0	4	3	20	-	-	80	100	100
4	PE	BHP-308A	Entrepreneurship Development	1	0	4	3	20	-	-	80	100	100
		BHP-308B	Revitalization of art and craft										
5	OE	Open Elective - III		1	0	2	2	20	-	-	80	100	100
6	PC	BHP-352	Product Design Studio - IV	0	0	12	6	-	-	-	100	100	100
			Total---->	5	0	26	18	100	-	-	500	600	600

Abbreviations:

PC: Programme Core Courses
 PE: Professional Elective Courses
 BS – AE: Building sciences and applied engineering
 OE: Open Elective
 PAECC: Professional Ability Enhancement Compulsory course
 L: Lecture
 T: Tutorial
 P: Practical

CE: Continuous Evaluation
 MSE: Mid Semester Examination
 ESE: End Semester Examination
 IP: Internal Practical
 EXP: External Practical



LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2024-25

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: IV					
Course: B.A(H)- Product Design								Semester: VII					
S N	Cate - gory	Course Code	Course Name	Periods			Credits	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PAEC C	BHP- 451	Training	0	0	0	16	-	-	-	100	100	100
			Total---->	0	0	0	16	-	-	-	100	100	100

Abbreviations:

PAECC: Professional Ability Enhancement
Compulsory course

L: Lecture

T: Tutorial

P: Practical

CE: Continuous Evaluation

MSE: Mid Semester Examination

ESE: End Semester Examination

IP: Internal Practical

EXP: External Practical



LINGAYA'S VIDYAPEETH

SCHEME OF STUDIES

SESSION: 2024-25

School: School of Architecture and Planning								Batch: 2021					
Department:								Year: IV					
Course: B.A(H)- Product Design								Semester: VIII					
S N	Cate - gory	Course Code	Course Name	Periods			Credits	Evaluation Scheme					Subject Total Marks (CE+IP+EX P)/2
				L	T	P		Theory			Practical		
								CE	MS E	ES E	IP	EX P	
1	PC	BHP-402	Thesis	1	0	22	12	20	-	-	80	100	100
2	PAEC C	BHP-404	Professional Practice	1	0	4	3	20	-	-	80	100	100
3	PE	BHP-406A	Elective-Interior Accessories and Product Design	1	0	4	3	20	-	-	80	100	100
		BHP-406B	Elective-Applied Ergonomics										
		BHP-406C	Elective-Portfolio Development										
4	OE	Open Elective - IV		1	0	2	2	20	-	-	80	100	100
			Total---->	4	0	32	20	80			320	400	400

Abbreviations:

PC: Programme Core Courses
PE: Professional Elective Courses

PAECC: Professional Ability Enhancement Compulsory course

L: Lecture
T: Tutorial
P: Practical

CE: Assignment Based Quiz
MSE: Mid Semester Examination
ESE: End Semester Examination
IP: Internal Practical
EXP: External Practical

PROGRAMME OUTCOMES

PO1	Demonstrate a comprehensive knowledge of historical and contemporary design practice and theory.
PO2	Understand contemporary and historical art and design issues, appropriate theory and the development of skills in critical analysis for their own sake or for their application to art and design practice
PO3	Demonstrate an advanced level of practical understanding and technical competence - whether in traditional or digital technology - in design to enable them to practice successfully in the profession
PO4	Demonstrate a critical understanding of the relationship between theory and practice in art and design as it relates to the subject.
PO5	Possess a professional level of individual creativity, vision, personal expression and intellectual ability to enable students to practice successfully in design.
PO6	Demonstrate an advanced understanding of new and future methods, materials, processes and technologies appropriate to three-dimensional design.
PO7	Express an understanding of the national and international contexts of art and design practice.
PO8	Demonstrate the ability to recognize the cultural, conceptual and professional contexts relevant to the evaluation and understanding of their work.
PO9	Demonstrate individual creativity, personal expression and technical competence, using the practical skills necessary to critically evaluate, realize and coherently communicate three dimensional ideas in appropriate media suitable for portfolio.
PO10	Demonstrate the development of problem-solving skills through research, critical analysis and the subsequent development of creative solutions within a professional, contextual and ethical framework.
PO11	Demonstrate a critical understanding of design practice impact on culture, society and the environment, including an appropriate knowledge of the application of materials and processes.

B.A (H) Product Design (2021 Batch)

SYLLABUS

1st Semester

NM1: Ideate

Module 1		NM1: Ideate
Subject Code	Subject Name	Max Marks
BNT-151	Theory of Design-I	30
BNT-153	Basic Design-I	25
BNT-155	Anthropometrics and Ergonomics	20
BNT-157	History of Design	50
BNT-159	Graphic Design	25
BNT-161	Drawing & Rendering-I	25
BNT-163	Workshop & Model Making	25
BNT-165	Presentation Skills	25

COURSE OUTCOMES

Designer will be able to:	
1	Investigate the fundamental aspects of the design process
2	Underlying principles of design methodologies utilized in the industry
3	To generate a variety of design ideas that lead to high quality design outcomes

Project: Compositions with patterns, textures etc.

COURSE CONTENT

BNT-151	Theory of Design - 1
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UNIT –I

INTRODUCTION TO DESIGN

Definitions and meaning of design, importance of design, examples of design from nature. Fundamental elements of design in 2-D and their definitions; point, line, shape, form, space, texture, value, colour and material. Introduction to the principles of design in 2-D and 3D - unity, balance, symmetry, proportion, scale, hierarchy, rhythm, contrast, harmony, focus, etc. ; use of grids, creating repetitive patterns.

UNIT – II

PRINCIPLES OF COMPOSITION

Principles of composition using grids, symmetrical/ asymmetrical, Rule Of Thirds, Center Of Interest, Gestalts Theory of Visual Composition.

BNT-153	Basic Design-I
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UNIT – I

INTRODUCTION TO BASIC DESIGN

Definitions of creativity, understanding components of creativity, definitions of problem solving, theories of creativity, goals and objectives, value judgments, defining problems, information gathering, creative incubation, creative thinking and creative process.

BNT-155	Anthropometrics and Ergonomics
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UNIT –I

NEED FOR STUDY

Introduction to Ergonomics, Need for study of anthropometric and ergonomics. , Design today- Human aid to lifestyle.

BNT-157	History of Design
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UNIT –I

PURPOSE AND RELEVANCE OF ART DEVELOPMENT

A survey of history of art forms: pre historic times to present times: changing nature of art through time in terms of content: form and material.

UNIT – II

EXPLORATION OF ART FORMS

Study of traditional and contemporary art forms – painting, sculpture, architecture, decorative arts, design arts, digital art. Relationship between art and design from the earliest time.

BNT-159	Graphic Design
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UNIT – I INTRODUCTION TO FREE HAND DRAWING

Basic exercises, Still life, Basic forms, effect of lines to represent textures - Understanding of different types of perspective views using vanishing points, Shading exercises etc.

UNIT – II SKETCHING

Outdoor sketching including Lawns, bushes, Water Bodies, Plants & trees in different media. Indoor sketching – furnitures, lights, corridor, lobby, class room etc.

BNT-161	Drawing & Rendering-I
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UNIT I

GEOMETRICAL CONSTRUCTIONS

SCALES : Construction of plain scale and diagonal scale

CONIC SECTIONS : Construction of conic sections given the distance of focus from the directrix and eccentricity. Construction of ellipse – concentric circle method, rectangular method and intersecting arc method.

Construction of parabola by rectangular method and by tangent method. Construction of hyperbola– given the asymptotes and a point on the curve SPIRALS : Construction of Archimedean spiral and Logarithmic spiral

HELIX : Construction of cylindrical helix ,conical helix and square helical spring

BNT-163	Workshop & Model Making
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UNIT I

INTRODUCTION TO MODEL MAKING

Need; role of scale models in design: general practices: Essentials of model making: understanding of various tools and machines employed, best practices involved in operating the tools and the techniques.

Introduction to the Mount Board/Paper/Boards for model making – types, properties etc. Hand building techniques on different planes - making rigid forms like, cubic, spherical, pyramidal shaped forms, depiction of steps, free forms, sculptures, etc.

BNT-165	Presentation Skills
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Unit 1 Basic Communication Theory

Importance of Communication – Stages of communication, Modes of Communication – Barriers to Communication, Strategies for Effective Communication – Listening: Importance, Types, and Barriers, Developing Effective Listening Skills.

NM2: Communicate

Module 2		NM2: Communicate
Subject Code	Subject Name	Max Marks
BNT-151	Theory of Design-I	25
BNT-153	Basic Design-I	25
BNT-155	Anthropometrics and Ergonomics	25
BNT-157	History of Design	20
BNT-159	Graphic Design	30
BNT-161	Drawing & Rendering-I	20
BNT-163	Workshop & Model Making	25
BNT-165	Presentation Skills	50

COURSE OUTCOMES

Designer will be able to:	
1	Ability to draw and communicate design intent clearly
2	Effective manipulation of materials, mediums and software
3	To easily realize and communicate design ideas, both in a 2d and 3d format
4	Conventions in drawings used within the wider design industry.

Project: Basic Shapes models and compositions

COURSE CONTENT

BNT-151	Theory of Design - 1
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UNIT – III

CONCEPTS OF GEOMETRY

Introduction to different 3-D forms and primitive forms, shapes and understanding the behavior when combined. Transformation of 2-D to 3-D.

BNT-153	Basic Design-I
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UNIT- II

THINKING TECHNIQUES

Principles in generative, convergent, lateral, interactive, graphical thinking, check lists, analysis and synthesis simulation, action ability and implementations of intentions. Blocks in creative thinking.

UNIT- III

TOOLS AND TECHNIQUES OF CREATIVITY

Mind mapping, brain storming with related stimuli and unrelated stimuli, positive techniques for creativity, creative pause, Focus, Challenge, alternatives, concepts, sensitizing techniques, group or individual techniques.

