CHHATRAPATI SHAHU JI MAHARAJ UNIVERSITY KANPUR

SYLLABUS

(B.DES)

BACHELOR OF DESIGN

SCHOOL OF ENGINEERING & TECHNOLOGY

(For Batch 2024 Onwards)

EVALUATION SCHEME

SEMESTER I

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 1001	Introduction to Design (Elements & Principles)	3	0	6				75	25	100	6
2	BDS 1002	Communication Studies in Design	2	0	0				75	25	100	2
3	BDS 1003	Anthropometry & Ergonomics	2	0	4				75	25	100	4
4	BDS 1004	Introduction to Design Profession	3	0	2				75	25	100	4
PRACTICAL SUBJECTS												
5	BDS 1005	Graphic Design	2	0	6	40	60	100			100	5
6	BDS 1006	Applied Science for Designers	2	0	4	40	60	100			100	3
		Total	**14**	**0**	**22**						**600**	**24**

SEMESTER II

Sl. No.	Course Code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 2001	History of Design - I	3	0	0				75	25	100	3
2	BDS 2002	Universal Human Values & Professional Ethics	3	0	0				75	25	100	3
PRACTICAL SUBJECTS												
3	BDS 2003	Design Thinking	1	0	4	40	60	100			100	3
4	BDS 2004	Model Making and Hand Tools Workshop	1	0	4	40	60	100			100	3
5	BDS 2005	Form Studies – Aesthetics , Identity & Expressions	2	0	4	20	30	50			50	4
6	BDS 2006	Rendering & Illustration	0	0	4	20	30	50			50	2
7	BDS 2007	Introduction to Typography	1	0	2	20	30	50			50	2
8	BDS 2008	Seminar/ Workshop	0	0	0	20	30	50			50	2
9	BDS 2009	Special Topics on Design	1	0	2	20	30	50			50	2
		Total	**12**	**0**	**20**						**650**	**24**

SEMESTER III

Sl. No.	Course Code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 3001	History of Design - II	3	0	0				75	25	100	3
PRACTICAL SUBJECTS												
2	BDS 3002	Design Project, Display & Control Design	3	0	2	40	60	100			100	4
3	BDS 3003	Architectural Studies in Design	2	0	4	40	60	100			100	4
4	BDS 3004	Design Documentation & project	2	0	8	40	60	100			100	6
5	BDS 3005	Computer Aided Design & Manufacturing -I	0	0	6	40	60	100			100	3
6	BDS 3006	User Centered Design Process	1	0	2	40	60	100			100	2
7	BDS 3007	Seminar/ Workshop	0	0	0	20	30	50			50	2
		Total	**10**	**0**	**24**						**650**	**24**

SEMESTER IV

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 4001	Design Management - I	2	0	2				75	25	100	3
2	BDS 4002	Environmental Science	3	0	0				75	25	100	3
3	BDS 4003	Sustainable Design	2	0	2				75	25	100	3
ELECTIVES (SELECT ANY ONE STREAM)												
PRODUCT DESIGN												
4	BDS 4004	Materials & Processes in Design	3	0	6	40	60	100			100	6
5	BDS 4005	Computer Aided Design and Manufacturing -II	3	0	6	40	60	100			100	6
COMMUNICATION DESIGN												
6	BDS 4006	Publication Design	3	0	6	40	60	100			100	6
7	BDS 4007	Branding & Identity	3	0	6	40	60	100			100	6

INTERACTION DESIGN												
8	BDS 4008	Introduction & Fundamental of Interaction Design	3	0	6	40	60	100			100	6
9	BDS 4009	UI & UX	3	0	6	40	60	100			100	6
INTERIOR DESIGN												
10	BDS 4010	Residential Interiors	3	0	6	40	60	100			100	6
11	BDS 4011	Building Services- I	3	0	6	40	60	100			100	6
PRACTICAL SUBJECTS												
12	BDS 4012	Seminar/ Workshop	0	0	0	20	30	50			50	3
		Total	**13**	**0**	**16**						**550**	**24**

SEMESTER V

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 5001	Humanities and Social Studies	2	0	0				75	25	100	2
2	BDS 5002	Design Research methodology - I	2	0	0				75	25	100	2
3	BDS 5003	Project Managment	2	0	2				75	25	100	3
ELECTIVES (SELECT ANY ONE STREAM)												
PRODUCT DESIGN												
4	BDS 5004	Applied Ergonomics	2	0	6	40	60	100			100	5
5	BDS 5005	Nature & Form	2	0	6	40	60	100			100	5
6	BDS 5006	Furniture Design	2	0	6	40	60	100			100	5
COMMUNICATION DESIGN												
7	BDS 5007	Graphic Narratives	2	0	6	40	60	100			100	5
8	BDS 5008	Way Finding & Signages	2	0	6	40	60	100			100	5
9	BDS 5009	Documentary Photography	2	0	6	40	60	100			100	5
INTERACTION DESIGN												
10	BDS 5010	Digital Storytelling	2	0	6	40	60	100			100	5
11	BDS 5011	Digital Hertiage	2	0	6	40	60	100			100	5
12	BDS 5012	Design for Education	2	0	6	40	60	100			100	5
INTERIOR DESIGN												
13	BDS 5013	Instittutional /Commercial Desgn	2	0	6	40	60	100			100	5
14	BDS 5014	Building Services- II	2	0	6	40	60	100			100	5
15	BDS 5015	Building	2	0	6	40	60	100			100	5

		Construction Materials										
PRACTICAL SUBJECTS												
16	BDS 5016	Seminar/ Workshop	0	0	0	20	30	50			50	2
		Total	**12**	**0**	**20**						**650**	**24**

SEMESTER VI

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 6001	Design Research methodology - II	2	0	0				75	25	100	2
2	BDS 6002	Design Management –II	2	0	0				75	25	100	2
ELECTIVES (SELECT ANY ONE STREAM)												
PRODUCT DESIGN												
3	BDS 6003	Design Creativity & Innovation	2	0	6	40	60	100			100	5
4	BDS 6004	Product Semantics	2	0	6	40	60	100			100	5
5	BDS 6005	Life cycle Analysis	2	0	6	40	60	100			100	5
6	BDS 6006	Automobile Design Exploration	2	0	6	40	60	100			100	5
COMMUNICATION DESIGN												
7	BDS 6007	Spatial Design	2	0	6	40	60	100			100	5
8	BDS 6008	Product Graphics & Packaging	2	0	6	40	60	100			100	5
9	BDS 6009	Contemporary Photography	2	0	6	40	60	100			100	5
10	BDS 6010	Advertising	2	0	6	40	60	100			100	5
INTERACTION DESIGN												
11	BDS 6011	Tangible Computing	2	0	6	40	60	100			100	5
12	BDS 6012	Service Design	2	0	6	40	60	100			100	5
13	BDS 6013	Participatory Design	2	0	6	40	60	100			100	5
14	BDS 6014	Virtual Enviroments in Design	2	0	6	40	60	100			100	5
INTERIOR DESIGN												
15	BDS 6015	Estimation & Budgetting	2	0	6	40	60	100			100	5
16	BDS 6016	Building Services-III	2	0	6	40	60	100			100	5

17	BDS 6017	Advance Building Construction	2	0	6	40	60	100			100	5
18	BDS 6018	Landscape Interior Design	2	0	6	40	60	100			100	5
		Total	**12**	**0**	**24**						**600**	**24**

SEMESTER VII

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
THEORY SUBJECTS												
1	BDS 7001	Professional Practice in Design	2	0	2				75	25	100	3
PRACTICAL SUBJECTS												
9	BDS 7002	Design Documentation-II	2	0	4	40	60	100			100	5
3	BDS 7003	Design Research Seminar	2	0	8	40	60	100			100	6
4	BDS 7004	Universal Design	2	0	4	40	60	100			100	4
5	BDS 7005	Seminar/ Workshop	0	0	0	20	30	50			50	2
6	BDS 7006	Industrial Training	0	0	0	40	60	100			100	4
		Total	**9**	**0**	**20**						**550**	**24**

SEMESTER VIII

Sl. No.	Course code	Subject	Periods			Internals			End Semester		Total	Credit
			L	T	P	CT	TA	Total	TE	PE		
PRACTICAL SUBJECTS												
1	BDS 8001	Design Degree Project	0	0	0	0	500	500	0	100	600	24
		Total	**0**	**0**	**0**						**600**	**24**

L/T/P: Lecture/ Tutorial/ Practical
CT: Class Test
TA: Teacher Assessment
TE: Theory Examination
PE: Practical Examination

*From fourth semester onwards, students can opt only one stream having a specific specialization keeping in mind that the stream chosen in the current semester should relate to the stream chosen in the previous semester.

Bachelor of Design | 1st Year (Semester I)

1. BDS 1001- Introduction to Design (Elements & Principles)

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS 1001- Introduction to Design (Elements & Principles)
Course Outcome	• To introduce the notion of design as it evolved through time; Understanding creativity & its application; Develop the ability to identify problems and finding needs; Understand the Design process. • Ability to create compelling colour schemes for graphic design Understanding the emotional impact of colours on people Ability to handle different types of pigments for model making and prototyping.

Unit 1: Orientation
History & evolution of design, landmark discoveries & inventions, Design & its relationship with environment (art, craft, culture, society & technology), Various domains in design and design professions.

Unit 2: Creative Thinking & Problem Identification
Logical Thinking vs. Creative Thinking, exploring creativity through various mediums, Interpreting creativity through Navrasa. Methods & Techniques, Observation, identification, and analysis of a problem

Unit 3: Design- Beyond product design
Introduction to Experience Design, Service Design, System Design

Unit 4: Line, Dot, Shape, Texture, Space, Form, Unity/harmony, Color
Its types and characteristics, characteristics of a shape, concepts of positive and negative space, types of shapes, visual and emotional interpretations.

Unit 5: Color theory and its Pschycology
Primary colors and pure hues, Introduction to colors, pigment and light, additive and subtractive models. Shades of greys. Understanding warm and cold greys, Emotions and Colors Perception of colors, emotion and colors; pantone colors, colour wheel
Colour Wheel; Tints, Tones and Shades, colour charts; Colour mixing models, colour palettes. Understanding the Grayscale, gradation methods; Composition with grays, black and white.

Unit 6: Pattern recognition and creation
Pattern recognition, abstraction and construction. Developing patterns by repetition of points, dots, rectilinear elements, curvilinear elements, shapes, Regular and Irregular patterns. Understanding of flat surfaces. Material and process based textures, construction based textures, pigmented textures. Gradation on flat Surface.

Unit 7: Principles of visual design
Principles of design, unity/harmony, balance, alignment, hierarchy; emphasis; similarity and contrast; Gestalt laws, Morphology: Scale, proportions; Movement, repetition; Pattern, rhythm, variety.

Unit 8: Organisation Of Forms & Circulation

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. 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

References:

Don Norman; Design of Everyday Things, 2014

Don Norman; Emotional Design, Why we love (or hate) Everyday things, 2003 David Raizman; History of Modern Design, Prentice Hall,2004

William Lidwell, Kritina Holden, Jill Butler; Universal Principles of Design, 2003 Edward de bono; Lateral Thinking, 2010

Samara Timothy, Design Elements, 2nd Edition: Understanding the rules and knowing when to break them, Rockport Publishers, 2014

Evans Poppy and Thomas Mark A., Exploring the Elements of Design, Delmar Cengage Learning, 2012

Beech R., Origami – The Complete Guide to the Art of Paper Folding, Lorenz Books, 2001

Wong W., Principles of Two Dimensional Design, John Wiley & Sons, 1972

White Alex W., The Elements of Graphic Design, Allworth Press, 2011

Gail Greet Hannah, Elements of Design, Princeton Architectural Press, 2002

Itten J., The art of colour: the subjective experience and objective rationale of colour, John Wiley and Sons., 1974

Sherin, A., Design Elements, Color Fundamentals: A Graphic Style Manual for Understanding How Color Impacts Design, Beverly, Mass: Rockport Publishers, 2011

L. Hotzschue, Understanding Colour, VNR, 1995

R.M. Proctor, The principles of pattern, DoverPublications,1990

Elam, Kimberly; Geometry of Design: Studies in Proportion and Composition, Princeton Architectural Press, 2001

2. BDS 1002- Communication Studies in Design

L	T	P	CREDITS
2	0	0	2

Course Code & Name	BDS 1002 – Communication Studies in Design- I
Course Outcome	Ability to gain actionable insights from day to day conversations. Conceptual, and technical skills that make for effective communication design.

Unit 1: Understanding role of communication in culture
Defining and investigating communication, Social communication, Intercultural communication, Technology and culture, Effect of culture in communication, Models of communication, Ethics

Unit 2: **LISTENING SKILLS**

Listening skills: Listening to conversation and speeches (Formal and Informal) Reading: Techniques of reading, skimming, Scanning, SQ3R technique

Unit 3: **Storytelling in communication, Digital Communications.**
Speech codes, Interviews, Folk stories, Advertisements, TV shows and films, creating narratives etc.

Unit 4: **Speaking Skills** & **Communication Skills for Presentation**

Speaking: How to converse with people, How to communicate effectively; Language and grammar skills; Short Extempore speeches – facing audience – paper presentation – getting over nervousness –Interview techniques – preparing for interview – Mock Interview – Body Language. Writing, Designing, and Speaking Thesis and Project Report Writing, Technical Proposal Writing.

Unit 5 : Communication and Leadership Development

Leadership Communication, Communication and Social competence: context, feelings, intentions, behaviors, Providing and Receiving feedback, Difference between Tact and Intelligence, Emotional Intelligence: Trust through Communication, Thinking Skills: Meaning and Types.

Unit 6 : Digital Communication and Personality Making

Content Creation for Social Media: Emails, Webinars, podcasts, Blogs. Effective and Ethical use of Social Media by Text and Technique, Speech and Personality, Personality Analysis: Types of Personality; Concept of Personality: Maslow, Freud, Vivekananda, Jung Typology &Personality Assessment. ommunication ideas for a community

References:
Griffin, E. A first look at communication theory (8 th ed.). New York: McGraw-Hill, 2012
Lewis, J., Cultural studies: The basics. London: SAGE Publications, 2002
Watson, J, What is communication studies? London: Edward Arnold, 1985 Berko Roy, Basically Communicating.Wm. C. Brown Publishers, 1989 Roloff, M. E., & Miller, G. R, Interpersonal processes: New Directions in communication research. Newbury Park,

Calif: Sage Publications, 1987 Carey, J. W, Communication as culture: Essays on media and society. Boston: Unwin Hyman, 1989
Technical Communication – Principles and Practices by Meenakshi Raman & Sangeeta Sharma, Oxford Univ. Press, 2018, New Delhi 2. Personality Development and Soft Skills by Barun K. Mitra, OUP, 2012, New Delhi. 3. Technical Communication, by Pfeiffer, 6th edn (Pearson)

3. BDS 1003- Anthropometrics and Ergonomics

L	T	P	CREDITS
2	0	4	4

Course Code & Name	BDS 1004- Anthropometrics and Ergonomics
Course Outcome	To introduce ergonomics and its significance in design. To understand the impact of anatomy, anthropometry, biomechanics, physiology and the physical environment on physical activity.

Unit 1: Introduction to Ergonomics

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

Unit 2: Human body & its system

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

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: 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.

References:

Dr. Deb Kumar Chakraborty, Indian Anthropometric Dimensions For Ergonomic Design Practice, National Institute of Design,
R. S. Bridger, Introduction to Ergonomics, 2nd Edition, Taylor & Francis, 2003

J. Dul, and B. Weerdmeester, Ergonomics for beginners, a quick reference guide, Taylor & Francis, 1993
C. D. Wicknes, S. E. Gordon, and Y. Liu, An Introduction to Human Factors Engineering, Longman, New York, 1997 E. Grandjean, Fitting the task to the man, Taylor & Francis Ltd.1980
P.W. Jordan and W.S.Green, Human Factors in Product Design: current practice and

4. BDS - 1004 Introduction to Design Profession

L	T	P	CREDITS
3	0	2	4

Course Code & Name	BDS - 1005 Introduction to Design Profession
Course Outcome	• Discovery of design as a profession • Awareness about psychology of visualperception • Awareness about historical perspective ofaesthetics • Understanding of materials and process • Ability to define problems

Unit 1: Orientation
Definition and understanding of the design process. A brief historyof design, evolution of industrial design as a profession; Exploring Creativity; Lateral thinking; visual explorations.

Unit 2: Visual Perception
Principles of visual perception (Gestalt). Laws of grouping (Pragnan). Discussion and demonstration of the way humans makea greater sense out of combination of simple or complex curves and shapes. Nava Rasa and associated Bhavas according to the Natyashastra by Bharat Muni and their modern interpretations

Unit 3: Introduction to Product Design
Definitions of material, process and product. History and examples of product design. Fundamentals ofproduct development cycle. Concept of end user. Defining user groups. Concept of market. Defining the market gap.

Unit 4: Problem Identification
Problem identification and definition. Scenario Building. Mind Maps and Metaphors. Definition of a solution. Ideation, conceptualization and representation of solutions.

Unit 5: System thinking in Design
Introduction to system Thinking; Definition of a system; Concepts of component, connection, transaction, and transformation; Boundary and boundary conditions; Concepts of input, activity, response and output; Metaphors; Introduction to Static and dynamic maps.

References

T. Hauffe, Design: A Concise History, Laurence King Publishing, 1998
P.B. Meggs, A History of Graphic Design, Library of Congress Cataloging, 1998Alan Pipes, Foundation of Art and Design, Lawrence King Publishing, 2008 Bryan Peterson, Design Basics for Creative Results, How Design Books, 2003
Don Norman, Emotional Design, Why We love (or Hate) Everyday Things, Basic Books, 2003Don Norman, Design of Everyday Things, Basic Books, 2014

5. BDS 1005- Graphic Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 1006- Graphic Design
Course Outcome	• The course introduces the fundamental techniques of concept sketches, design development sketches, presentation sketches, presentation renderings and architectural drawing and develops the appropriate skills for visualization and representation. • To familiarize students with drawing tools and accessories and to give them basic knowledge of good drafting and lettering techniques; To develop comprehension and visualization of geometrical forms. To familiarize with the concept of enlarging and reducing scales.

UNIT 1 Exercises of object drawings, fundamentals of drawing
Knowledge about usage of different points of pencils, handling of pencils, practicing lines and tone building exercises. Introduction – Fundamentals of drawing and its practice, introduction to drawing equipment, familiarization, use and handling of various media.

UNIT 2 Geometrical drawing
Drawing– Drawing sheet sizes, composition, fixing. Simple exercises in drafting, point and line, line types, line weights, straight and curvilinear lines, dimensioning, lettering, borders, title panels, tracing in pencil, ink, use of tracing cloth. Portfolio preparation.

UNIT 3 Measured Drawing
Measuring and drawing to scale – scales, simple object, reduction and enlargement of drawings Architectural representation of landscape elements such as trees, indoor plants, planters, hedges, foliage, human figures in different postures, vehicles, street furniture etc.; by using different media and techniques and their integration to presentation drawings. Still Life – Furniture, Equipment – Understanding Depth, light, shade, Shadow Etc.

Unit 4 Introduction to Design drawing

Importance of design drawing, Conventions, and standards: ISO; Scales; Line types; Line Weights; Hatching Types; Lettering.

References:

Maureen Mitton, Interior Design Visual Presentation: A Guide to graphics, models and presentation techniques, 3rd edition, wiley publishers, 2007

 Mogali Delgade Yanes and Ernest Redondo Dominquez, Freehand drawing for Architects and Interior Designers, ww.Norton & co., 2005

 Francis D.Ching, Design Drawing, Wiley publishers

 Moris, I.H.Geometrical Drawing for Art Students.

 Thoms, E.French. Graphics Science and Design, New York: MC Graw Hill. coloured markers, John Wiley & Sons,1999

Shah, M.G., Kale, C.M. and Patki, S.Y. Building Drawing: with an integrated approach to built environment, 7th ed. Tata Mc Graw Hill Pub., Delhi, 2000.

 Bies, D.John. Architectural Drafting: Structure and Environment Bobbs – Merril Educational Pub., Indianapolis.

A.J. Dhananjay, Engineering Drawing, TMH, 2008

N D Bhatt and V M Panchal, Engineering Drawing, 43rd Ed., Charotar Publishing House,2001 M B Shah and B C Rana, Engineering Drawing, 2nd Ed., Pearson Education, 2009

T E French, C J Vierck and R J Foster, Graphic Science and Design, 4th Ed., McGraw Hill, 1984. W J Luzadder and J M Duff, Fundamentals of Engineering Drawing, 11th Ed., PHI, 1995

K Venugopal, Engineering Drawing and Graphics, 3rd Ed., New Age International, 1998

6. BDS 1006- Applied Science for Designers

L	T	P	CREDITS
2	0	4	3

Course Code & Name	BDS 1006- Applied Science for Designers
Course Outcome	• To understand some of the principles of applied science as inspirations for design. and reducing scales.

. Fundamentals of Symmetry and Patterns in Nature
. Evolution of Form in Nature
. Triangles, Hexagons, and rigid structures
. Work by Buckminster fuller and concept of sustainable structures
. Understanding Fibonacci series and the Golden ratio
. Geometry of shapes.

Bachelor of Design | 1st Year (Semester II)

1. BDS- 2001- History of Design –I

L	T	P	CREDITS
3	0	0	3

Course Code & Name	BDS 2001 – History of Design -I
Course outcome	The course emphasizes on developments of interior elements in response to social, religious, aesthetic and environmental factors. The course focuses on the three dimensional forms, plan forms and ornamentation.

UNIT 1 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 - Samarians, Babylonians, Assyrians, Persians**.**

UNIT 2 Classical World

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

UNIT 3 The Middle Ages

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

UNIT 4 Indian Architecture and Interiors

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

UNIT 5 Study Of Vernacular Architecture And Interiors

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

References:

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.
Giedion Sigfried, Space, Time and Architecture: The growth of a new tradition, 5th ed. Harvard University Press, Cambridge, 2008

2. BDS- 2002- Universal Human Values & Professional Ethics

L	T	P	CREDITS
3	0	0	3

Course Code & Name	BDS 2002- Universal Human Values & Professional Ethics
Course Outcome	Understand the significance of value inputs in a classroom and start applying them in their life and profession

UNIT I:

- Introduction to Value Education
- Value Education, Definition, Concept and Need for Value Education.
- The Content and Process of Value Education
- Basic Guidelines for Value Education
- Self-exploration as a means of Value Education
- Happiness and Prosperity as parts of Value Education

UNIT II:

- Harmony in the Human Being
- Human Being is more than just the Body
- Harmony of the Self ('I') with the Body
- Understanding Myself as Co-existence of the Self and the Body
- Understanding Needs of the Self and the needs of the Body
- Understanding the activities in the Self and the activities in the Body

UNIT III:

- Harmony in the Family and Society and Harmony in the Nature
- Family as a basic unit of Human Interaction and Values in Relationships
- The Basics for Respect and today's Crisis: Affection, e, Guidance, Reverence, Glory, Gratitude and Love
- Comprehensive Human Goal: The Five Dimensions of Human Endeavour.
- Harmony in Nature: The Four Orders in Nature.
- The Holistic Perception of Harmony in Existence

UNIT IV:

- Social Ethics
- The Basics for Ethical Human Conduct
- Defects in Ethical Human Conduct
- Holistic Alternative and Universal Order
- Universal Human Order and Ethical Conduct
- Human Rights violation and Social Disparities

UNIT V:

- Professional Ethics
- Value based Life and Profession.
- Professional Ethics and Right Understanding
- Competence in Professional Ethics
- Issues in Professional Ethics – The Current Scenario

Vision for Holistic Technologies, Production System and Management Models

References

1. R.R. Gaur., R, Sangal. G.P Bagaria., A Foundation Course in Value Education, Excel Books, (2009).
2. R.R. Gaur., R, Sangal. G.P Bagaria, Teachers Manual for A Foundation Course in Human Values and Professional
Ethics Excel Books, (2009).
3. A.N. Tripathy, Human Values, New Age International Publishers, (2003)
4. Nagaraj, JeevanVidya: EkParichaya, JeevanVidyaPrakashan, Amarkantak, (1999)
5. M.K. Gandhi, My Experiemnts with Truth, Maple Classics (2011)
6. I.C. Sharma, Ethical Philosophy of India, Nagin & Co Julundhar
7. Cecile Andrews, – Slow is Beautiful (2006)

3. BDS 2003 - Design Thinking

L	T	P	CREDITS
1	0	4	3

Course Code & Name	BDS 2003– Design Thinking
Course Outcome	To develop the ability to comprehend problems in a creative way and come with solutions in a relatively shorter time frame.