BNT-155	Anthropometrics and Ergonomics
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UNIT – II

ERGONOMICS IN INDIA

Environmental factors influencing human performance, Ergonomics in India. Ergonomics/ human Factors fundamentals, Physiology (work physiology) and stress

BNT-157	History of Design
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UNIT – III

STUDY OF ORNAMENTS & ACCESSORIES

Ornaments & Accessories in Interior Design. Different types of Ornamentation & Accessories in the interiors. Study and evaluation of artefacts, historic examples and their applicability.

UNIT – IV

INTRODUCTION TO HERITAGE INTERIORS

Heritage Interiors Buddhist, Islamic and Hindu: Evolution of Interiors in different regions of India with examples. Heritage and identity at different spatial scales.

BNT-159

Graphic Design

UNIT – III MEASURED DRAWING

Lettering - types, Scale, measured drawing of furniture, Wall paneling, flooring pattern, ceiling pattern, doors and windows.

BNT-161

Drawing & Rendering-I

UNIT II

PROJECTIONS

First angle projection Points and Lines : Orthographic projection of lines for any given condition, determination of true length, traces and inclinations to the planes of projection of any given line Planes : Traces of planes , plane figure inclined to one or both the reference planes

UNIT III

SOLIDS

Solids : Simple solids in simple position , prisms, regular pyramids, tetrahedron, octahedron, cone, spheres and their combinations placed in different positions. Auxiliary projections of simple solids and their combinations. Change of position and auxiliary plane method.

BNT-163

Workshop & Model Making

UNIT -II

MATERIALS AND TECHNIQUES (CLAY)

Ceramics – clay/ plaster of Paris : Introduction to model making, Need; role of scale models in design: general practices - The potter's wheel – kneading the clay, function of hands in throwing. Learning basic techniques in making different objects like bowl, plate, cylinder, vase, etc. Essentials of model making: understanding of various tools and machines employed, best practices involved in operating the tools and the techniques. Introduction to the Ceramic materials used for model making – clay, types and mixtures, properties etc. Hand building techniques- coiling, hand building with clay strips- making a small sculpture in Relief work – addition - making a mural, scooping – tile work. .

BNT-165

Presentation Skills

Unit 2 Comprehension and Analysis

Comprehension of Technical and NonTechnical Material – Skimming, Scanning, Inferring-Note Making and extension of Vocabulary, Predicting and Responding to Context- Intensive Reading and Reviewing.

Unit 3 Writing

Effective Sentences, Cohesive Writing, Clarity and Conciseness in Writing – Introduction to Technical Writing– Better Paragraphs, Definitions, Practice in Summary Writing, four modes of writing, use of dictionaries, Indices, library References, Making Bibliographical Entries with Regard to Sources from Books, Journals, Internet, etc.

NM3: Contextualize

Module 3		NM3: Contextualize
Subject Code	Subject Name	Max Marks
BNT-151	Theory of Design-I	25
BNT-153	Basic Design-I	25
BNT-155	Anthropometrics and Ergonomics	30
BNT-157	History of Design	30
BNT-159	Graphic Design	25
BNT-161	Drawing & Rendering-I	25
BNT-163	Workshop & Model Making	25
BNT-165	Presentation Skills	25

COURSE OUTCOMES

Designer will be able to:	
1	To see critical and cultural studies as a vital tool for innovative and well-informed practice
2	To explore a range of theoretical positions that inform recent and contemporary practice.
3	To reflect critically upon their own work and to locate their practice within the context of historical, social, political, cultural, environmental and theoretical perspectives

Project: Human figures (Sketches and Models)

COURSE CONTENT

BNT-151	Theory of Design - 1
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UNIT- IV

THEORY OF COLOURS

Introduction –visible spectrum, coloured light, colour temperature, colour interaction, colour blindness. Color wheel – primary, secondary, tertiary colors, color wheel, color schemes color value, intensity, and modification of color hues – tints, shades, neutralization. Color charts – types, making and using. Color harmony, use of color harmony.

BNT-153	Basic Design-I
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UNIT – IV

PROBLEM STATEMENTS

Brain writing with unrelated stimuli, idea mapping, random input, story boarding exercises, problem solving techniques – brain storming, lateral thinking of De Bono

BNT-155	Anthropometrics and Ergonomics
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UNIT – III

HUMAN PHYSICAL DIMENSION

Human physical dimension concern: Human body- structure and function, anthropometrics, Anthropometry: body growth and somatotypes, Static and dynamic anthropometry, Stand Postureerect, Anthropometry landmark: Sitting postures, Anthropometry: squatting and cross-legged postures, Anthropometric measuring techniques, Statistical treatment of data and percentile calculations.

UNIT- IV

HUMAN BODY STRUCTURE AND FUNCTION

Posture and job relation, Posture and body supportive devices, Chair characteristics, Vertical work surface, Horizontal work surface , movement , work Counter.

BNT-157	History of Design
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UNIT – V

NEW DIRECTIONS IN ART

Context for new directions in art in the late 19th and early 20thcentury - Impressionism - post

Impressionism – Fauvism- Expressionism- Cubism –Dadaism – Surrealism - abstract art – Futurism - Constructivism – Suprematism -- De-Stijl -Abstract Expressionism - Pop art - Op art- new forms and media of art. Study of famous and influential Artists, Craftsmen and people who pioneered innovations in their own fields and their influence on design and other fields. Works of Van Gogh, Dali, William Morris, Picasso, Da Vinci

BNT-159	Graphic Design
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UNIT – III GEOMETRICAL DRAWING

Orthographic projections - Projection of lines, planes and solids, section of primary solids such as pyramids, cones, cylinder, prism, sphere, cuboid, etc.

BNT-161	Drawing & Rendering-I
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UNIT IV

SECTIONS & DEVELOPMENTS OF SOLIDS

Intersection of surfaces : Line of intersection of two prisms , two cylinders and cone Section of solids : Section of simple solids by planes inclined. True shape of sections. Development of surfaces: Development of surfaces of simple solids, prisms, cylinders, pyramids, cones , spheres and truncated solids.

BNT-163	Workshop & Model Making
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UNIT - III

MATERIALS AND TECHNIQUES (WOOD)

Wood : Working with wood and wood derivatives to understand material parameters. Wooden joinery and its strength, Wood polishes and other finishes – colour and surface quality. Making of elements of various scales in the built form, such as, interior space making elements, furniture forms, various products, Art & Artifacts by using wood. Understanding the material and tools by making objects which allow students to explore the forms, surfaces, textures and patterns. Explore different joinery, support conditions, and woven surfaces.

UNIT - IV

MATERIALS AND TECHNIQUES (METAL)

Metal : Types of metals, properties of metals, definitions of terms with reference to properties and uses of metals, various methods of working with metals, fixing and joinery in metals, finishing and treatment of metals., finishes on metals. Standard specifications. Metals in built form activity – horizontal, vertical and inclined surfaces – in interior environment elements- products and furniture forms - doors, windows, grilles, railing, stair etc. Metals and other materials – form and joinery.

BNT-165	Presentation Skills
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Unit 4

Business Writing/Correspondence

Report Writing, Memoranda, Notice, Instruction Letters.

Unit 5

Oral Communication

Presentation skills, Group Discussions, Dialogue Writing, Short Extempore, Debates, Role Plays, Conversation Practice for interviews.

NM4: Illustrate

Module 4		NM4: Illustrate
Subject Code	Subject Name	Max Marks
BNT-151	Theory of Design-I	20
BNT-153	Basic Design-I	25
BNT-155	Anthropometrics and Ergonomics	25
BNT-159	Graphic Design	20
BNT-161	Drawing & Rendering-I	30
BNT-163	Workshop & Model Making	25

COURSE OUTCOMES

Designer will be able to:	
1	To see critical and cultural studies as a vital tool for innovative and well-informed practice
2	To explore a range of theoretical positions that inform recent and contemporary practice.
3	To reflect critically upon their own work and to locate their practice within the context of historical, social, political, cultural, environmental and theoretical perspectives

Project: Technical View Drawings

COURSE CONTENT

BNT-151	Theory of Design - 1
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UNIT – V

USE OF COLOURS

Psychological impact of color – warm, cool and neutral colors, impact of specific hues, meanings of color, color and form, color and light, color and surface qualities, color and distances and scales.

Problems with color. Use of colors in various functional contexts – e.g. Residential interiors, Non Residential interiors. Use of color in special situations – out door/indoor spaces, accessories, art works etc.

BNT-153	Basic Design-I
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UNIT – V

CREATIVE SOLUTIONS

Applicable to designs – Design, Invention, opportunity, problems, improvement, planning, projects, conflicts. Simple Design exercises. Creative Design process – conceptual design, embodiment design, detail design, Iterations

BNT-155	Anthropometrics and Ergonomics
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UNIT- IV

HUMAN BODY STRUCTURE AND FUNCTION

Posture and job relation, Posture and body supportive devices, Chair characteristics, Vertical work surface, Horizontal work surface , movement , work Counter.

UNIT – V

BEHAVIOUR AND PERCEPTION

Communication and cognitive issues, Psychosocial behavior aspects, behavior and stereotype, Information processing and perception, Cognitive aspects and mental workload, Human error and risk perception

BNT-159	Graphic Design
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UNIT – IV ISOMETRIC DRAWING

Isometric projection of all platonic solids such as cube, cuboid, hexagonal prism, pyramids, cone and sphere etc –

UNIT – V ISOMETRIC SURFACES

isometric projection of singly and doubly curve surfaces.

BNT-161	Drawing & Rendering-I
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UNIT V

MATERIAL PROJECTIONS

Isometric Projection : Isometric scale, isometric view of planes , simple solids, truncated solids , combination of objects
 Perspective projection : Perspective projection of simple solids and their combinations by visual ray method and vanishing point method

BNT-163	Workshop & Model Making
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UNIT -V

MATERIALS AND TECHNIQUES (TEXTILES)

Textiles – Weaving & printing : Introduction to fibers and yarns, table loom and floor loom, preparing warp, setting up loom for weaving. Basic weaves and their variations. Variation weaves and design quality, weaves as light controlling device, weaves and its quality for upholstery, curtains and floor coverings, Rugs and durries – motifs design, patterns and color variations. Development of textile design in different cultures from primitive art to contemporary designs. Criteria of design of the elements and principles of textile design. Analysis of a motif, developing repeat as a basic unit of design in textile printing. Printing – developing block, understanding the material used, colors, types and their mixing process, various color printing. Screen printing – design evolution for wall hangings, preparing screen and understanding the technique, printing on paper and printing on fabric.



2nd Semester

NM5: Establishing Design

Module 5		NM5: Establishing Design
Subject Code	Subject Name	Max Marks
BNT-102	Theory of Design-II	25
BNT-104	Value and Ethics	50
BNT-106	Creative Thinking	25
BNT-108	History of Design-II	50
BNT-110	Construction Techniques and Representations - I	25
BNT-152	Computer Design and Digital Fabrication-I	25
BNT-154	Basic Design – II	25
BNT-112	Environmental Science for design	25

Course Outcome

Designer will be able to:	
1	To extend individual and collective practice in response to local and/or global issues
2	To further develop an understanding interdisciplinary mode of enquiry
3	To demonstrate or disseminate innovative artistic and design work
4	To encourage responses to themes from broad disciplinary boundaries, human experiences and values

Project -

BNT-102	Theory of Design-II
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UNIT- I

PRINCIPLES OF DESIGN

Exploration of the basic principles of composition such as Proportion, Scale, Balance, Rhythm, Unity, Contrast, Character with garment examples. Ordering Principles such as Axis, Symmetry, Hierarchy, Datum, Rhythm & Repetition..

BNT-104	Value and Ethics
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UNIT I

NEED FOR STUDY

Value Education—Introduction – Definition of values – Why values? – Need for Inculcation of values – Object of Value Education – Sources of Values – Types of Values: i) Personal values ii) Social values iii) Professional values iv) Moral and spiritual values) Behavioral (common) values

UNIT II

PERSONAL VALUES

Personal values – Definition of person – Self- confidence – Relative and absolute confidence, being self- determined, swatantrata (loosely equivalent to freedom). Self- discipline – Self Assessment – Self- restraint –Self motivation – Determination – Ambition – Contentment Self- respect and respect to others; expression of respect

UNIT III

SOCIAL VALUES

Social values – Units of Society - Individual, family, different groups – Community – Social consciousness – Equality and Brotherhood – Dialogue – Tolerance – Sharing – Honesty Responsibility – Cooperation; Freedom – Repentance and Magnanimity. Peer Pressure – Ragging - examples - making one's own choices

BNT-106	Creative Thinking
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UNIT I

CREATIVITY

Explanation on creativity, Icebreaker: Thinking Outside the Box, Combining Ideas: How to combine ideas for creative thinking breakthroughs, Combining ideas is one of the fundamental exercises in creative thinking.

UNIT II

CREATIVE THINKING TOOLS

Thinking tool no. 1: Kick Cards, 2: The Inverse, 3: Double Six Good Bad Interesting: Get creative thinking with the G.B.I. exercise – Dr Edward de Bono. Brainstorming,

BNT-108	History of Design-II
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UNIT I

ELEMENTS OF STYLE

Elements of style and determinants of Interior environments in Ancient Civilization, Classical world & the Middle ages : emphasis shall be on Architectural elements, furniture, decorative arts, colours& materials. Egyptian - Indus Valley Civilization - The ancient Near East - Samaritans, Babylonians, Assyrians, Persians

UNIT II

CLASSICAL WORLD

Greek, Roman architecture and Eastern influences - China and Japan.

UNIT III

THE MIDDLE AGES

Early Christian and Byzantine, Romanesque and Gothic, Renaissance in Italy, Spain, France and England, Baroque, Rococo, Neoclassicism-Boulle, Ledoux.

BNT-110	Construction Techniques & Representations-I
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UNIT I

HARDWARE

Hardware & Accessories : all hardware required for residences, offices, other public & private spaces, etc., including all types of hinges, drawer slides, handles, locks, wire managers, etc., accessories for toilet, kitchen, office, glass patch fittings, profiles, etc.,

SUGGESTED BOOKS

- Bindra, S.P. and Arora, S.P. Building Construction: Planning Technique and Methods of Construction, 19th ed. Dhanpat Rai Pub., New-Delhi, 2000
- Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.
- Rangwala, S.C. Building Construction 22nd ed. Charota Pub. House Anand, 2004.
- Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi, 2003.
- Francis D. Ching, Building Construction Illustrated, Wiley publishers, 2008

BNT-152	Computer Design & Digital Fabrication-I
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UNIT I

MS OFFICE

Computer Orientation, Microsoft word, Microsoft excel, Microsoft presentation software, scanning and MS Paint

UNIT II

BASIC OUTLINE , AXIS POINTS

Introduction to the menu, starting drawings from scratch. Creating and using templates- starting drawings with setup wizards. Saving and closing a file. Introduction to the menu, starting drawings from scratch. Creating and using templates- starting drawings with setup wizards. Saving and closing a file.

SUGGESTED BOOKS

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016 .
- Auto Desk, 3DS MAX comprehensive tutorial resources Wiley 2014.

- Sketch up for interior Design . 3D visualising designing & space planning by Lidya Sloan, Wiley Publisher – 2014.
- Computer Design & Digital Fab
- Auto Desk Auto cad 2017 for Architecture, Sybex , 2016

BNT-154	Basic Design-II
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UNIT I

BASIC ANTHROPOMETRICS

Average measurements of human body in different postures – its proportion and graphic representation, application in the design of simple household and furniture.

UNIT II

SPATIAL PARAMETER

Role of mannequins in defining spatial parameter of design. Basic human functions and their implications for spatial planning. Minimum and optimum areas for various functions.

SUGGESTED BOOKS

- Karlen Mark, Space planning Basics, Van Nostrand Reinhold, New York, 3rd edition 2009.
- Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
- Francis.D. Ching & Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004
- Karlen Mark, Kate Ruggeri & Peter Hahn, Space Planning Basics, Wiley publishers, 2003.

BNT-112	Environmental Science for design
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UNIT I

INTRODUCTION TO WORLD ART & CULTURES

Definition, scope and importance, of environmental studies, Need for public awareness. Renewable and non- renewable resources: Natural resources and associated problems. Forest resources: Water resources: Mineral \ resources : Food resources : Energy resources: Land resources :

SUGGESTED BOOKS

- Cunningham, W.P. Cooper T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
- Text Book for environmental Studies For UGC, ErachBharucha

NM6: Applications

Module 6		NM6: Applications
Subject Code	Subject Name	Max Marks
BNT-102	Theory of Design-II	25
BNT-104	Value and Ethics	25
BNT-106	Creative Thinking	25
BNT-108	History of Design-II	25
BNT-110	Construction Techniques and Representations - I	25
BNT-152	Computer Design and Digital Fabrication-I	25
BNT-154	Basic Design – II	25
BNT-112	Environmental Science for design	25

Course Outcome

Designer will be able to:

1	To provide the skills and knowledge to communicate art and design skills creatively
2	To introduce a range of technical skills appropriate to future learning
3	To establish strong and supportive peer networks
4	To develop research, design and communication skills

Project -

BNT-102	Theory of Design-II
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UNIT- II

ORGANISATION OF FORMS

Spatial Relationships: i) Space within space, ii) Interlocking spaces, iii) Adjacent spaces, iv) Space linked by a common space b) Spatial Organization: influencing factors and their types i) Centralized, ii) Linear, iii) Radial, iv) Clustered, v) Grid c) Articulation of forms and spaces types: i) Edges and corners, ii) Surface. A Project on Creation of forms & spaces using the principles learnt.

BNT-104	Value and Ethics
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UNIT IV

PROFESSIONAL VALUES

Professional values – Definition – Competence – Confidence – Devotion to duty –Efficiency – Accountability – Respect for learning /learned – Willingness to Learn- Open and balanced mind – Team spirit – Professional Ethics – Willingness for Discussion; Difference between understanding and assuming Time Management: Issues of planning, as well as concentration (and aligning with self- goals) Expectations from yourself. Excellence and competition, coping with stress, Identifying one's interests as well as strengths.

BNT-106	Creative Thinking
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UNIT III

PRINCIPLES OF CREATIVITY

Creative Problems: Defining creative problems and solutions. Diffusion: Spreading ideas through social networks.Divergence and convergence: Staying open and staying focused. Exploration: Going where no one has gone before.Forced association: Banging things together to create new things. Ground Rules: Shared rules that enable safe creativity.Jumping: Jumping to new idea domains. Practice: Build your 'creative muscle' with regular practice. Questioning: Asking things to get the mind going.

BNT-108	History of Design-II
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UNIT IV

INDIAN ARCHITECTURE AND INTERIORS

Hindu, Islamic and Buddhist architecture, Secular architecture of the princely states like Rajasthan, etc.

BNT-110	Construction Techniques & Representations-I
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UNIT II

STONES

Stones : Igneous, metamorphic & sedimentary – classifications, types, properties, availability, applications

SUGGESTED BOOKS

- Bindra, S.P. and Arora, S.P. Building Construction: Planning Technique and Methods of Construction, 19th ed. Dhanpat Rai Pub., New-Delhi, 2000
- Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.
- Rangwala, S.C. Building Construction 22nd ed. Charota Pub. House Anand, 2004.
- Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi, 2003.
- Francis D. Ching, Building Construction Illustrated, Wiley publishers, 2008

BNT-152	Computer Design & Digital Fabrication-I
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UNIT III

UNITS, LIMITS AND LAYERS

Setting up the drawing environment – setting the paper size, setting units, grid limits, drawing limits, snap controls. Use of paper space and model space. Basic commands dealing with drawing properties: Layer control, change properties, line weight control, etc.