Unit 1: Design thinking process

Understanding Design thinking process and its stages, Various types of design approaches (models like double diamond, Stanford, IDEO, DeepDive, Etc), Convergent and divergent

Unit 2: Tools and techniques (Convergent)

3 “I”s (Influence, importance, imagination), ALU (advantages, limitations, unique potential), evaluation matrix etc

Unit 3: Tools and techniques (Divergent)

Brainstorming, Mind mapping, storyboarding, Point (pluses, opportunities, issues & new thinking), empathy map, group doodle, forced connections etc

Unit 4: Case studies for implementation and application

Product design, Service design, System design etc

References:

John Thackara, In the Bubble: Designing in a Complex World, The MIT Press, 2005 Bruce Hanington, Bella Martin, Universal Methods of Design: 100 Ways to Research Vijay Kumar, 101 design methods, John Willey & sons, inc., 2013
Edward de bono, Lateral thinking, Penguin Books
Complex Problems, Develop Innovative Ideas, and Design Effective Solutions, Rockport Publishers, 2012, Donald A. Norman, Living with Complexity, MIT Press, 2010
Jeffrey Whitten and Lonnie Bentley, Systems Analysis and Design Methods, McGraw-Hill/Irwin, 2005

Gerald M. Weinberg and Daniela Weinberg, General Principles of Systems Design, Dorset House, 1988.

4. BDS - 2004 – Model Making and Hand Tools Workshop

L	T	P	CREDITS
1	0	4	3

Course Code & Name	BDS 2004- Model Making and Hand Tools Workshop
Course Outcome	Understanding and working under workshop conditions; Understanding and specific tools for different jobs; Using conventional methods for product prototyping

Unit 1: Workshop tools & Practices
Introduction to workshop practices, Tools; metrology; machines and workshop work ethos; importance of PPE, safety procedures; and first aid

Unit 2: Working with plastics & Elastomers
Working with thermoplastics and thermosets; limitations; environmental impact; advantages and disadvantages of working with plastics.

Unit 3: Working with Ceramics and glass
Ceramics Types and Properties, Processing and use of ceramics and glass.

Unit 4: Working with Wood
Woodworking joints, Carving, and finishing

Unit 5: Working with Metal
Working with flat products and long products of steel, aluminum copper etc. sizes and availability, joining techniques

References:
J. Garratt, Design and Technology, Cambridge University Press, UK, 20004 R. Thompson, Manufacturing processes for design professionals, Thames & Hudson, London 2007 Michael Ashby and Kara Johnson, Materials and Design: The Art and Science of Material Selection in Product Design, Butterworth Heinemann, 2002

5. BDS- 2005- Form Studies (Aesthetics, Identity and Expressions)

L	T	P	CREDITS
2	0	4	4

Course Code & Name	BDS 2005 – Form Studies
Course Outcome	To understand form and its transformation; Develop ability to manipulate form for demonstration of varied expressions; Understand and develop family of forms with a common design language.

Unit 1: Understanding of form
Definition of form, evolution of a flat shape into a volume, Classification of form 2D & 3D, Solids (Platonic, Archimedean)

Unit 2: Volume relationships
Dominant, subdominant & subordinate

Unit 3: Transformation
Radii manipulation, Form transition (addition & subtraction)

Unit 4: Form, Emotions & Identity
Abstraction & expression of form, Identity experimentations with form, texture & colour, Family of forms

Unit 5: Form explorations
Through different materials (Like- Paper Mache, thread, Plaster of Paris, Clay etc.)

References:
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 Greet Hannah, 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

6. BDS 2006- Rendering & Illustration

L	T	P	CREDITS
0	0	4	2

Course Code & Name	BDS 2006 – Rendering & Illustration
Course Outcome	Ability to visualize ideas; Ability to do visual design explorations; To be able to project ideas in compelling manner from imagination to media

Unit 1: Introduction to Rendering
Types of drawing & rendering; Importance of rendering

Unit 2: Lights and its effects
Interaction with Light Highlights, shadow and reflection study of objects; Direct and indirect illumination

Unit 3: Photorealistic Visualization
Photorealistic Visualization, Rendering objects by observation, Rapid sketching techniques; Visual compositions of objects

Unit 3: Digital techniques in Rendering and Illustration
Digital sketching; Vector illustrations; Raster Illustrations; Introduction to Image processing softwares like Adobe, Corel Draw, Inkscape, GIMP; Digital Illustration Techniques Exposure and demonstration of Illustration and rendering software

Unit 4: Illustrations
Importance of text in illustrations; Story telling by illustrations; Illustrated drawings

References:
Rober McKim, Experiences in Visual Thinking, Brooks/Cole Publishing Company, 1980
Stephen Missal, Exploring Drawing for Animation (Design Exploration Series), Thomson Delmar Learning, 2003
D. K. Francis Ching, Design Drawing, John Wiley & Sons,1998
Tom Porter, Design Drawing techniques for architects, graphic designers and artists, Oxford Architectural Press,1991
Terence ed .Dalley, The complete guide to illustration & design, Phaidon, Oxford, 1980
T. C. Wang, Pencil Sketching, John Wiley & Sons,1997

7. BDS- 2007- Introduction to Typography

L	T	P	CREDITS
1	0	2	2

Course Code & Name	BDS- 2007- Introduction to Typography

Course Outcome	To have a historical look at lettering and typography: Understanding the evolution of type design, type classification and typography. Understanding the natural form of typeface and its anatomy. Introduction to the formal elements of typography such as typeface, hierarchy, contrast, consistency, alignment, white space, and color. Understanding the grid system and layout design. A brief intro to the fundamentals of applied typography across applications.

- Introduction to type and its history.
- Type as a form and means of communication.
- Type in our environment.
- Introduction to Indian Type
- Learning to see and recognize typefaces, type families and know about type designers.
- Construction of type with hand.
- Structure and anatomy of the type; x-height, ascenders, descenders, counter, cap-height, baseline, etc.
- Typographic variables: kerning, tracking, leading, Spacing etc. Classification of type.
- Semantics of type. Legibility and readability issues in type. Vernacular letterforms. Introduction to traditional printing techniques like Block printing,
- Screen printing, Hot stamping, etc.

8. BDS- 2008- Seminar / Workshop

L	T	P	CREDITS
0	0	0	2

Course Code & Name	BDS- 2008- Seminar / Workshop
As per University Curriculum	

***As Instructed Students will work with Local Artisans in the Semester Break followed by a submission of report.**

9. BDS- 2009- Special topics on Design

L	T	P	CREDITS
1	0	2	2

***Discussion will be held on Special topics related to user centric design and approach.**

Bachelor of Design | 2nd Year (Semester III)

1. BDS- 3001- History of Design -II

L	T	P	CREDITS
3	0	0	3

Course Code & Name	BDS 3001 – History of Design -II
Course outcome	• The course emphasizes on developments of interior elements in response to social, religious, aesthetic and environmental factors.

UNIT 1 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.

UNIT 2 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-Fountains Puducherry, Mahe and Edwin Lutyen etc.,

UNIT 3 Modernism

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

UNIT 4 After Modernism

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

UNIT 5 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

References:

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, Rhodec International, 2000.

 Giedion Sigfried, Space, Time and Architecture: The growth of a new tradition, 5th ed. Harvard University Press, Cambridge, 2008

2. BDS 3002 –Design Project – II, Display & Control Design

L	T	P	CREDITS
3	0	2	4

Course Code & Name	BDS 3002 – Design Project – II, Display & Control Design
Course Outcome	Examine and evaluate man-object relationship and its interface; Develop capability to analyze, comprehend the current display & control systems.

Unit 1: **Orientation**
Need of Display & Control systems, Role of human senses, Components of Display & Control systems (Ex- input channels, response mechanisms, gratification models, action – reward etc.)

Unit 2: Interaction Design
About Interaction Design, User Interface and User Experience, Usability Evaluation-Heuristics, Fitts Law, Hick's law; Prototyping Tools/ Techniques –Physical & Digital

Unit 3: Ergonomics Overview
Human Factors – Physical & Cognitive ergonomics; Visual hierarchy & structure of information; Display & Controls composition through – color, placement, orientation etc.

Unit 4: Design Project
As per Design brief

References:
Wilbert O. Galitz, The Essential Guide to User Interface Design: An Introduction to GUI Design,Wiley
Jeffrey Anshel, Visual Ergonomics Handbook, Taylor & Francis group,
2005 William Lidwell, Kritina Holden, Jill Butler; Universal Principles of Design, 2003 Bruce Hanington, Bella Martin; Universal Methods of Design, 2012
Dix, Alan J.; Finlay, Janet E.; Abowd, Gregory D.; Beale, Russell; Human-Computer Interaction, Pearson Education; 2 edition, 1998
Nielson, Jackob; Usability Engineering; Morgan Kaufmann, 1993

3. BDS – 3003 Architectural Studies in Design

L	T	P	CREDITS
2	0	4	4

Course Code & Name	BDS 3003 –Architectural Studies in Design
Course Outcome	Understand the learnings from history of art and design and demonstrate in the present day context; Understand the concept of space and its relationship with human behavior.

Unit 1: Understanding Space
Typology of Spaces, Concept of Visual and Spatial continuity & Space hierarchy, Translation from 2D drawing/ illustration to 3D space

Unit 2: Art, Architecture & Design
Relationship in Architecture and Design, Why history is important? How design evolves? Different Art & Design movements

Unit 3: Space and human behavior
Environmental psychology, Elements of spatial quality (Ex- Colour, pattern, texture, openings etc.), Various effects in space (Ex- Cathedral Effect, Biophilia effect, Proxemics etc.)

Unit 4: Space Design overview
Basics of - Interior Design, Exhibition Design, Scenic / Stage Design etc., Case Studies

Unit 5: Space Study
Documentation of space using framework
(Ex- AEIOU framework: Activities, Environments, Interactions, Objects, Users)

References:
William Lidwell, Kritina Holden, Jill Butler; Universal Principles of Design, 2003 Bruce Hanington, Bella Martin; Universal Methods of Design, 2012
Francis D.K. Ching, Architecture, Form, Space & Order, Fourth Edition Yatin Pandya; Elements of Spacemaking, 2013
D. A. K. Kopec; Environmental Psychology for Design, 2006

4. BDS- 3004 Design Documentation and Project

L	T	P	CREDITS
2	0	8	6

Course Code & Name	BDS 3004 - Design Documentation and Project
Course outcome	• Comprehensive understanding of the history and present state of one cottage industry/craft of Uttar Pradesh or India; Aptitude to conduct thorough field research and collect qualitative and quantitative information which may be useful for other industries and people. • To understand the process of design and be able to find solutions to simple problems by modifying forms and functions.