SUGGESTED BOOKS

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016 .
- Auto Desk, 3DS MAX comprehensive tutorial resources Wiley 2014.
- Sketch up for interior Design . 3D visualising designing & space planning by Lidya Sloan, Wiley Publisher – 2014.
- Computer Design & Digital Fab
- Auto Desk Auto cad 2017 for Architecture, Sybex , 2016

BNT-154	Basic Design-II
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UNIT III

INTRODUCTION TO DESIGN METHODOLOGY

Detailed study of residential spaces: such as, living, dining, bedrooms, kitchen, toilet etc. including the furniture layout, circulation, clearances, etc. Case study of existing residential spaces and the analysis of the spaces therein, to be taken up. Preparing user profile, bubble and circulation diagrams.

SUGGESTED BOOKS

- Karlen Mark, Space planning Basics, Van Nostrand Reinhold, New York, 3rd edition 2009.
- Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
- Francis.D. Ching & Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004
- Karlen Mark, Kate Ruggeri & Peter Hahn, Space Planning Basics, Wiley publishers, 2003.

BNT-112	Environmental Science for design
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UNIT II

ECO SYSTEMS

Structure and function of an ecosystem, Concept of an ecosystem , Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, Types of Ecosystem

SUGGESTED BOOKS

- Cunningham, W.P. Cooper T.H. Gorhani, E & Hepworth, M.T. 2001,Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
- Text Book for environmental Studies For UGC, ErachBharucha, 2004

NM7: Design Domains

Module 7		NM7: Design Domains
Subject Code	Subject Name	Max Marks
BNT-102	Theory of Design-II	25
BNT-104	Value and Ethics	25
BNT-106	Creative Thinking	25
BNT-108	History of Design-II	25
BNT-110	Construction Techniques and Representations - I	25
BNT-152	Computer Design and Digital Fabrication-I	25
BNT-154	Basic Design – II	25
BNT-112	Environmental Science for design	50

Course Outcome

Designer will be able to:	
1	To understand the various domains and their philosophies
2	To develop basic understanding of the requirements, purpose and need of various design domains
3	To relate the design process and demands of various domains
4	To illustrate design skills for various domains

Project -

BNT-102	Theory of Design-II
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UNIT – III

PRINCIPLES OF COMPOSITION

Unity, harmony and specific qualities of design to include dominance, punctuating effect, dramatic effect, fluidity,

UNIT – IV TYPOGRAPHY & GEOMETRY

climax, accentuation and contrast with garment examples.Basics of Calligraphy and typography, Understanding structure and proportion of types of (Roman Serif and San Serif). Basic solid Geometry

BNT-104	Value and Ethics
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UNIT V

BEHAVIOURAL VALUES

Behavioral values – Individual values and group values. Anger: Investigation of reasons, watching one's own anger; Understanding anger as: a sign of power or helplessness, distinction between response and reaction. Right utilization of physical facilities. Determining one's needs, needs of the self and of the body, cycle of nature. Relationship with teachers. Inside the class, and outside the class, interacting with teachers. Complimentary nature of skills and values.

Distinction between information & knowledge Goals: Short term goals and long term goals; How to set goals; How to handle responsibilities which have to be fulfilled while working for goals

BNT-106	Creative Thinking
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UNIT IV

TOOLS FOR DEFINING THE PROBLEM

CATWOE, Challenge, Chunking, Context Map, A Day in the Life of., Is – Is not, how to: The Kipling method (5W1H), Positives, Negatives, Problem Statement: achieve. Purposing: Reversal: Storyboarding: Visioning: Assumption Busting: Brainstorming: Brain mapping. Essence: Forced Conflict: Lotus Blossom: PSI: Problem + Stimulus = Idea, Random Words: Modeling: Morphological Analysis, Post-Up: Provocation: Role-play: Reverse Brainstorming: , SCAMPER: , Storyboarding: , Visioning: , Wishing

BNT-108	History of Design-II
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UNIT V

STUDY OF VERNACULAR ARCHITECTURE AND INTERIORS

Jammu and Kashmir, Southern India, Gujarat, , Himachal Pradesh , states of North & eastern India, Maharashtra, Uttar Pradesh, Orissa etc.

BNT-110	Construction Techniques & Representation-I
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UNIT III

RUBBER

Rubber – Natural rubber, latex, coagulation, vulcanizing and synthetic rubber- properties and application

SUGGESTED BOOKS

- Bindra, S.P. and Arora, S.P. Building Construction: Planning Technique and Methods of Construction, 19th ed. Dhanpat Rai Pub., New-Delhi, 2000
- Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.
- Rangwala, S.C. Building Construction 22nd ed. Charota Pub. House Anand, 2004.
- Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi, 2003.
- Francis D. Ching, Building Construction Illustrated, Wiley publishers, 2008

BNT-152	Computer Design & Digital Fabrication-I
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UNIT IV

DIMENSIONS, CALCULATIONS AND GROUPING

Inquiry methods: Using data base information for objects, calculating distance, angle, areas etc. Dimensioning commands and blocks: Dimensioning the objects in linear, angular fashions along with quick time dimensioning etc. Creating and working with blocks, creating symbols, use of blocks in creating a layout, of a residential area- one exercise to be done as lab assignment.

SUGGESTED BOOKS

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016 .
- Auto Desk, 3DS MAX comprehensive tutorial resources Wiley 2014.
- Sketch up for interior Design . 3D visualising designing & space planning by Lidya Sloan, Wiley Publisher – 2014.
- Computer Design & Digital Fab
- Auto Desk Auto cad 2017 for Architecture, Sybex , 2016

BNT-154	Basic Design-II
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UNIT IV

VISUAL ANALYSIS

Visual analysis designed spaces of noted for comfort and spatial quality; analysis of solid and void relations, positive and negative spaces.

UNIT V

DESIGNED SPACES

Integration of spaces and function in the design of kiosk for – traffic police, ATM center, etc; stalls inside a shopping mall, - jewellery stall, flower stall, ice cream stall, etc; booths – bus ticketing booth, smokers' booths, etc.

SUGGESTED BOOKS

- Karlen Mark, Space planning Basics, Van Nostrand Reinhold, New York, 3rd edition 2009.
- Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
- Francis.D. Ching & Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004
- Karlen Mark, Kate Ruggeri & Peter Hahn, Space Planning Basics, Wiley publishers, 2003.

BNT-112	Environmental Science for design
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UNIT III

BIODIVERSITY AND ITS CONSERVATION

Bio- geographical classification of India, Value of biodiversity: Iconsumptive use, productive use, social, ethical, aesthetic and option values, Hot- sports of biodiversity. Threats to biodiversity. Endangered and endemic species of India. Conservation of biodiversity

UNIT IV

ENVIRONMENTAL POLLUTION

Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards, Solid waste Management, Disaster management: floods, earthquake, cyclone and landslides.

UNIT V

SOCIAL ISSUES AND THE ENVIRONMENT

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation. Public awareness

SUGGESTED BOOKS

- Cunningham, W.P. Cooper T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
- Text Book for environmental Studies For UGC, ErachBharucha, 2004

NM8: Design Collectives

Module 8		NM8: Design Collectives
Subject Code	Subject Name	Max Marks
BNT-102	Theory of Design-II	25
BNT-106	Creative Thinking	25
BNT-110	Construction Techniques and Representations - I	25
BNT-152	Computer Design and Digital Fabrication-I	25
BNT-154	Basic Design – II	25

Course Outcome

Designer will be able to:	
1	To use creativity, conceptual skills and judgement to identify human needs and requirements and to invent appropriate solutions to design problems
2	To analyse, criticise and reflect on your own practice and the practice of others
3	To communicate your ideas and thought processes through verbal, written and visual representations
4	To be flexible and adaptable in approaches in the development of design projects.

Project -

BNT-102	Theory of Design-II
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UNIT – V

CIRCULATION

Function of building circulation components of building circulation - The building approach, The building entrance, configuration of the path, path space relationship, form of circulation space with examples. Simple circulation diagram for buildings

BNT-106	Creative Thinking
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UNIT V

TOOLS FOR SELECTING IDEAS

Concept Screening: , The Hundred Dollar Test: , Negative Selection: , NUF Test: Check idea is New, Useful and Feasible., PINC Filter: , Swap sort:

BNT-110	Construction Techniques & Representations-I
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UNIT IV

PLASTIC

Plastics – Types, thermosetting and thermo plastics, resins, common types of moldings, fabrication of plastics, polymerization and condensation. Plastic coatings reinforced plastic, plastic laminates – properties, uses and applications.

UNIT V

GLASS

Types of glass (plate, tinted, heat absorbing etc); structural glass bricks and glasscrete; fiber glass and glass wool etc; properties, varieties and uses.

SUGGESTED BOOKS

- Bindra, S.P. and Arora, S.P. Building Construction: Planning Technique and Methods of Construction, 19th ed. Dhanpat Rai Pub., New-Delhi, 2000
- Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.
- Rangwala, S.C. Building Construction 22nd ed. Charota Pub. House Anand, 2004.
- Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi, 2003.
- Francis D. Ching, Building Construction Illustrated, Wiley publishers, 2008

BNT-152	Computer Design & Digital Fabrication-I
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UNIT V

BASICS OF ADOBE PHOTOSHOP

Tool box (Moving , marque tool), Magic ward selection, Crop tool, Paint Brush, Opacity, Tent Styles, Blue tool, Sharpening Tool, Colour correction, Layers, moving Tool, Masking Tooll

SUGGESTED BOOKS

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016 .
- Auto Desk, 3DS MAX comprehensive tutorial resources Wiley 2014.
- Sketch up for interior Design . 3D visualising designing & space planning by Lidya Sloan, Wiley Publisher – 2014.
- Computer Design & Digital Fab
- Auto Desk Auto cad 2017 for Architecture, Sybex , 2016

BNT-154	Basic Design-II
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Final design generation

SUGGESTED BOOKS

- Karlen Mark, Space planning Basics, Van Nostrand Reinhold, New York, 3rd edition 2009.
- Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
- Francis.D. Ching & Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004
- Karlen Mark, Kate Ruggeri & Peter Hahn, Space Planning Basics, Wiley publishers, 2003.

3rd Semester

PM9: Design Context

Module 1		PM9: Design Context
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-201	History of design-III	25
BHP-251	Computer design and digital fabrication-II	25
BHP-253	Product design studio-I	25
BHP-203	Development of product form and process	25

COURSE OUTCOMES

Designer will be able to:	
1	To understand how design interfaces with the world
2	To gain knowledge of social and future trends can guide the innovation process and how market, business and manufacturing forces direct design decisions and outcomes
3	to explore and develop design proposals using a range of methods, practical skills and specialist knowledge

Project:

COURSE CONTENT

BHP-201	History of design-III
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UNIT I

INDUSTRIAL REVOLUTION

Reviewing Industrialisation :- Industrial revolution and its influence on social, economic conditions of that period, Scientific and technological progress, invention of new materials. –Joseph Paxton – Gustav Eiffel etc An overview of Art and Crafts movement in Europe and America.

SUGGESTED BOOKS

- John F. Pile, A history of interior design, 2nd edition, Laurence King Publishing, 2005. Jeannie Ireland, History of Interior Design, air child publications, illustrated ed., 2009.
- Elaine, Michael Dywer, Christopher Mackinnon, Norman A. J. Berisford Denby , A History of Interior Design, Rhodoc International, 2000.
- Giedion Sigfried, Space, Time and Architecture: The growth of a new tradition, 5th ed. Harvard University Press, Cambridge, 2008

BHP-251	Computer design and digital fabrication-II
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UNIT I SKETCH UP

Orientation towards 3D : 2D to 3D conversion, perspective view, walk through the layout

SUGGESTED BOOKS

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016 .
- Auto Desk, 3D MAX comprehensive tutorial resources Wiley 2014.
- Sketch up for interior Design . 3D visualising designing & space planning by Lidya Sloan, Wiley Publisher – 2014

BHP-253	Product design studio-I
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UNIT I FORMULATION OF DESIGN BRIEF

UNIT II CASE STUDIES & RESEARCH

BHP-203	Development of product form and process
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UNIT 1: THINKING IN THREE DIMENSIONS

Concepts of space and Volume, Evolution of a flat shape into a volume; History of utilitarianism; Stone Age Tools; Evolution of farming equipment; native artisanal tools; Creating compositions using rectilinear and curvilinear surfaces; Regular and irregular Solids, geometric shapes and their compositions; Regular and irregular Organics shapes;

PM10: Behaviours

Module 10		PM10: Behavior
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-201	History of design-III	25
BHP-251	Computer design and digital fabrication-II	25
BHP-253	Product design studio-I	25
BHP-203	Development of product form and process	25

COURSE OUTCOMES

Designer will be able to:	
1	To consider the ways in which designers and consumers receive
2	deconstruct information to make decisions about creating, buying and using industrially designed products
3	To understand semiotic analysis, object analysis, questionnaire design, focus groups, user observation, user empathy and empirical research

Project:

COURSE CONTENT

BHP-201	History of design-III
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UNIT II

ANCIENT HISTORY

Indian Colonial Architecture-Portuguese, French and British : The styles and trends of architecture and design brought to India and their evolution – Their impact on architecture and design in India – The characteristics of Colonial Architecture with examples from Goa-Bom Jesus Cathedral Complex-Old Goa- Fountainahs , Puducherry, Mahe and Edwin Lutyen etc.,

BHP-251	Computer design and digital fabrication-II
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UNIT II 3D MAX

Understanding 3D, theory behind 3D modeling. Preparing for construction of 3D models. Construction of 3D surface models- extrusion, wire frame, creation of a shell, elaborate surfaces

BHP-253	Product design studio-I
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UNIT III CONCEPT AND BRAINSTORMING

BHP-203	Development of product form and process
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UNIT 2: STRUCTURE AND ORDER FORM

, Feature and Content, Dominant, subdominant and subordinate elements, transition elements; Creating a family of forms; Abstraction, Expression and Meaning in Product Form; Generative algorithms; Generated Forms;

PM 11: Visualization

Module 11		PM11: Visualization
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-201	History of design-III	
BHP-251	Computer design and digital fabrication-II	50
BHP-253	Product design studio-I	25
BHP-203	Development of product form and process	25

COURSE OUTCOMES

Designer will be able to:	
1	To introduce fundamentals of 2D and 3D skills through material techniques, process and technologies
2	to explore a range of creative approaches through experimentation and exploration
3	to explore cultural, aesthetic and analytical approaches and creative process

Project:

COURSE CONTENT

BHP-251	Computer design and digital fabrication-II
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UNIT III REVIT (2D + 3D IN SAME PLATFORM)

Introduction to REVIT ,Learning to use basic tools such as wall,roof floor ,staircases,dimensioning, plotting etc.

UNIT IV SOLID MODELING (TRANSFORMING SPACES)

Solid modeling : concepts behind solid modeling, composite solids creation and modification, solids display and inquiry. (Rhino and Grasshopper).

UNIT V RENDERING & PRESENTATION TECHNIQUES

Rendering and presentation. Printing and plotting.(Vray,Indesign,Illustrator,Lumion)

BHP-253	Product design studio-I
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UNIT IV DEVELOPMENT OF CONCEPT

BHP-203	Development of product form and process
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UNIT 3: TRANSFORMATION AND MOVEMENT

Addition, subtraction, conformation, Transition, Morphing; Radii Manipulation; creating volumes through imaginary movements;

PM12: Evolution

Module 12		PM12: Evolution
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-201	History of design-III	50
BHP-251	Computer design and digital fabrication-II	
BHP-253	Product design studio-I	25
BHP-203	Development of product form and process	25

COURSE OUTCOMES

Designer will be able to:	
1	to understand how the Evolution of Design has been shaped by Design Movements and key events in history
2	To establish relation between historical evolution of design and contemporary designs
3	To design with evolution and development stages in focus

Project:

COURSE CONTENT

BHP-201	History of design-III
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UNIT III

MODERNISM

Impressionism –Expressionism – Cubism – Neoclassicism – Neoplasticism Suprematicism – Art Noveau Constructivism – Futurism – Post modernism- Post- Post Modernism– Deconstructivism Antonio Gaudi, Victor Horta, Charles Renee Mackintosh, Le Corbusier.

UNIT IV

AFTER MODERNISM

Critical regionalism, Bauhaus, International style, Post Modernism.-Walter Gropius.

UNIT V

WORKS OF ARCHITECTS

Works of Foreign Architects /Artisans in India and their influence – Edwin Lutyens, Le Corbusier, Louis Khan, Philip Johnson. Works of Indian Architects – Laurie Baker, Charles Correa, B.V. Doshi, A.P. Kanvinde, Raj Rewal, , Joseph Allen Stein

BHP-253	Product design studio-I
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UNIT V PROTOTYPING

BHP-203	Development of product form and process
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UNIT 4: IDENTITIES AND RELATIONSHIPS

Ambiguity of “Form follows function”; examples from nature; Forms of Machine elements; Skeletons of life forms; Exoskeletons; Plant Structures Components of Built Spaces;

UNIT 5; VISUALIZATION

Visualization through surface modeling software; Material Explorations using Papier Mache, wood, Threads, Ropes, Plaster of Paris and Polystyrene; Introduction to 3D Printing;

SUGGESTED BOOKS

- Gyorgy Kepes, Language of Vision, Dover Publications, 1995
- Kimberly Elam, Geometry of Design: Studies in Proportion and Composition, Princeton Architectural Press, 2001
- Gaston Bachelard and Maria Jolas (Translator),The Poetics of Space, Beacon Press; Reprint edition, 1994 Gail GreetHannah, Elements of Design, Princeton Architectural Press, 2002
- H. G. Greet and R. R. Kostellow, Elements of Design and the Structure of Visual Relationships, Architectural Press, NY, 2002
- Mario Livio, the Golden Ratio: The Story of PHI, the World's Most Astonishing Number, Broadway, 2003

BHI-207	Interior Photography (Open Elective)
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UNIT – I PRINCIPLES OF COMPOSITION

Rule of thirds, perspective-worm’s eye view, normal eye view, bird’s eye view, one-point perspective, two-point perspective, three-point perspective, exercises in composition

UNIT – II PRINCIPLES OF PHOTOGRAPHY

Technical definitions, understanding a camera, anatomy of a SLR camera, technical setting in a SLR camera, different types of lenses

UNIT – III PRINCIPLES OF INTERIOR LIGHTING

Technical definitions, lighting sources, types of lighting fixtures, types of lamps, calculating lighting levels, flash photography, types of flashes, controlling lighting levels with flash photography Exercise in interior lighting photography with artificial light and black and white photos

UNIT – IV PRINCIPLES OF COLOUR

Color rendering in photographic medium, color rendering in photographs under different lighting condition, lighting colors and its effect on a photograph, color filters in a camera Exercise on color photography of interiors

UNIT – V INTEGRATION

Project work/exercise in integrating all prior units

4th Semester

PM13: Roots

Module 13		PM13: Roots
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-202	Rapid prototyping	
BHP-204	History of Design-IV	50
BHP-252	Product Design Studio-II	25
BHP-206	Layout drawing and display techniques	
BHP-208A	Elective-Representation Of spaces	25
BHP-208B	Elective-Product Photography	

COURSE OUTCOMES

Designer will be able to:	
1	To introduce students to a range of design disciplines and helps provide an understanding of multidisciplinary design practice in the workplace
2	to develop an appreciation of interdisciplinary design
3	To design through exploration of theoretical and practical tasks

Project:

COURSE CONTENT

BHP-204	History of Design-IV
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UNIT I MODERN MOVEMENT:

Return to the fundamentals and origins in nature and geometry; new inventions of iron and glass; horizontal and vertical expansions; responses to the vernacular. Social intentions and the search for the 'ideal' world; simplicity, abstraction, non-objective, nonrepresentative and neglect of content and ornament; new notions of technology; importance and precedence of function; De Stijl, etc. – an overview of the works of Louis Sullivan, C. R. Mackintosh, Edwin Lutyens, Antoni Gaudi, Walter Gropius, Frank Lloyd Wright, Le Corbusier, Mies van der Rohe.