Unit 1: Overview of Design Process and its ecosystem
Design Relevance: Exposure and analysis, Case studies

Unit 2: Ideation
Brainstorming; Differential Discussion; group methods to generate ideas; solitary methods to generate ideas; Lateral Thinking

Unit 3: Concept Detailing
User Journey maps, User stories, activity mapping

Unit 4: Design Project
Design and Development of Product as per the brief

Unit 5: Field study of Micro, Small Scale Industry/ NGO

- Field study of selected Micro, Small Scale industry /NGO to understand the functioning.
- Observe the complete process and figure out areas that can be improved upon from a designer point of view.
- Work on identified areas to make it better.
- Product design and development
- Documentation, Presentation of above
- Submission of Report

References:
D.Norman;The Design of Everyday things, London, The MIT Press, 1998 A.Forty; Objects of Desire, Thames & Hudson, 1995
J. de Noblet ed., Industrial Design- Reflections of a century,Thames & Hudson, 1993 Julier, G.;20th Century, Design,Thames & Hudson, 1993
Potter, Norman; What is a Designer: Things, Places, Messages, Princeton Architectural Press, 2002

5. BDS- 3005 Computer Aided Design & Manufacturing- I

L	T	P	CREDITS
0	0	6	3

Course Code & Name	BDS 2005- Computer Aided Design and Manufacturing- I
Course Outcome	• To orient the student to create two and three-dimensional objects in space with special emphasis on presentation and visualization of interiors using rendering techniques using CAD.

UNIT 1 MS Office
Computer Orientation, Microsoft word, Microsoft excel, Microsoft presentation software, scanning and MS Paint

UNIT 2 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.

UNIT 3 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.

UNIT 4 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.

UNIT 5 Basics of Adobe Photoshop
Tool box (Moving, marque tool), Magic ward selection, Crop tool, Paint Brush, Opacity, Tent Styles, Blue tool, Sharpening Tool, Color correction, Layers, moving Tool, Maskin g Tool.

References:

- Auto Desk, Revit 2017 for Architecture, Sybex, 2016.
- Auto Desk, 3DS MAX comprehensive tutorial resources Wiley 2014.
- Sketch up for interior Design. 3D visualizing designing & space planning by Lidya Sloan, Wiley Publisher – 2014.
- Computer Design & Digital Fab Auto Desk Auto cad 2017 for Architecture, Sybex , 201

6. BDS- 3006 User Centered Design Process

L	T	P	CREDITS
1	0	2	2

Course Code & Name	BDS- 3006- User Centered Design Process
Course Outcome	Students will understand and familiarize themselves with the concept of UCD, Design thinking. Gain practical understanding about various aspects of user research and be able to utilize various tools to understand and analyze user and their needs properly. Create human-centered solutions by utilizing design thinking to address various needs of users/society.

UNIT 1 Introduction to What is Design and Design Thinking? Understanding Users and Design Process of Conveying user needs:

UNIT 2 Sketching and Storyboarding, Scenario generations, personas, situations and requirements. o UCD Process of Design Research – understanding how mixed methods can be used to identify crucial needs of context under study.

UNIT 3 Design Methodologies – contextual inquiry, interviews, questionnaires, task analysis, affinity analysis, use cases • Analyzing user data and identifying needs

UNIT 4 User centered design case studies ▪ IDEO, Google.

Reference Books

1. Brown, T. (2009). Change by design.

2. Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction design: beyond human computer interaction. John Wiley & Sons.

3. Norman, D. (2013). The design of everyday things: Revised and expanded edition. Basic Books (AZ).

4. Still, B., & Crane, K. (2017). Fundamentals of user-centered design: A practical approach. CRC Press.

5. Keinonen, T. (2017). Designers, users and justice. Bloomsbury Publishing.

7. BDS- 3007- Seminar / Workshop

L	T	P	CREDITS
0	0	0	2

Course Code & Name	BDS- 3007- Seminar / Workshop
As per University Curriculum	

***As Instructed Students will work with Local Artisans in the Semester Break followed by a submission of report.**

Bachelor of Design | 2nd Year (Semester IV)

1. BDS- 4001 Design Management – I

L	T	P	CREDITS
2	0	2	3

Course Code & Name	BDS 4001–Design Management- I
Course Outcome	Understanding of why people buy things, Ability to offer relevant products which people need, Awareness about Design Rights and their enforcement by law

Unit 1: Design Management (scope for research)
Introduction of DM, Design Manager and its roles, objectives of DM, Pillars of Design management, Strategy & supply chain techniques, Roles of design in supply chain, impact of design on business performance, Scope for Research and Development in Design Management

Unit 2: An introduction to Consumer psychology
Definition and understanding of consumer, consumer needs, Identification of problems and user needs and Driving Factors; Emotional Design, Analysis of an existing problem in a given context, Social Ethics and Concerns

Unit 3: Market Study
Definition of market, consumer, buyer; Consumer Vs Buyer, Consumer Groups, Buyer Groups, Market Trends, Market Gaps

Unit 4: Business Communication
Explaining Ideas through briefs, detailed briefs and concept notes, Informal and Formal Business Communication

Unit 5: Project management
Managing projects, project organization, project factor, project breakdown structure, project planning and phasing, project risk, project management tools

References:
Kathryn Best, The Fundamentals of Design Management, AVA Publishing, 2010 Brigitte Borja De Mozota, Design Management: Using Design to Build Brand Value and Corporate Innovation, Allworth Press, 2004.
Kenneth B Khan, Product Planning Essentials, M E Sharpe Inc, 2011
John Stark, Product Lifecycle Management: 21st Century Paradigm for Product Realisation, Springer, 2011.
Craig M. Vogel and Jonathan Cagan, Creating Breakthrough Products: Innovation from Product Planning Program Approval, FT Press, 2001.

2. BDS 4002 Environmental Science

L	T	P	CREDITS
3	0	0	3

Course Code & Name	BDS 4002 – Environmental Science
Course Outcome	Understand the concepts and definitions associated with ecosystems, environmental pollution, and its causes Gain knowledge to analyze problems and suggest alternatives and new methods to manage natural resources Understand how to Redesign, Recreate & Restore the ecosystems.

UNIT-I Scope and Importance of environmental studies, need for public awareness, Segments of environment, bio diversities: Genetic diversity, Species diversity, Ecosystem diversity, Landscape diversity, Causes of pollution and detrimental effects.

UNIT-II Eco systems- Types of systems, energy flow in an ecosystem, Balanced ecosystem, Human activities- Food, shelter, economic and social security, Effects of human activities on environment- Agriculture, housing, Industry, mining and transportation activities, Basics of Environmental Impact Assessment, Sustainable Development.

UNIT-III Types of natural resources: Water Resources-Availability and quality aspects, Water borne diseases, Fluoride problems in portable water, Mineral resources, Food resources, Land resources, Forest Wealth, Material cycles- Carbon, Nitrogen and Sulphur cycle.

UNIT-IV Energy- Different types of energy (Renewable and Non-renewable), Convectional and non- conventional energy-sources Electromagnetic radiation, Hydro Electric, Fossil fuel based, Nuclear, Solar, Biomass and Biogas, Hydrogen as an alternative future source of energy.

UNIT-V Environmental pollution and their effects, Water pollution, Land pollution, Noise pollution, public Health aspects, Air pollution. Current environmental issues of importance and their impact on environment: Population Growth, Climate change and global warming effect, Urbanization, Automobile pollution, Acid rain, Ozone layer depletion.

UNIT-VI Preventive measures and control of pollution, Air and Water pollution control, Sold waste management, Case studies.

UNIT-VII Role of Government in environment protection, Legal Aspects, Initiatives and protection Acts, public awareness, Initiatives by Non-governmental Organizations (NGOs), Role of IT services, Disaster management.

UNIT-VIII Field work/ Activities/ Visit

Text and References Books:

1. Environmental Studies- Benny Joseph, TATA Mcgaw Hill publication, Third edition, 2017.

2. Environmental Studies- Dr. D.L. Manjunath, pearson Education, 2022.

3. Environmental Studies- R. Rajgopalan, Oxford publication.

4. Environmental Science and Technology- M. Anji Reddy, BS publication.

5. Principles of Environmental Science and Engineering- P. Venugopalan Rao, Prentice Hall of India, 2006.

6. Environmental Science and Engineering- Meenakshi, Prentice Hall of India, 2005.

3. BDS 4003 Sustainable Design

L	T	P	CREDITS
2	0	2	3

Course Code & Name	BDS 4003- Sustainable Design
Course Outcome	To be able to understand factors that have an impact on the environment and sustainability in design.

Unit 1: Basics of Sustainable design
Introduction of sustainability, sustainable design principles. R's approach, Physical, mental, spiritual, cultural, social, ethical, and economic issues in designing for sustainability, Planet centric Design, C2C approach.

Unit 2: Impact of unsustainable practices on Environment
Ecological footprints, ecosystem impact.

Unit 3: Issues in design with respect to environment
Design and social concerns.

Unit 4: Sustainable Design & innovation
Frugal Design, Design for Environment/Eco design, Design for sustainability, Design from Waste, Eco innovation, system-wide product/service strategies.

Unit 5: Lean Manufacturing
About Lean manufacturing and its principles, Tools & Techniques, Understanding through Success stories – Toyota, Nike, Intel etc.

References:
Mendler, S., & Odell, W. (2000). The HOK guidebook to sustainable design. John Wiley & Sons. 4.
Williams, D. E. (2007). Sustainable design: Ecology, architecture, and planning. John Wiley & Sons.
Walker, S. (2012). Sustainable by design: Explorations in theory and practice. Routledge.
Fairs, M. (2009). Green design: creative sustainable designs for the twenty-first century. North Atlantic Books.
James P. Womack, Daniel T. Jones (1996),Lean Thinking: Banish Waste and Create Wealth in Your Corporation
Jeffrey K. Liker, David Meier (2005), The Toyota Way Fieldbook, McGraw-Hill Education

4. BDS 4004- Materials & Processes in Design

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS 4004- Materials & Processes in Design
Course Outcome	Knowledge of where most materials come from, Ability to identify which processes are used to make a product.

Unit 1: Introduction to Materials
Classification of materials, History of significant materials.

Unit 2: Properties and Applications of materials
Properties and Applications Wood, bamboo, cane, leather, fabric, jute, Steel, Brass, Bronze, Copper, Aluminum, Nickel, Tin, Lead, Zinc and Alloys etc.

Unit 3: Exploration of Materials
Exploration of materials such as fabrics, leather, wood and metals, Steel, Brass, Bronze, Copper, Aluminum, Nickel, Tin, Lead, Zinc and Alloys

Unit 4: Conventional manufacturing Processes
Manufacturing process introduction - Casting, Forging, lathe, drilling ,milling ,welding, grinding, knurling, Foundry Tools and Equipment's , Metal Cutting , other industrial practices

Unit 5: Basic hands-on practices
Primary Importance of hands-on practices in product design; working with wood, paper, fabric, leather thread, wire, acrylic sheets, sun board, fiber board, Introduction to making material boards.

References:
William D. Callister Jr., Materials Science and Engineering, Wiley, 2015
S. K. Hajra Choudhary and A. K. Hajra Choudhary, Elements of Workshop Technology Vol. I, MPP, 2000
C. Baillie and L. Vanasupa, Navigating the Materials World, Academic Press, San Diego, CA, 2003.

5. BDS- 4005 Computer Aided Design and Manufacturing-II

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS 4005- Computer Aided Design and Manufacturing-II
Course Outcome	Ability to understand the importance of CAD/CAM principles in the Product development, to model complex geometries using point cloud data and print 3D objects.

Unit 1: Computer Aided Manufacturing
Details of different types of Computer Aided Manufacturing Systems, Role of CAM in today's world, Recent Advances in CAM

Unit 2: Geometric Modeling Using Point Cloud
Point cloud data acquisition, Point cloud data Handling, Fitting curves and surfaces through point Clouds, Design modification of 3D models from point cloud data

Unit 3: Rapid Prototyping (or 3D Printing)
Introduction to Rapid Prototyping (or 3D Printing), Rapid Prototyping Data Formats, Rapid Tooling

Unit 4: Rapid Prototyping Systems
Liquid based RP systems, Solid based RP systems, Powder based RP systemsS

Unit 5: Product Design and Manufacturing
(using Reverse Engineering and Rapid Prototyping) Project Work

References:
Ibrahim Zeid (2009), Mastering CAD/CAM, 2nd Edition, Tata McGraw Hill International Edition
P N Rao (2010), CAD/CAM Principles and Applications, 3rd Edition, Tata McGraw-Hill Education
James A. Rehg and Henry W. Kraebber (2004), Computer Integrated Manufacturing, 3rd Edition, Pearson Education
Mikell P. Groover and Emory W. Zimmers (2003), CAD/CAM: Computer Aided Design and Manufacturing, Prentice Hall Edition
Liou W. Liou, Frank W. Liou, (2007), Rapid Prototyping and Engineering applications: A Tool Box for Prototype Development, CRC Press.
Ali K. Kamrani, Emad Abouel Nasr, (2006), Rapid Prototyping: Theory and Practice, Springer. Peter D. Hilton and Paul F. Jacobs, (2000), Rapid Tooling: Technologies and Industrial Applications, Marcel Dekker Publication
Jacobs, P. F., (1996), Stereolithography and other RP&M technologies, ASME.

6. BDS- 4006 Publication Design

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS-4006 Publication Design
Course Outcome	Extending the exposure in typography and graphics to create strong publications in print media in the form of magazines, newspapers, and books. It introduces the composition and layout of these publications. The course can extend to its applications in digital media.

UNIT 1 Introduction to Graphic design for packaging
– Application of Graphic Design and problem relating to packaging design Types of packaging, printing and fabrication methods, regulatory guidelines, and application of digital medium. History of Printing technology Litho-Offset printing –Plano Graphic ,Line& half tone printing in single color. Comparison of different process from the economic and suitability point of view. Screen printing process Fundamentals of line and half tone printing, Printing on different surfaces.
Digital Printing process – Image Resolution, file format – printing output

7. BDS 4007 Branding and Identity Design

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS 4007 Branding and Identity Design
Course Outcome	• The course objective is to understand brand strategies, market and to learn how to create strong identity design/ logos, print ads, stationery, business cards, that support and enhance the brand with the aid of various graphic applications and communicate the brands message to a larger audience.

8. BDS 4008 Introduction to fundamentals of Interaction Design

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS- 4008 Introduction to fundamentals of Interaction Design
Course Outcome	This subject focuses on the conceptualization, design, implementation, and evaluation of interactive computing systems for human use in various real-world contexts. Students will gain basic understanding about human-computer interaction (HCI) and interaction design principles, human-centered design (HCD) process, tools and

Unit 1 What if Interaction Design and HCI?

Differences between Interaction Design and HCI , Historical Roots Likely future developments .

UNIT 2 Concepts of Interaction Design and HCI, Design Thinking

o Guidelines in HCI, Norman's seven principles, Nielsen's ten heuristics with example of its use, Laws and Principles of Interaction Design, Fitt's law, Hick-Hyman's law, Poka-Yoke principle, Navigation Design.

Unit 3 Basic usability evaluation methods Heuristic evaluation, Simple usability testing

• Interaction Design Case-studies, Collaborative work environment in an educational scenario using multiple mouse inputs , Using ethnographic data to understand ATM usage of Indian Users

Unit 4 Practical

Students will involve in small assignments in form of hands-on activities and

sessions. These include:

1. Designing an interactive system using interaction and navigation design principles. (subjected to change by course faculty)

Reference Books:-

1. Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction design: beyond human computer interaction. John Wiley & Sons.

2. Norman, D. (2013). The design of everyday things: Revised and expanded edition. Constellation.

3. Shneiderman, B. (2010). Designing the user interface: strategies for effective human-computer interaction. Pearson Education India.

9. BDS- 4009 UX/UI

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS- 4009 UX/UI
Course Outcome	The course introduces to various types of user interfaces and its user experiences. The course allows the students to ideate and create newer models of user interfaces for usability, accessibility, and sensory experience.

User Interface refers to the design of the interface between the user and the product, on the other hand User Experience refers to the user's overall experience of using the product. Here the

students are required to go through the fundamentals of UX/UI which includes the introduction to literature around the subject, Basic UX research methods, information architecture and lean UX.

References:

● Norman, Don. The design of everyday things: Revised and expanded edition. Basic books, 2013.

● Weinschenk, Susan. 100 things every designer needs to know about people. Pearson Education, 2011.

● Moggridge, Bill, and Bill Atkinson. Designing interactions. Vol. 17. Cambridge, MA: MIT press, 2007.

●Saffer, Dan. Micro interactions: designing with details. " O'Reilly Media, Inc.", 2013.

10. BDS- 4010 Residential Interiors

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS- 4010 Residential Interiors
Course Outcome	•To develop an understanding of function and scale in the design of small spaces in residences. •To develop ideas with regard to openings, flooring, wall paneling, false ceiling, floor coverings, fixed and loose furniture, soft furnishings etc.

Unit 1: Kitchen
Work triangle, planning for activity - anthropometrics, types of kitchens - custom made, modular. Materials used in counters, shelves, worktops, washing areas and their comparative study. Lighting - natural and artificial light. Color schemes.

Unit 2: Toilets
Anthropometrics - various types of sanitary fixtures and fittings and their use - types of layouts - concepts in modern day toilet interiors - materials and finishes - color, texture, and pattern.

Unit 3: Bedrooms And Living Rooms
• Concepts in bedroom and living room interiors - various layouts use of furniture and accessories to create ambience - materials and finishes-lighting-color and texture.

Unit 4: Residences
• Concepts in residential interiors - ability to integrate various individual spaces into one theme - treatment of patios, courtyards, verandas, and other semi covered spaces - integration of built form and open spaces.

References:

1. Fiona Leolie. (2000). Designs for 20th century interiors. London: VH Publications.
2. Barbaralec Diamonstein. (1982). Interior design: The new freedom. NY: Rizzoli International

Publications.
3. Jonathan Poore. (1994). Interior colour by design. Rockport Publishers.
4. International Federation of Interior Architects & Designers. (1987). Worldwide interiors. Japan Rikuyo-Sha.

11. BDS- 4011 Building Services -I

L	T	P	CREDITS
3	0	6	6

Course Code & Name	BDS- 4011 Building Services -I
Course Outcome	•Introducing students to concepts and principles of various building services that form a part of interiors. •To enable students to integrate various services effectively with the interior.

UNIT I: ELECTRICAL LAYOUT

Introduction to electrical systems as applicable to interior spaces.

Design of electrical systems including materials, specifications and types. Residential lighting, fittings, fixtures, and switches. Preparation of electrical layouts, symbols etc. Introduction to automation in lighting industry.

UNIT II: PLUMBING AND DRAINAGE SYSTEM

Cold and hot water distribution systems, types of water supply pipes and joints, fixtures, and fittings. Soil and wastewater disposal systems, types of sanitary pipes and joints.

Plumbing works for kitchens, toilets, baths, washing machines, dishwasher, refrigerator, tanks in lofts, etc. Detail for bathtubs, rain showers and other shower system, Jacuzzis etc. Water distribution and wastewater disposal layout.

REFERENCES:

1. Pratap R.M. (1988). Interior design principles and practice. Delhi: Standard Publishers Distribution.

2. F. Hall. Plumbing technology. British Library Cataloguing in Publication Data.

3. Shubhangi Bhide. Building services and equipment's. Rudra Offset.

12. BDS- 4012- Seminar / Workshop

L	T	P	CREDITS
0	0	0	3

Course Code & Name	BDS- 4012 Seminar / Workshop
As per University Curriculum	

***As Instructed Students will work with Local Artisans in the Semester Break followed by a submission of report.**

Bachelor of Design | 3rd Year (Semester V)

1. BDS 5001- Humanities and Social Studies

L	T	P	CREDITS
2	0	0	2

Course Code & Name	BDS 5001– Humanities And Social Studies
Course Outcome	Develop visual awareness of the present-day environment. Recognize and relate design forms to historical precedents and possible future developments, Have a greatly increased general knowledge, including source material which one can draw on for future student and development in the field of design.

Unit 1: Artistic Creation

Complete understanding of Perception, Communication, Imagination, Expression, and Creativity for artistic creation.

Unit 2: Expression through Art & Design movements

Understand the thoughts and techniques involved in important art movements- impressionism, cubism, constructivism, surrealism, romanticism etc. Students are expected to express their ideas via Posters, Murals, Building Art, Collage, Graffiti, 3D-Installations.

Unit 3: Anthropology

Defining anthropology, Branches of anthropology- Physical anthropology, Social Anthropology, Archaeological Anthropology, Environmental Anthropology, Anthropology and Methods of Research.

Unit 4: Ethnography

Observations/Analysis; Community- Based Ethnographic Research; Activity Theory; Empathy in Design; Value Sensitive Design; Historical development of fieldwork; relations between field methods and dominant theoretical orientations; varieties of fieldwork at present; the implications; Ethnographic research design as a continuous process; the formulation of research problems.

Unit 5: Introductory Sociology & Psychology

Sociology as a Science of Human Society: Introduction: - Basic concepts (Roles, Norms, Values, Groups, and Institutions), Social Structure, Culture, Perspectives (Functionalist, Conflict & Interactionist), Psychological Perspectives and Approaches.

References:

Geraldine Gay and Helene Hembrooke, 2004, Activity-Centered Design, An Ecological Approach to Designing Smart Tools and Usable Systems.Amy. E. Aniston, Graphic Design Basics (IInd Edition) Lydia Darbyshire, Practical Graphic Design Technique Clifford Geertz, Interpretation of Cultures Batya Friedman and Alan Borning, Value Sensitive Design and Information Systems Julian Murchison, Ethnography Essentials: Designing, Conducting, and Presenting Your Research.

2. BDS 5002- Design Research Methodology –I

L	T	P	CREDITS
2	0	0	2

Course Code & Name	BDS 5002– Design Research Methodology –I
Course Outcome	Ability to be able to understand the basics of research and techniques.

Unit 1: Why Do We Do Research?
Research: an integral part of your practice (basic introduction to research)

Unit 2: Basic Techniques
The Research Process: A Quick Glance: Deciding what to research, Planning a research study (sampling techniques and data collection), qualitative and quantitative techniques.

Unit 3: Literature Review
Reviewing the Literature

Unit 4: Problem Identification
Formulating a Research Problem by identifying scope for research

Unit 5: Report / Paper Writing (An Introduction)
Colloquium paper writing

References:
Brenda Laurel, Design Research: Methods and Perspectives, The MIT Press, US, 2003
R. D. Wimmer & J. R. Dominick, Mass media research: An introduction. Belmont, California, Wadsworth Pub. Co., 2000
A. Hansen, Mass communication research methods. New Delhi: Log Angeles, 2009
E. R. Babbie, The practice of social research. Belmont, California, Wadsworth Pub. Co., 1992
C. R. Kothari, Research methodology: Methods & techniques. New Delhi: New Age International (P) Ltd., 2004

3. BDS- 5003- Project Management

L	T	P	CREDITS
2	0	2	3

Course Code & Name	BDS- 5003- Project Management
Course Outcome	• Impart knowledge to students about the methodology of executing a project to enhance their professional ability. • To expose students to the prevalent techniques in planning, programming, and management of a project.

UNIT 1: Introduction

Project planning, project scheduling and project controlling, role of decision in project management, method of planning and programming, human aspects of project management, work breakdown structure, life cycle of a project, disadvantages of traditional management systems etc.

UNIT 2: Elements Of Network

Event, activity, dummy, network rules, graphical guidelines for network, numbering of

events etc.

UNIT 3: Critical Path Method and Pert Analysis

CPM network analysis and PERT time estimates, time computation and network analysis.

UNIT 4: Project Time Reduction and Optimization

Project cost, indirect project cost, direct project cost, slope of the direct cost curve, total project cost and optimum duration, contracting the network for cost optimization, steps in cost-time optimization.

UNIT 5: Project Updating and Allocation

Data required for updating, steps in the process of updating resource usage profile: histogram, resource smoothing and resource levelling, computer applications in project management.

References:

1. Dr. B. C. Punmia et al. Project planning and control with PERT and CPM. Laxmi Publications.
2. Jerome D. Wiest & Ferdinand K. Levy. (1982). A management guide to PERT, CPM. New Delhi: Prentice Hall of India Publishers Ltd.