BHP-252	Product Design Studio-II
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UNIT I FORMULATION OF DESIGN BRIEF

Sub unit – a, b and c detailed in Instructional Plan

UNIT II CASE STUDIES & RESEARCH

BHP-208A	Elective-Representation Of spaces
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UNIT- I REPRESENTING SPACES

Representing space as a pervasive phenomenon in literature. Philosophical cultural and social aspects of spaces in literature, cinema, theatre.

BHP-208B	Elective-Product Photography
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UNIT – I OVERVIEW OF PRODUCT PHOTOGRAPHY

Product Photography significance – role in promotion of products - categorization of products – The lighting Equipment – Types of lighting units – Accessories – Digital Lights - Study of Concepts – Accessories - Props – Backgrounds - Models – Locations – hiring of studios – equipment.

PM14: Design Exploration

Module 14		PM14: Design Exploration
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-202	Rapid prototyping	25
BHP-204	History of Design-IV	25
BHP-252	Product Design Studio-II	25
BHP-206	Layout drawing and display techniques	25
BHP-208A	Elective-Representation Of spaces	25
BHP-208B	Elective-Product Photography	

COURSE OUTCOMES

Designer will be able to:	
1	Communicate and present effectively in written, graphical and verbal formats.
2	Apply prototyping techniques - virtual and physical - to create, develop and validate design proposals.
3	Analyze and interpret observations and gathered data, through use of tools and models, primary and secondary research
4	Contextual factors influencing product design practice and decision making – Philosophical, Political, Historical, Socio-Cultural, Environmental and Technological.

Project:

COURSE CONTENT

BHP-202	Rapid prototyping
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UNIT - I

Introduction: Introduction to Prototyping, Traditional Prototyping Vs. Rapid Prototyping (RP), Classification of Rapid Manufacturing Processes: Additive, Subtractive, Formative, Generic RP process.

BHP-204	History of Design-IV
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UNIT II THE INTERNATIONAL STYLE:

Simplification of the Modern architecture into steel and glass cubes – an overview of the works of Philip Johnson.

UNIT III POST MODERNISM OF REACTION:

Architecture entrenched in place and history; sarcastic approval of expression, ornament, symbolism and context – an overview of the works of James Stirling, Michael Graves, Charles Moore. Post modernism of Resistance: Disregard for historical imagery; revival of the ideals of the Modern Architecture of the 20's; exaggerated and sophisticated revival of the grid and Corbusier's geometry – an overview of the works of Richard Rogers, Norman Foster, Richard Meier.

BHP-252	Product Design Studio-II
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UNIT III CONCEPT AND BRAINSTORMING

Sub unit – a, b and c detailed in Instructional Plan

BHP-206	Layout drawing and display techniques
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UNIT I COLORING STUDY

Introduction of colors, Usage of water colors, poster colors, pen & ink, rendering techniques, etc.

UNIT II DRAWING AND SKETCHING INTERIOR ENVIRONMENTS

Drawing and sketching interior environments, one point interior perspective, two point interior perspective, refined linear perspective methods, two point plan projection method, and perspective traced from photographs.

BHP-208A	Elective-Representation Of spaces
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UNIT -II SPACE DISCOURSE

Space as discourse in literature and exercise - sketching spaces from literature eg: Windows as frames of reference describing use of spaces in literary texts such as “Alice in Wonderland “- Space in the middle of no where ,space and the mythical quality it holds conceptualising space from sound and smell.

BHP-208B	Elective-Product Photography
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UNIT – II ELECTRONICS PRODUCTS

Shooting Script – Lighting Schemes – Exercises.

PM15: Design Process

Module 15		PM15: Design Process
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-202	Rapid prototyping	25
BHP-204	History of Design-IV	25
BHP-252	Product Design Studio-II	25
BHP-206	Layout drawing and display techniques	50
BHP-208A	Elective-Representation Of spaces	25
BHP-208B	Elective-Product Photography	

COURSE OUTCOMES

Designer will be able to:	
1	Contextual factors influencing product design practice and decision making – Philosophical, Political, Historical, Socio-Cultural, Environmental and Technological.
2	Critically observe, record, organise and represent contextual input
3	Explore and apply technical knowledge and humanistic design methods and processes
4	Demonstrate leadership skills and the ability to work effectively as a member of a team

Project:

COURSE CONTENT

BHP-202	Rapid prototyping
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UNIT- II

CAD Modelling and Data Processing for RP: CAD model preparation, Data interfacing: formats (STL, SLC, CLI, RPI, LEAF, IGES, HP/GL, CT, STEP), conversation, validity checks, repair procedures; Part orientation and support

generation, Support structure design, Model Slicing algorithms and contour data organization, direct and adaptive slicing, Tool path generation.

UNIT- III

RP Processes: Process Physics, Tooling, Process Analysis, Material and technological aspects, Applications, limitations and comparison of various rapid manufacturing processes. Photopolymerization (Stereolithography (SL), Microstereolithography),

BHP-204	History of Design-IV
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UNIT IV HI-TECH AND HISTORICISM:

Synthesis of the Hi-Tech and Historicism – an overview of the works of Cesar Pelli, Aldo Rossi

UNIT V DECONSTRUCTION:

Deconstruction as a reaction to the Post Modern; non-perfection as important as perfection, narrative and representational; traditional purity of form, geometry and structure in question – an overview of the works of Frank O. Gehry, Peter Eisenman, Bernard Tschumi, Rem Koolhaas, Zaha Hadid.

BHP-252	Product Design Studio-II
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UNIT IV DEVELOPMENT OF CONCEPT

BHP-206	Layout drawing and display techniques
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UNIT III RENDERING WITH PEN AND INK

Introduction to pen and ink rendering, materials, media and tools, rendering orthographic projection drawings, rendering perspective drawings.

UNIT IV RENDERING WITH COLOUR PENCILS AND SKETCH PENS

Rendering of interior perspectives with colour pencils and sketch pens – stroke effects, smudge effects – use of schoeller and kent sheets – leather cartridge etc.

BHP-208A	Elective-Representation Of spaces
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UNIT -III THRESHOLD

Threshold and liminal space exercise: Find and collect picture and draw threshold spaces .Discussion on images of threshold spaces, threshold spaces in films and mythology.

BHP-208B	Elective-Product Photography
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UNIT – III HOUSE HOLD PRODUCTS

Shooting Script – Lighting Schemes – Exercises Liquid Products – Shooting Script – Lighting Schemes – Exercises.

PM16: Design Tools

Module 16		PM16: Design Tools
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-202	Rapid prototyping	50
BHP-204	History of Design-IV	
BHP-252	Product Design Studio-II	25
BHP-206	Layout drawing and display techniques	25
BHP-208A	Elective-Representation Of spaces	25
BHP-208B	Elective-Product Photography	

COURSE OUTCOMES

Designer will be able to:	
1	Fully engage with creative and analytical (design) thinking processes
2	Demonstrate compliance with codes of conduct, application of safe systems of work, and sustainable and ethical design practices
3	Apply appropriate technologies to develop and deliver high quality design projects

Project:

COURSE CONTENT

BHP-202	Rapid prototyping
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UNIT - IV

Powder Bed Fusion (Selective laser Sintering (SLS), Electron Beam melting (EBM)), Extrusion-Based RP Systems (Fused Deposition Modelling (FDM)), 3D Printing, Sheet Lamination (Laminated Object Manufacturing (LOM), Ultrasonic Consolidation (UC)), Beam Deposition (Laser Engineered Net Shaping (LENS), Direct Metal Deposition (DMD)).

UNIT – V

Errors in RP Processes: Pre-processing, processing, post-processing errors, Part building errors in SLA, SLS.

BHP-252	Product Design Studio-II
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UNIT V PROTOTYPING

BHP-206	Layout drawing and display techniques
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UNIT V RENDERING WITH POSTER/WATER COLOURS

Use of kent/ cartridge sheets for poster colours and waterman/cartridge sheets for water colours – transparency effects in water colours – block effects in poster colours.

BHP-208A	Elective-Representation Of spaces
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UNIT- IV SPACE IN DEMOCRACY

Democracy and space public sphere, public realm and public space, rights of people over space.

UNIT -V SPACE IN FICTION

Spaces in children's fiction comics and graphic novel.

BHP-208B	Elective-Product Photography
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UNIT – IV EXECUTIVE PRODUCTS

Shooting Script – Lighting Schemes – Exercises. - Concept Photography - Shooting Script – Lighting Schemes – Exercises

UNIT – V . INDUSTRIAL PHOTOGRAPHER

Lighting in Natural & Artificial

5th Semester

PM17: Reflections

Module 17		PM17: Reflections
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-301	Manufacturing and assembly	25
BHP-303	Sustainable Design	25
BHP-351	Product illustrations	25
BHP-353	Product Design Studio-III	25

COURSE OUTCOMES

Designer will be able to:	
1	To develop skills in research and analysis and encourage critical reflection, intellectual risk-taking and the development of effective and appropriate communication methods.
2	To encourage independent and critical thinking and develop transferable skills and competencies.
3	To develop experience and knowledge of collaborative working methods and processes within an industrially-focused multidisciplinary environment.

Project:

COURSE CONTENT

BHP-301	Manufacturing and assembly
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UNIT I PROPERTIES, COMPOSITION AND INDUSTRIAL APPLICATIONS OF ENGINEERING MATERIALS:

Metals – Ferrous: cast iron, tool steels and stainless steels and non-ferrous such as aluminum, brass, bronze. Polymers – Thermoplastics and thermosetting polymers. Ceramics – Glass, optical fiber glass, cermets. Composites – Fiber reinforced composites, Metal Matrix Composites Smart materials – Piezoelectric materials, shape memory alloys, semiconductors and insulators.