3. R.A. Burgess & G. White. (1975). Building production and project management. London: The Construction Press.

4. BDS- 5004 Applied Ergonomics

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS- 5004 Applied Ergonomics
Course Outcome	• The aim of this course is to understand the capabilities and limitations of human body in terms of both performing work as well as for comfort. The course will be useful to many disciplines of design taking into considerations of visual, product and transportation ergonomics.

UNIT 1: Introduction

Definition of Ergonomics and its application and overview. Overview of the Human body and it's sub systems.

UNIT 2: The concept of Man Machine Environment System Design

Understanding musculoskeletal system and its function in terms of manual activities. Understanding the nervous system, human sensory organs, and their limitations. Basic Biomechanics and its application in design.

UNIT 3: Anthropometry and its application

Anthropometry and its application Understanding nervous system, human sensory organs and their limitations.. Issues of cognition, perception, and performance.

UNIT 4: Project Time Reduction and Optimization

Study of work posture and its impact on human performance. Physical environment and their impact on human performance.

UNIT 5: Project Updating and Allocation

Data required for updating, steps in the process of updating resource usage profile: histogram, resource smoothing and resource levelling, computer applications in project management.

References:

Bridger, RS: Introduction to Ergonomics, 2nd Edition, Taylor &Francis, 2003.
J. Dul, and B. Weerdmeester, Ergonomics for beginners, a quick reference guide, Taylor & Francis, 1993.
C. D. Wicknes, S. E. Gordon, and Y. Liu, An Introduction to Human Factors Engineering, Longman, New York, 1997
E.Grandjean : Fitting the task to the man, Taylor & Francis Ltd.1980. - P. W. Jordan and W. S. Green (edit):
Human Factors in Product Design current practice and future trends, Taylor Francis, London, 1999.

J. Ansel, Visual ergonomics in the workplace, Taylor & Francis, London, 1998
G. Salvendy, (edit), Handbook of Human Factors and ergonomics, John Wiley & Sons, Inc., 1997
W. Karwowski and W. S. Marras, The Occupational Ergonomics handbook, CRC Press, New York, 1999.
M. S. Sanders and E. J. McCormick, Human Factors in Engineering and Design, McGraw-Hill, Inc., 1993.
K. Kroemer, H. B. Kroemer and K. E. Kroemer, Ergonomics- How to Design for Easy and Efficiency, Prentice Hall Englewood Cliffs, NJ 07632, 1994.

5. BDS 5005 Nature and Form

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5005 Nature and Form
Course Outcome	Understand and acknowledge the design in Nature; To develop an ability to take inspirations from nature and use it in designing.

Unit 1: Understanding Nature & its design
Evolution of form in nature; Pattern & symmetry; Fibonacci series & the golden ratio

Unit 2: Form & Metaphor
Understanding metaphors; Use of visual metaphor in product; Metamorphism

Unit 3: Nature inspired Design
Understanding Biomimicry through form, features and its application; Case studies

Unit 4: Mini project
Hands-on Project/Assignments

References:

Maggie Macnab, Design by Nature: Using Universal Forms and Principles in Design, New Riders, 2011
Rudolf Finsterwalder, Form Follows Nature: A History of Nature as Model for Design in Engineering, Architecture and Art, Springer Vienna Architecture, 2011
Alan Powers, Nature in Design: The Shapes, Colors and Forms that Have Inspired Visual Invention, Conran, 2002
Ellen Lupton, Jennifer Tobias, Alicia Imperiale, Grace Jeffers and Randi Mates, Skin: Surface, Substance, and Design, Princeton Architectural Press, 2002
Mario Livio, the Golden Ratio: The Story of PHI, the World's Most Astonishing Number, Broadway, 2003

6. BDS 5006 Furniture Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5006 Furniture Design
Course Outcome	Understanding famous furniture designers and their works from across the world. Art and craft movements and their influences on furniture design.

UNIT 1 First module will expose students to furniture as an integral part of facility and comfort to humankind. To study famous furniture designers and their works from across the world. Art and craft movements and their influences on furniture design. Contemporary interpretations of furniture design using new age materials and themes of design.

UNIT 2 Furniture design exercise - Concept brief, interpretation, and functionality, etc. While doing this, an overview of tools and materials, joinery, furniture making techniques, hand tools, finishing, will be delivered.
The machining and other workshop techniques and handling will be done in collaboration with the Materials course also.

References

- Postell, J.(2012). Furniture Design. New Jersey: John Wiley & Sons, Inc. ISBN 9781118090787
- Cranz, G.(1998). The Chair: Rethinking Culture, Body, and Design. New York: W.W. Norton & Company, Inc. ISBN 0393046559
- Hemachandra, R.(2008). 500 Chairs: Celebrating Traditional and Innovative Designs (500 Series). Lark Books. ISBN 1579908721
- Miller, J.(2007). Chairmaking and Design. (2nd Ed.) Linden Publishing. ISBN 1933502061Savage, D.(2011). Furniture with Soul: Master Woodworkers and their Craft. Kodansha USA. ISBN 4770031211
  Tilley, A.R., Henry Dreyfuss Associates (2002). The Measure of Man and Woman: Human Factors in Design. New York: John Wiley & Sons, Inc. ISBN 0471099554**.**

7. BDS 5007 Graphic Narratives

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5007 Graphic Narratives
Course Outcome	Graphic narratives offer an intricately layered narrative language that comprises of verbal and visual interaction on a page. This course highlights the creative process of developing a graphic narrative.

The course intends to familiarize students with the complexities of the graphic medium, located at the interstices of design methodologies and literary analysis. The classes will allow participants to understand the politics and strategies of design in a world beset with strife and will simultaneously acquaint them with approaches of narrative analysis / close-reading that uncover crucial subtexts.

UNIT1 To understand and experiment with word image hierarchies.

What is an image?

Image and Perception

Word and meaning, Word as image, Image in word, word in image

Word Image interaction

Word Image juxtaposition (delete. Sounds the same as above?)

Word/letter form transforming into image

Fusing word and image (cartoons)

REFERENCES:

1. Pratap R.M. (1988). Interior design principles and practice. Delhi: Standard Publishers Distribution.

2. F. Hall. Plumbing technology. British Library Cataloguing in Publication Data.

3. Shubhangi Bhide. Building services and equipments. Rudra Offset.

4.Mike Korolenko, Bruce Wolcott; Storytelling and Design: Media

5. Literacy for the Digital Age, Pearson Learning Solutions, 2005 - Marie-Laure Ryan (editor); Narrative across Media:

6.The Languages of Storytelling, University of Nebraska Press, 2004 - Kristin M. Langellier and Eric E. Peterson; Storytelling In Daily Life:

7.Performing Narrative, Temple University Press, 2004

8. BDS 5008- Way Finding and Signages

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5008 Way Finding and Signages
Course Outcome	This course aims to provide a basic understanding and an overview of Signage system.

UNIT 1 Introduction

environmental graphic design methods, way finding, requirement and importance.

UNIT 2 Information content system

kinds of sign information, hierarchy of content, developing the sign information content, Navigation – message hierarchy and proximity, Other factors affecting sign information content, pictorial information content, signage master plans.

UNIT 3 Signage Planning

Contract, obtaining information, preliminary design, design, construction, work plan and prototypes, tenders, specifications, on-site management, completion**.**

UNIT 4 Signage Design Eyelevel, light, fonts, typographical systems and type area, pictograms, arrows, colour – contrast, language, systems, tones, coding, privacy and protection, Room identification.

UNIT 5 The Graphic system

Typography overview, choosing a typeface, typographic treatment, typographic considerations in signage for non-sighted and low sighted people, symbols and arrows, other graphic elements, color, layout, overview of signage graphic process.

UNIT 6 The hardware system

Shape, connotations of form, sign mounting considerations, sign size considerations, sign lighting overview, sign materials overview, basic sign materials, electronic message displays, stock sign hardware systems, sign materials and codes, overview of coatings and finishes applied to signs.

References:

Best, K. (2006). Design management: managing design strategy, process and implementation. AVA publishing

Cooper, R., Junginger, S., & Lockwood, T. (Eds.). (2013). The handbook of design management. A&C Black

Kathryn Best, The Fundamentals of Design Management, AVA Publishing, 2010 Brigitte Borja De Mozota, Design Management: Using Design to Build Brand Value and Corporate Innovation, Allworth Press, 2004

John Stark, Product Lifecycle Management: 21st Century Paradigm for Product Realisation, Springer, 2011

Craig M. Vogel and Jonathan Cagan, Creating Breakthrough Products: Innovation from Product Planning Program Approval, FT Press, 2001

David L. Rainey, Product Innovation: Leading Change through Integrated Product Development, Cambridge University Press, 2011

9. BDS- 5009 Documentary Photography

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5009 Documentary Photography
Course Outcome	This course is a hands-on experience through taking challenging topics from society and visually documenting through photography. It includes research and understanding of social circumstances, how to approach stakeholders and effectively tell a visual narrative.

*As Instructed Students will work with Local Artisans in the Semester Break followed by a submission of report.

References:

- Salgado, S. (n.d.). Sebastiao Salgado - workers. New York: Aperture Foundation.
- Cheroux, C. (n.d.). Magnum Manifesto.

10. BDS- 5010 Digital Storytelling

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5010 Digital Storytelling
Course Outcome	How information can be represented and narrated in the age of digital experience for a variety purpose from education to journalism.

Convergence of media in digital platforms has made it challenging for designers to create sustaining story experiences in digital media. The course intends to create compelling narratives using possibilities of multimedia in digital world.

References:

- Jonathan Gottschall. The Storytelling Animal: How Stories Make Us Human. Houghton Mifflin Harcourt, 2013
- Alexander, Bryan. The New Digital Storytelling: Creating Narratives with New Media. ABCCLIO, 2017

11. BDS- 5011 Digital Heritage

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS- 5011 Digital Heritage
Course Outcome	The physical experience obtained when people visit the monuments, will be translated to the digital medium and the aim is to recreate the digital experience much nearer to the original experience of the physical monument.

And to create a knowledge base for the future, parallelly communicating the form, style, design, culture, and history to next generation. This is achieved by using high end technology like photogrammetry, laser scanning, 360 photography and high resolution photography.

Convergence of media in digital platforms has made it challenging for designers to create sustaining story experiences in digital media. The course intends to create compelling narratives using possibilities of multimedia in digital world.

References:

- V. La Rosa, La “Villa Royale” d’Haghia Triada. in R. Hgg (ed.), The Function of the “Minoan Villa,” Astrom editions, 1997.
- V. La Rosa, “Il Colle sul quale Sorge la Chiesa ad Ovest `e tutto Seminato di Cocci.” Vicende
- e Temi di uno Scavo di Lungo Corso, in Creta Antica, vol. 4, pp. 11–68, 2003.
- D. Tanasi, “Chapter 9. A Late Bronze Age Upland Sanctuary in the Core of Sikania?,” in M.
- Fitzjohn (ed.), Uplands of Ancient Sicily and Calabria. The archaeology of landscape revisited, Accordia Specialist Study on Italy, vol. 13, pp. 157–170, 2007.
- D. Palermo, E. Pappalardo, and D. Tanasi, “Le Origini di un Santuario,” in Atti del convegno
- di studi EIS EKRA. Insediamenti d’altura in Sicilia dalla preistoria al III secolo a.C., pp. 4778, 2008.
- R. P. C. Guzzone, D. Palermo, Montagna di Polizzello. Campagna di Scavo 2004. Betagamma Editrice, Viterbo.

12. BDS- 5012 Design for Education

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS- 5012 Design for Education
Course Outcome	The physical experience obtained when people visit the monuments, will be translated to the digital medium and the aim is to recreate the digital experience much nearer to the original experience of the physical monument.