BHP-303	Sustainable Design
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UNIT I NEED FOR ADAPTIVE REUSE

Cultural inheritance – heritage buildings and old structures – ascertaining the structural stability – estimation of the prolonged life of the building – strategies of adaptive reuse – investigation into material finishes etc.

UNIT II NEED FOR RECYCLING OF MATERIALS

The logic behind recycling – recycling of steel, wood, glass etc – estimation of the quality of recycled timber – criteria for recycling of steel, glass etc.

BHP-351	Product Illustrations
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Unit 1- design process and critical role that user needs play in good design. You'll learn that design is conceiving and giving form to artifacts that solve problems, and also how to recognize and identify a gap in a problem. You'll explore what defines what users need, as well as ways to use those needs toward product design. By the end of this module, you will have begun your own design process by identifying 10 problem gaps and submitting them for feedback from your peers. You will also do a "5 Whys" exercise to help you determine the best design problem for you to solve in your final design project.

Unit 2 - In this module, you'll deliver your customer needs and learn the basic principles of drawing for product design: a necessary skill for any designer. The module begins with another peer review, this time on customer needs. This assignment requires you to conduct interviews with potential customers, and to come up with a list of at least 30 user needs. Given the time-intensive nature of this assignment, we suggest you begin it as soon as possible. As you conduct

your interviews and begin your list of user needs, you can start watching the drawing videos, which will guide you through the processes of presenting your design in a clear, easily accessible format. By the end of this module, you'll be able to identify the main customer needs your design will address, and also be able to present your design as a drawing which employs the best practices of drawing for design.

BHP-353	Product Design Studio-III
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Unit 1

Introduction to the design intervention in the human realm which add value and quality to the life of people.

Identifying design opportunity in accessible environments.

Literature survey to collect relevant data on the product.

Activity recording and task analysis.

PM18: Experimentation

Module 18		PM18: Experimentation
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-301	Manufacturing and assembly	25
BHP-303	Sustainable Design	25
BHP-351	Product illustrations	25
BHP-353	Product Design Studio-III	25

COURSE OUTCOMES

Designer will be able to:	
1	To develop a range of critical, creative, technical and professional skills relevant to employment in Product Design and related areas.
2	To develop an understanding of key critical, professional, theoretical and cultural debates in the area of Product Design.
3	To encourage experimentation with, and the creative use of, new and existing technologies and materials.

Project:

COURSE CONTENT

BHP-301	Manufacturing and assembly
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UNIT II JOINING PROCESSES:

Soldering, Brazing and Welding: Definitions. Classification and methods of soldering, brazing and welding. Brief description of arc welding, oxy-acetylene welding, TIG welding, and MIG welding.

BHP-303	Sustainable Design
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UNIT III CONCEPT OF SUSTAINABILITY

Earth summit declaration – definition of sustainability – economic, social and environmental issues – green rating of buildings – criteria for LEED rating.

BHP-351	Product Illustrations
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Unit 3 - The goal of this module is to move from defining the problem to designing a solution. You'll begin by learning about the exploration phase, and you will exit this phase with a number of design concepts for peer review. You'll also learn how to decompose a design to evaluate its overall function, and essential process in creating good design essential to the life of your design. Finally, you'll learn how to critically examine past design artifacts to inform your current concepts so that you can sensibly differentiate your product. By the end of this module, you'll have created 10 solid design concepts, and you will have received feedback on those concepts so that you can move to the next phase of the design process: prototyping.

BHP-353	Product Design Studio-III
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Unit 2

Questionnaire and interview techniques for enlisting and elaborating the different problem areas.

Study on the existing product: it's working principle, its advantages and disadvantages.

Study to understand technology and/or mechanisms in the context of identified need.

Conduct market research.

PM19: Process

Module 19		PM19: Process
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-301	Manufacturing and assembly	25
BHP-303	Sustainable Design	25
BHP-351	Product illustrations	25
BHP-353	Product Design Studio-III	25

COURSE OUTCOMES

Designer will be able to:	
1	To understand the design process in context
2	To address the significance of research, observation, documentation, evaluation, idea generation, concept development
3	To familiarize with core design considerations
4	To develop conscious awareness and practice of all aspects of design process

Project:

COURSE CONTENT

BHP-301	Manufacturing and assembly
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UNIT III DRIVES & LATHE

- Belt drives: Open & crossed belt drives, Definitions -slip, creep, velocity ratio, derivations for length of belt in open and crossed belt drive, ratio of tension in flat belt drives, advantages and disadvantages of V belts and timing belts, simple numerical problems.
- Gear drives: Types- spherical, bevel, worm and rack and pinion. Velocity ratio, advantages and disadvantages over belt drives, simple numerical problems on velocity ratio.
- Lathe: Principle of working of a center lathe. Parts of a lathe. Operations on lathe – Turning, Facing, Knurling, Thread Cutting, Drilling, Taper turning by Tailstock offset method and Compound slide swiveling method, Specification of Lathe.

BHP-303	Sustainable Design
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UNIT IV RECYCLING OF WASTE WATER

Sullage and sewage – techniques of water purification for sullage – treatment plant for sewage – techniques of biological and chemical purification.

BHP-351	Product Illustrations
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Unit 4- This module was created to help you understand the selection process so that you can choose one design for prototyping. You'll learn key techniques for evaluating your design concepts, including the selection matrix, and the scoring matrix. And once you've selected some designs, you will also learn the uses and value of prototyping.

BHP-353	Product Design Studio-III
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Unit 3

Study on materials and manufacturing processes.

Formulation of the design brief.

Introducing students to critical creative thinking tools.

Ideation – concept generation and explorations with quick explanatory models.

PM20: Walkthrough

Module 20		PM20: Walkthrough
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-301	Manufacturing and assembly	25
BHP-303	Sustainable Design	25
BHP-351	Product illustrations	25
BHP-353	Product Design Studio-III	25

COURSE OUTCOMES

Designer will be able to:	
1	To generate design context
2	To assimilate design overview and conceptual presentations
3	To deliver a design visualization with business oriented specifications
4	To generate a design flyer or brochure with the given context and design details.

Project:

COURSE CONTENT

BHP-301	Manufacturing and assembly
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UNIT IV MILLING & CNC

- Milling Machine: Principle of milling, types of milling machines. Working of horizontal and vertical milling machines. Milling processes – plane milling, end milling, slot milling, angular milling, form milling, straddle milling, and gang milling.
- Computer Numerical Control (CNC): Introduction, components of CNC, open loop and closed loop systems, advantages of CNC, CNC Machining centers and Turning centers.

UNIT V ROBOTS

Robot anatomy, joints and links, common robot configurations. Applications of Robots in material handling, processing and assembly and inspection.

BHP-303	Sustainable Design
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UNIT V NEED FOR CONSERVATION

Architectural conservation – conservation of heritage and important buildings – levels of intervention – structural, construction related, finishes etc. Revival of old building techniques and finishes.

BHP-351	Product Illustrations
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Unit 5 - You'll explore how prototypes are used to answer questions, to communicate and to distinguish milestones in the design process, and you will also work through the prototyping process so you can begin building your own, which you will submit for peer review. By the end of this module, you'll have selected one or more design concepts for prototyping, built prototypes, and received feedback on them from your peers. You'll also get to see some of your peers' designs as well.

BHP-353	Product Design Studio-III
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Unit 4-Evaluation and validation of new concepts.

Finalization of the concept with design development and detailing.

Unit 5

Prototyping of 3D models.

Hand and computer Renderings and finished model of the final design solution

6th Semester

PM21: Design Realization

Module 21		PM21: Design Realization
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-302	Product branding and identifying	25
BHP-352	Product Design Studio - IV	25
BHP-304	Product packing design	25
BHP-306	Dissertation	25
BHP-308A	Elective-Entrepreneurship Development	25
BHP-308B	Elective-Revitalization of art and craft	

COURSE OUTCOMES

Designer will be able to:	
1	To use research to recognise unique design opportunities
2	To define a design brief and a design specification
3	To plan and manage concurrent projects
4	To employ critical thinking skills and essential knowledge of the product design process

Project:

COURSE CONTENT

BHP-302	Product branding and identifying
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UNIT 1: Principles of Visual Design Refresher Understanding visual culture; Visual Theories; Visual Design; Symbolism, Time, Sound; Point of View

BHP-352	Product Design Studio - IV
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Unit 1

Introduction to the design intervention in the human realm which add value and quality to the life. Identifying system comprehensible, tangible and accessible environments. Research of the system, components and stakeholders.

BHP-304	Product packing design
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UNIT 1: INTRODUCTION

Introduction to different kinds of packaging material; Studying about requirements of different products; Exposure of products, services and packaging in stores and similar environments

BHP-306	Dissertation
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Unit 1

Selecting a subject establishing relevance through facts, statistics of the social, cultural economic feasibility etc

BHP-308A	Elective-Entrepreneurship Development
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Unit – I: Entrepreneurship – Meaning – Importance, Types – Roles of Entrepreneurs in Economic Development – Qualities of an Entrepreneur – Entrepreneurship as a career.

BHP-308B	Elective-Revitalization of art and craft
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UNIT – I

Dexterity; knowledge of materials, process, technology and products of craft forms- production of craft forms and technology.