References:

- Lupton, Ellen. Design is storytelling. Cooper Hewitt, Smithsonian Design Museum (November 21, 2017)
- Birks, Kimberlie. Design for Children. Phaidon Press(2018)
- Gelman, Debra Levin. Design for Kids: Digital Products for Playing and Learning. Rosenfeld Media; 1st edition (July 15, 2014)

13. BDS 5013 - Commercial Interiors / Institutional Interiors

L	T	P	CREDITS
2	0	6	5

Course Code & Name	5013 - Commercial Interiors / Institutional Interiors
Course Outcome	• Imparting knowledge about interior design possibilities in auditoriums. Exposing students to design standards for the hospitality industry. • To study and develop innovative ideas for hotel and auditorium interiors along with the knowledge of preparation of working drawings. • Introduction to the basics of designing for institutional interiors and to develop skills required for the same.

UNIT 1 : Auditorium

Spatial and environmental standards for various auditoriums: performing arts, movie halls and convention centers.

● Detail schematics of wall paneling, false ceiling and carpeting to fulfil acoustic requirements.

● Lighting study to develop ideas for foyer, auditorium, and stage requirements.

UNIT 2 : Hotels

Spatial and service standards for hotels - integration of interior design schemes for rooms, restaurants, bars, health clubs, shopping arcade and other guest areas with the general theme of the hotel.

Special ideas for suites and banquet halls - contemporary interior schemes to integrate new concepts in lighting and materials.

UNIT 3: Administration And Lounge

Overall planning of administration area along with its service areas - Private and Public spaces, furniture layout, lighting, color scheme, interior landscape etc.

UNIT 4: Office

Planning for individual offices - layouts, furniture detail, natural and artificial lighting, color scheme, soft furnishings etc.

References:

1. Fiona Leolie. Designs for 20th century interiors. London: VH Publications.
2. Barbaralec Diamonstein. (1982). Interior design: The new freedom. NY: Rizzoli International Publications.
3. Jonathan Poore. (1994). Interior colour by design. Rockport Publishers.

14. BDS 5014 Building Services-II

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5014 Building Services-II
Course Outcome	• Introducing concepts and principles of various building services that need to be taken care of while designing interiors. • To enable students to integrate various services effectively with the interior.

UNIT I: HVAC SYSTEMS

Principles of thermal comfort parameters for humans.
Principles of natural ventilation, heat load calculations.

- Introduction to air conditioning systems, methods of air conditioning, equipment and components used in air conditioning, selection criteria for air conditioning systems.
- Ducting principles, layout schemes and placement of air conditioning outlets in central air conditioning system.
- Mechanical ventilations and their applications.

UNIT II: FIRE FIGHTING

Introduction and main components Firefighting layout design, Approvals and codes.

UNIT III: HOME AUTOMATION

Introduction and main components Layout design, Approvals, and codes.

UNIT IV: ACOUSTICS

Introduction to Acoustics and its application in interiors.
• Room acoustics - resonance, reverberation, reverberation time, echo etc. Simple exercises using Sabine's formula. Acoustical requirements of different types of building - sound absorption, absorption co-efficient and their measurements, absorbing materials used and their choices. Exercises involving reverberation time and absorption co-efficient. Sound insulating materials.

REFERENCES:

1. Pratap R.M. (1988). Interior design principles and practice. Standard Publishers Distribution. 2. Rangawala.S.C. Water supply and sanitary engineering. Roorkee: Publishing House.

15. BDS 5015 Building Construction Materials

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 5015 Building Construction Materials
Course Outcome	• Imparting knowledge about interior design possibilities in auditoriums. Exposing students to design standards for the hospitality industry. • To study and develop innovative ideas for hotel and auditorium interiors along with the knowledge of preparation of working drawings. • Introduction to the basics of designing for institutional interiors and to develop skills required for the same.

9. BDS- 5016- Seminar / Workshop

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS- 5007- Seminar / Workshop
As per University Curriculum	

***As Instructed Students will work with Local Artisans in the Semester Break followed by a submission of report.**

Bachelor of Design | 3rd Year (Semester VI)

1. BDS 6001- Design Research Methodology-II

L	T	P	CREDITS
2	0	0	2

Course Code & Name	BDS 6001– Design Research Methodology –II
Course Outcome	Ability to be able to write colloquium paper by applying the understanding of research in various areas.

- Applications of various techniques, report and colloquium paper writing.
- Informed opinion and judgment, market research,
- On various areas using Data Visualization techniques (for example Data Point, Bar, Stack, Pie, Donut, and Dot charts; Histograms) and thereby creating infographics reports on design.

References:

Brenda Laurel, Design Research: Methods and Perspectives, The MIT Press, US, 2003
R. D. Wimmer & J. R. Dominick, Mass media research: An introduction. Belmont, California, Wadsworth Pub. Co., 2000 A. Hansen, Mass communication research methods. New Delhi: Log Angeles, 2009 E. R. Babbie, The practice of social research. Belmont, California, Wadsworth Pub. Co., 1992 C. R. Kothari, Research methodology: Methods & techniques. New Delhi: New Age International (P) Ltd., 2004

2. BDS 6002 Design Management–II

L	T	P	CREDITS
2	0	0	2

Course Code & Name	BDS 6002 Design Management–II
Course Outcome	Ability to communicate novel ideas to general stakeholders

Unit 1: Product Lifecycle Management

Introduction to design management, Understanding & importance of PLM, Phases of PLM, understanding of steps of product life cycle, procurement, Process monitoring, Quality Assurance, Guarantee Statement, Warranty Statement.

Unit 2: Business Development

Understanding of Business, Forecasting, importance and needs of forecasting, process of forecasting, Product Planning for the future, Disruptive Innovation, Observations, insights and opportunities.

Unit 3: Marketable Design Development and its Accounting

Design development for the market, measuring value of design, types of budgets, budget planning, cost calculation for pricing structure, measuring performance.

Unit 4: Activities in Business Management

Discussion on Knowledge Management, Induction, Scale & scope of Work, Work distribution, Time management, Scheduling, Feedback, Information loops, updates, record keeping documentation.

Unit 5: Intellectual Property Rights

Overview of Intellectual Property Rights and its importance, Patent, Copyright, Trademark, Trade secrets, Industrial Design, Geographical Identification, IPR Registration processes.

References:

Best, K. (2006). Design management: managing design strategy, process and implementation. AVA publishing

Cooper, R., Junginger, S., & Lockwood, T. (Eds.). (2013). The handbook of design management. A&C Black

Kathryn Best, The Fundamentals of Design Management, AVA Publishing, 2010 Brigitte Borja De Mozota, Design Management: Using Design to Build Brand Value and Corporate Innovation, Allworth Press, 2004

John Stark, Product Lifecycle Management: 21st Century Paradigm for Product Realisation, Springer, 2011

Craig M. Vogel and Jonathan Cagan, Creating Breakthrough Products: Innovation from Product Planning Program Approval, FT Press, 2001

David L. Rainey, Product Innovation: Leading Change through Integrated Product Development, Cambridge University Press, 2011

3. BDS 6003 Design Creativity & Innovation

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6003 Design Creativity & Innovation
Course Outcome	Students will be given thinking processes to come up with creativity in design stages. Expressiveness has to be unique and fit in the mold of consumer insights, manufacturing, operations, disposal, economic and social relevance, etc. Design Thinking will be delivered to enable students' ingenious solutions.

Today's economy is an experiential economy where available designs are in competition. How to stand out and survive? Efficiency is needed at all levels of design and delivery using creativity and innovation. Translating creative prowess into a real design delivery is the key today.

Unit 1: Innovation and creativity

- Definition of Innovation, innovation process and its source, Methods of analysis and evaluation of innovations, Examples of innovative products.
- Creation and development of new products including sustainable development, Characteristics of the innovative product, Impact of consumers on the design and implementation of innovative products, Eco product design.
- Creating a product design concept based on the design thinking methodology, Stages, and tools in the design thinking method
  - Stage 1 - Empathy
  - Stage 2 - Defining problems
  - Stage 3 - Generating ideas
  - Stage 4 - Prototyping
  - Stage 5 - Testing
- Examples of using the design thinking method in the design of innovative products

Unit 2: Intellectual Property

- The role and importance of intellectual property in business development, National, regional, and international authorities

Knowledge management techniques

1. Copyrights

2. Related rights
3. Patents
4. Trademarks
5. Industrial design
6. Appellation of origin (Geographical Indications), protection of new varieties of plants, protection of integrated circuits, unfair competition

References:

- Kelly Tom: The Art of Innovation, Doubleday, NY , 2001
- Cagan, Jonathan; Vogel, Craig M.; Creating Breakthrough Products: Innovation from Product Planning to Program Approval, Publisher: Financial Times Prentice Hall; 2002
- Kumar, Vijay., 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization. Wiley; 1 edition, 2012

4. BDS 6004 Product Semantics

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6004 Product Semantics
Course Outcome	The course is intended to build a broad understanding of the interactions and behavior of the users with products through which they explore the associated meanings. By understanding this process, the designers can craft unique experiences.

Unit 1 Introduction to Semantics, its importance and need to study, product Semantics.
Unit 2 Product Semantics – Key Concepts and semantic functions (Expression, Exhortation, Identification), Application and Affordance, Principles of Product semantics (Gestalt, shape & form, color & Materials).
Unit 3- User Behavior: Altering User behavior, Forming Habits, Product Analysis and their examples.

References:

- Klaus Krippendorff, The Semantic Turn: A New foundation for Design, CRC Press, 2005
- Don Norman, The Design of Everyday Things, MIT Press, London, 1982.
- Dalgleish and Power (Ed.), Handbook of Cognition and Emotions, Wiley, 1992
- Other selected Publications will be given in the class

5. BDS 6005 Life Cycle Analysis

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6005 Life Cycle Analysis
Course Outcome	An attention towards environmental impact consideration wrt to a product / service / system has become imperative in increasingly degrading environment today. Hence a sustainable model of manufacturing / service has been accepted as ultimate goal.

Unit 1 Introduction to Life cycle Assessment
Unit 2 Principles of Life cycle Assessment- Definitions, Goals and applications and developments of Life cycle Assessment
Unit 3 Qualitative & Quantitative Life cycle Analysis Methods- Red Flag Method, MET Matrix, Components of Quantitative Methods, Goal.Definition.and.Scope, .The.Functional.Unit & System. Boundaries.

References:

- S. Ramachandra Rao, in Waste Management Series, 2006
- Wanner Bulletin 46, 1995
- Salah M. El Haggar, in Environmental Solutions, 2005
- Gerald Jonker, Jan Harmsen, in Engineering for Sustainability, 2012

6. BDS 6006 Automobile Design Explorations

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6006 Automobile Design Explorations
Course Outcome	Design Minor: The course intends to deliver skills of visualization and design delivery for the need of mobility. Utilizing core subject knowledge competence with creative blend for automobile design and development of mobility solutions across personal to mass transportation.

UNIT 1 Elements of engineering, anthropometry, ergonomics, alternative energy systems, materials and styling would be used to amalgamate and come up with innovative ideas to address complex requirements.

The course embraces the design and development process by user research, scenario study, applying new materials, utilizing cutting edge technologies to address he changing paradigm.

Explorations and design process would be emphasized to come up with fresh ideas in the initial stage. Further students would move to solve comfort, functional, safety and technical requirements and refine the design in physical and digital mediums for a final design solution. It is a challenging process to achieve good design and would require in-depth attention towards development of form, function, and innovation for achieving future-ready rewarding mobility solutions. Lectures would be supported by hands-on exercises, field study, research and model making.

References:

- Hannah, Gail Greet; Elements of Design, Princeton Architectural Press, 2002
- Rouse, William B.; Design for Success: A Human Centered Approach to Designing
- Successful Products and
- Systems. Wiley-Interscience; 1991.
- Julian Happian-Smith, Transport Research Laboratory (TRL) Introduction to Modern Vehicle
- Design. Elsevier, 2001.
- Beverly R. Kimes: Pioneers, Engineers, and Scoundrels: The Dawn of the Automobile in
- America. SAE International. 2004

7. BDS 6007 Spatial Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6007 Spatial Design
Course Outcome	Designing a conscious, pleasant environment in public and private spaces considering all aspects of sustainable practices in Space, Architecture, and horticulture.