PM22: Design Manifestation

Module 22		PM22: Design Manifestation
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-302	Product branding and identifying	50
BHP-352	Product Design Studio - IV	25
BHP-304	Product packing design	50
BHP-306	Dissertation	25
BHP-308A	Elective-Entrepreneurship Development	25
BHP-308B	Elective-Revitalization of art and craft	

COURSE OUTCOMES

Designer will be able to:	
1	Contemporary product design methods and tools, both theoretical and practical
2	Fully engage with creative and analytical (design) thinking processes
3	Evaluate complex design solutions against conflicting constraints.
4	Explore and apply technical knowledge and humanistic design methods and processes

Project:

COURSE CONTENT

BHP-302	Product branding and identifying
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UNIT 2: Visual Art Visual art History; Sculpture; Artistic Styles

UNIT 3: Aesthetic Experience Modes of Aesthetic Experience; Basics of Aesthetic values; Aesthetics of Thinking and Creativity; Taste and Aesthetes; Aesthetics of Symbols and Language;

UNIT 4: Visual Experience Photography and Moving Images; Historical, Technical and Cultural Perspective; Ethical and Critical Perspective; Motion Pictures; Television and Video; Reality Shows;

BHP-352	Product Design Studio - IV
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Unit 2

Understanding the interrelationship and interdependency of various components of identified system.

Analyzing and mapping the strengths and weakness of the system

Synthesizing and prioritizing the research observations leading to design brief.

BHP-304	Product packing design
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UNIT 2: CASE STUDIES

Studying a variety of packaging case studies for different brands, materials used; studying the sustainability aspect; understanding the feasibility; Deconstructing and studying packaging of different brands (2-5 brands can be taken in consideration); Elaborating the study on any of the selected brands.

UNIT 3: PROJECT SELECTION

Selection of product for packaging development; Researching about the current packaging available; constraints and positive aspects; understanding, target audience, budget, branding

UNIT 4: PROJECT DEVELOPMENT

Developing a packaging for the selected product; Incorporating improvements that can be worked upon after the research work.

BHP-306	Dissertation
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Unit 2

Doing research by reading , collecting information and statistics, questionnaire.etc

BHP-308A	Elective-Entrepreneurship Development
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Unit – II: How to start Business – Product selection – Form of ownership – plant location – Land, Building. Water and Power – Raw Materials – Machinery – Man Power – Other – Infrastructural facilities – Licensing Registration and local byelaws.

BHP-308B	Elective-Revitalization of art and craft
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UNIT – II

Identification of private and public craft activity around the nation – various crafts and its perception in the society - design issues in transforming old craft forms into modern context by keeping its original spirits.

PM23: Resurgence

Module 23		PM23: Resurgence
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-302	Product branding and identifying	25
BHP-352	Product Design Studio - IV	
BHP-304	Product packing design	25
BHP-306	Dissertation	25
BHP-308A	Elective-Entrepreneurship Development	25
BHP-308B	Elective-Revitalization of art and craft	

COURSE OUTCOMES

Designer will be able to:	
1	To apply research skills and process of investigation, reflection and writing
2	To develop a research topic specific to interest pertaining to interior design domain
3	To analyse critical and theoretical engagement of with contemporary interior issues

Project:

COURSE CONTENT

BHP-352	Product Design Studio - IV
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Unit 3

Formulating the design brief.

Unit 4

Introducing students to critical creative thinking tools.

Ideation -- concept generation and explorations with quick explanatory models.

Finalization of the concept with design development and detailing.

BHP-304	Product packing design
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BHP-306	Dissertation
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Unit 3

Learning various data collection methods.

Unit 4

Selecting the related case studies either live or book to understand the typology.

BHP-308A	Elective-Entrepreneurship Development
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Unit – III: Institutional arrangement for Entrepreneurship Development – D.I.C., I.T.C.O.T., S.I.D.C.O., N.S.I.C., M.S.M.E., – Institutional Finance to Entrepreneurs. T.I.I.C., S.I.D.B.I., Commercial Banks – Incentives to small scale Industries.

BHP-308B	Elective-Revitalization of art and craft
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UNIT – III

Assignment: Select one of the art/ craft form with the consultation of the faculty. Visit to the craft pockets.

PM24: Process 2

Module 24		PM24: Process 2
Contacts Hours		
Assigned Credit		
Subject Code	Subject Name	Max Marks
BHP-302	Product branding and identifying	25
BHP-352	Product Design Studio - IV	25
BHP-304	Product packing design	25
BHP-306	Dissertation	25
BHP-308A	Elective-Entrepreneurship Development	25
BHP-308B	Elective-Revitalization of art and craft	

COURSE OUTCOMES

Designer will be able to:	
1	To understand the design process in context
2	To address the significance of research, observation, documentation, evaluation, idea generation, concept development
3	To familiarize with core design considerations
4	To develop conscious awareness and practice of all aspects of design process

Project:

COURSE CONTENT

BHP-302	Product branding and identifying
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UNIT 5: Branding and Identity History of branding; structure of a Brand; Brand language; Logos; Copywriting; Typeface; Brand Placement; Brand Guidelines; Structure of Identity; Visual Abstraction; Metaphors; Communication; Representativeness; Evolution;

BHP-352	Product Design Studio - IV
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Unit 5

Prototyping of 3D models.

Evaluation of new concepts

Hand and computer Renderings and finished model of the final design solution

BHP-304	Product packing design
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UNIT 5: FINAL PACKAGING AND ITS BRANDING

Working on the branding aspect of the packaging that has been developed.

BHP-306	Dissertation
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Unit 5

Synthesizing and documenting the data, information, findings etc , and establishing the fact by concluding to establish the feasibility of the design proposal which ultimately leads to the generation of a design opportunity

BHP-308A	Elective-Entrepreneurship Development
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Unit – IV: Project Report – Meaning and Importance – Project Identification – Contents of Project Report – Formulation of a project report – Project appraisal – Market Feasibility – Technical Feasibility – Financial Feasibility and Economic Feasibility.

Unit – V: Entrepreneurship Development in India – Women Entrepreneurship in India – Sickness in Small scale industries and their remedial measures.

BHP-308B	Elective-Revitalization of art and craft
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UNIT – IV

Document people, life, culture and craft and understand the materials, tools, technology, processes and forms. Suggest suitable changes in technology to improve the products so as to make it acceptable in today's context.

UNIT – V

Design and produce a product related to interiors in contemporary design.

7th Semester

FM25 – Professional Office Training

Course Outcomes

Designer will be able to:	
1	Test the theories taught
2	Appraise the relation between the site work and drawings
3	Inculcate teamwork
4	Devise a procedure for accomplishing a task
5	Display self-reliance, work ethics in an office

	Training
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To understand the role of the interior designer within a practicing company

build your confidence to communicate your ideas in both a visual and written manner that is in keeping with industry practices

8th Semester

BHP-404	Professional Practice
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UNIT 1: ENTREPRENEURSHIP

Social Entrepreneurship, Business Entrepreneurship, Trading Entrepreneurship, Corporate Entrepreneurship, and Agricultural Entrepreneurship

UNIT 2: BUSINESS FOUNDATION

Timmons Model of Entrepreneurship, Investment Models, Startup Business Models, Business Plans, Pitch presentations, Small Business models

UNIT 3: Legal aspects of business Contracts and Agreements, Conflict Resolution, Arbitration

UNIT 4: Running a Design Business Set up of an independent design business, Hiring processes, Project Scheduling and work delegation, Cost Estimation; Billing, salaries and taxation

UNIT 5: PROFESSIONAL ETHICS Ethics in Profession, Code of conduct

BHP-406A	Elective-Interior Accessories and Product Design
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UNIT- I NEED OF STUDY

Insight of various products and lifestyle accessories in the interiors. Role of accessories in interiors. Integration of accessories in interior design. Design approaches in product and lifestyle accessories design with a focus on functionality, ergonomics, aesthetics, multiple usages etc.

UNIT –II STYLISTIC DEVELOPMENT

Stylistic development of decorative accessories from the past to present with insight into technological advances and the influences of social, economic and political factors on their design. Brief study of period room settings with the context of decorative accessories complementing the architecture and interior design.

UNIT- III MATERIAL STUDY

Study of materials and processes adopted in accessories design. Basic understanding of construction principles, anthropometrics, principles of sizes and proportions, modeling, rapid prototyping, color, texture etc. with broad orientation to socio-cultural and historical context of the sector. Orientation to Indian as well as global context of interiors, trends and market.

UNIT –IV DESIGN APPROACH

Design approach with limited constraints inherent in accessory products. Evolving the strategy of design with integration of technical complexities and lifestyle influences. Development of the design of products and accessories to specific interiors and prevailing trends. Broad based approach towards innovative design and application to multi products and multi materials in manufacturing interior products and lifestyle accessories.

UNIT –V DETAILS

A detailed study involving all the design aspects of any of the following lifestyle accessories: luminaire design, glassware, lighting fixtures, textiles, mirrors, clocks, wall & floor coverings etc.

BHP-406B	Elective-Applied Ergonomics
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UNIT 1: INTRODUCTION TO ERGONOMICS

Definitions of Ergonomics and its classification, application and overview, Concept of Man Machine Environment System

UNIT 2: HUMAN BODY & ITS SYSTEM

Overview of the Human Body and it's subsystems, Understanding musculoskeletal system and its function in terms of manual activities, Understanding nervous system, human sensory organs and their limitations.

UNIT 3: ANTHROPOMETRY

Understanding and applications of anthropometry; Basic anatomy, measurement system, types; static, dynamic, posture, joint, movement; Study of work posture and its impact on human performance; Physical environment and their impact on human performance

UNIT 4: PRODUCT ERGONOMICS

Understanding of product ergonomics; Man, machine and Interaction

UNIT 5: SAFETY INJURY PREVENTION,

safety, vibration, shock, fatigue and occupational hazard; Error handling

BHP-406C	Elective-Portfolio Development
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PORTFOLIO DESIGN FOR ONESELF (STUDIO) Students are expected to prepare a professional portfolio for themselves which will include their CV and works which they have been done during the course period. The portfolio should have a proper layout and design and should maintain professional standards and norms.

METHODOLOGY

- ☐ Choice of subject and detailed syllabus for the subject shall be finalized on year to year basis depending upon the expertise available.
- ☐ The experts in the field will deliver lectures and demonstrate the latest techniques for development of skills