References:

- Tischner, Ursula, Eivind Sto, Unni Kjaernes, and Arnold Tukker, eds.System Innovation for Sustainability 3: Case Studies in Sustainable Consumption and Production - Food and Agriculture. Greenleaf Publishing,2009
- Lahlou, Saadi, ed. System Innovation for Sustainability 4: Case Studies in Sustainable Consumption and Production Energy Use and the Built Environment. Greenleaf Publishing, 2010
- Dougherty, Brian, and Celery Design Collaborative. Green Graphic Design. 1 edition. New York, NY: Allworth Press, 2008. 6. Braungart, Michael, and William McDonough. Cradle to Cradle. Vintage,2009
- Braungart, Michael, and William McDonough. Cradle to Cradle. Vintage,2009

8. BDS 6008 Product Graphics and Packaging

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6008 Product Graphics and Packaging
Course Outcome	This course intends to expose to various packaging techniques and push further to create sustainable packaging practices for the future. The course also expands to packaging presentation through product graphics for retail and other environments.

Unit 1: Introduction

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

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.

Unit 5: Final packaging and its branding

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

References

- Ibbotso ,Tony, Chong,Peng.Eco Packaging Now. Images Publishing Group, 2016
- Boylston, Scott. Designing Sustainable Packaging. Laurence King Publishing, 2009
- Roncarelli, Sarah.Packaging Essentials: 100 Design Principles for Creating Packages. Rockport Publishers, 2010

9. BDS 6009 Contemporary photography

L	T	P	CREDITS
2	0	6	5

Course Code & Name	**BDS 6009** Contemporary **photography**
Course Outcome	An advanced photography course to understand and develop newer storytelling practices within the area of photography. Various experimental methods are explored.

References

- Cotton, Charlotte: The photograph as contemporary art. - London.
- Herschdorfer, N. (2011). Afterwards, Contemporary Photography Confronting the Past. London: Thames & Hudson.

10. BDS 6010 Advertising

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6010 Advertising
Course Outcome	The objective would be to create full marketing campaigns where the idea and the theme will communicate a particular set of messages to create awareness.

The course objective is to gain hands-on skills required in the industry by learning basics of advertising, mode and mediums of advertising using diverse techniques of print, animation, film etc to create compelling messages.

References

- Alex W. White. Advertising Design and Typography. Allworth; Reprint edition
- Mario Pricken. Creative Advertising: Ideas and Techniques from the World's Best Campaigns. Thames & Hudson, 2002

11. BDS 6011 Tangible Computing

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6011 Tangible Computing
Course Outcome	A tangible user interface helps a person interacts with digital information through the physical environment.

The purpose of TUI development is to empower collaboration, learning, and design by giving physical forms to digital information, thus taking advantage of the human ability to grasp and manipulate physical objects and materials.

References

- Mary Lou Maher. Designing for
- Gesture and Tangible Interaction. Morgan & Claypool

12. BDS 6012 Service Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6012 Service Design
Course Outcome	This course will give an overview of how to create / improve an existing service by keeping in mind user's and customer's needs. It will include creating a process design, organizational design, information design and technology design.

The purpose of TUI development is to empower collaboration, learning, and design by giving physical forms to digital information, thus taking advantage of the human ability to grasp and manipulate physical objects and materials.

References

● Miettinen, Satu. Designing services with innovative methods. University of Art and Design, 2009.

● Pine, B. Joseph, Joseph Pine, and James H. Gilmore. The experience economy: Work is theatre & every business a stage. Harvard Business Press, 1999.

● Polaine, Andy, Lavrans Løvlie, and Ben Reason. Service design: From insight to inspiration. Rosenfeld media, 2013.

13. BDS 6013 Participatory Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6013 Participatory Design
Course Outcome	The outcome could be in the form of games, performance, live data visualizations etc transcending physical experience to digital experience.

This course expands horizons for communication designers to convert the medium from passive to active. Earlier user was a passive entity in the process of information dissemination. How to co-create compelling information experiences with the participation of the audience is the aim of the course.

References:

- Armstrong, Helen. Stojmirovic, Zvezdana. Participate: Designing with User-Generated Content. Princeton Architectural Press, 2011
- David de la Pena (Editor), Diane Jones Allen (Editor), Randolph T. Hester Jr. (Editor), Jeffrey Hou (Editor), Laura J. Lawson (Editor), Marcia J. McNally. Design as Democracy: Techniques for Collective Creativity. Island Press 2017

14. BDS 6014 Virtual Environments in Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6014 Virtual Environments in Design
Course Outcome	To introduce tools and methods for creating 3D virtual environments and interact through visual, haptic, and aural modalities.

The course content is divided into two subtopics viz. Computer Graphics and Haptics Computer Graphics: Input and Output devices, Transformations: Translation, scaling, Rotation, Homogeneous co-ordinates. Combining Transformations. Viewing, Camera model, orthographic and perspective projections, Geometric modelling, Lighting, Texture mapping, Clipping. Stereoscopic Vision Haptics: Human haptics, machine haptics, computer haptics, Haptic rendering, algorithms, collision detection, Haptic Interactions

References

- Edward S. Angel. Interactive Computer Graphics, A top-down approach with OpenGL. 5th Edition.Pearson Education, 2009.
- OpenGL Architecture Review Board, Dave Shreiner, Mason Woo, Jackie Neider, and Tom Davis.
- OpenGL Programming Guide: The Official Guide to Learning OpenGL. Addison-Wesley, 2005.
- Donald Hearn and M. Pauline Baker. Computer Graphics with OpenGL. Prentice Hall, 2003. Mark Paterson, Haptics Affects and Technologies, Berg Publishers, 2007

15. BDS 6015 Estimation & Budgeting

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6015 Estimation & Budgeting
Course Outcome	Facilitating transfer of knowledge and skills to students on estimating, costing, analyzing rates and processes of tendering for practicing the profession of Interior Architecture. Enabling students to prepare estimates and work out the cost of overall project. To equip students to prepare the estimate to foresee the cost of the interior design project to be implemented and to be able to monitor and control the project cost.

Unit 1 Introduction to Estimation

Estimation - definition, purpose, types of estimates, procedures for estimating the cost of work to implement an interior design project, estimates of products related to interiors e.g. furniture, artefacts etc.

Unit 2 Rate Analysis and Estimation Format

Rate Analysis - definition, method of preparation, quantity and labor estimate for woodwork, steelwork, aluminum work, glass etc. including laying of tiles, wall paneling, walls, and ceilings. Rates for different thicknesses, sections and finishes (enamel paint, Duco paints, melamine, PU coats, hand polishing, veneering, laminating etc.). Electrical and plumbing products, wiring, ducting etc.

Unit 3 Detailed Estimate

Detailed Estimate - data required, factors to be considered, methodology of preparing abstract of estimate, contingencies, labor charges, bill of quantities, different methods of estimate for interior design works, methods of measurement of works.

Unit 4 Costing

Cost of different interior items like electrical fittings, paints, plumbing equipment, false ceiling, wall paneling, furniture etc.

Unit 5 Introduction To Specification

Specification - definition, purpose, procedure for writing specification for the purpose of calling tenders, types of specification.

Specifications for different items related to interior design project - woodwork for furniture, window frames and pelmets, partitions etc. - materials like steel, aluminum, glass of various kinds etc. - wall paneling and false ceiling of materials like aluminum, steel, wood etc. • Specifications for electrical, plumbing, air conditioning and firefighting equipment.

References:

1. Roshan Namavati. Professional practice (estimation & valuation). Lakhani Book Depot.

2. Roshan Namavati. Architectural detailing in residential interiors. Lakhani Book Depot.

3. C. M. Pitrowski. Professional practice in interior design. Van Nostrand Reinhold.

4. Harry Siegel, CPA, & Alan Sige. A guide to business principle and practices for interior designers. Whitney Library of Design.

5. William R. Hall. Contract interior finishes. Whitney Library of Design.

6. William Rupp. Construction materials of interior design. Whitney Library of Design

16. BDS 6016 Building Services-III

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6016 Building Services-III
Course Outcome	Equip students with knowledge of various types of lighting and understanding their effect on colors and textures. To help students understand the concept of day lighting and the technology of artificial lighting. To equip students to understand and successfully apply lighting techniques.

UNIT 1 Introduction To Day Lighting

The nature of light wavelength, photometric quantities intensity, flux, illumination and luminance, visual efficiency, sources of light, day light factor concept, design sky concept, day lighting requirements etc.

UNIT 2 Artificial Lighting

Electric lamps - incandescent, fluorescent, sodium vapour, mercury, halogen, neon, and LED. Different types of lights in interiors and exteriors - task lighting, special purpose lighting.

Calculation of artificial lighting, guidelines for lighting design, glare in artificial lighting.

UNIT 3 Effect of Color In Lighting

• Colors, color schemes monochromatic, analogous, complementary color schemes, triadic and tetradic

schemes, effects of color, color temperature, psychological effects of color in interiors, factors affecting color. Prang theory-Color wheel, Munsell system and Oswald system.

UNIT IV: LUMINARIES & FIXTURES

- Definition, types of luminaries, lighting control systems - benefits and applications.
- Impact of lighting, fixture types - free standing or portable, fixed, light fixture control.
- Lighting accessories - switches, sockets, fused connection units, lamp holders, ceiling roses etc.

REFERENCES:

1. Gary Gordon. Interior lighting for designers. John Wiley & Sons Inc.
2. Randall Whitehead. Lighting design, source book.
3. M.K. Halpeth, T. Senthil kumar, G. Harikumar. Light right.
4. Torquil Barker. Concepts of lighting, lighting design in architecture.

17. BDS 6017 Advance Building Construction

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6017 Advance Building Construction
Course Outcome	Equip students with knowledge of various types of lighting and understanding their effect on colors and textures. To help students understand the concept of day lighting and the technology of artificial lighting. To equip students to understand and successfully apply lighting techniques.

UNIT 1 Advanced Structural Concretes
Structural Light weight Concrete, High Strength Concrete-Classification, Availability, Characteristics and Uses.

UNIT 2 Materials for pre-stressing
Classification, Availability, Characteristics and Uses.

UNIT 3 Forms & materials for speedy construction
Reinforcement types, RMC; Advanced Formwork systems. Classification, Availability, Characteristics and Uses.

UNIT 4 Forms of steel for Industrial construction
Classification, Availability, Characteristics and Uses.

18. BDS 6018- Landscape Design

L	T	P	CREDITS
2	0	6	5

Course Code & Name	BDS 6018 Landscape Design
Course Outcome	Understanding the concepts of landscaping and their application in the design of interior spaces.

UNIT 1 Landscape

Definition, classification of plants, indoor plants and their functions, layout and components, floriculture - commercial, ornamental, selection of plants, pest control.

UNIT 2 Physical Requirements Of Plants

Physical requirements of plants - impact of light, temperature. Water requirement, planting medium, soil separator, weight of plants, acclimatization, and maintenance.

UNIT 3 Interior Landscaping Elements and Principles

Various interior landscaping elements like water bodies - pools, fountains - cascades plants, rocks, artefacts, paving and lighting etc. and their design guidelines.Indoor plant texture and color, plant height, plant spacing.

UNIT 4 Roof and Deck Landscape

• Protection of the integrity of the roof and structure, provisions for drainage, light weight planting medium, irrigation, selection of materials, water proofing, provision for utilities and maintenance.

UNIT 5 Exercise on Interior Landscape

•Courtyard design. Outdoor room design. Terrace garden design.

References

1. Time saver standards for landscape architecture.

2. Theodore D. Walker. Planting design. NY: VNR Publications.

3. Jack E. Ingels. Landscaping principles and practices. Delmar Publishers.

Bachelor of Design | 4th Year (Semester VII)

1. BDS 7001 Professional Practice in Design

L	T	P	CREDITS
2	0	2	3

Course Code & Name	BDS 7001 Professional Practice in Design
Course Outcome	Expose students to professional practice in design; Looking at Design from a business perspective.

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

References:
Riadh Habash, Green Engineering: Innovation, Entrepreneurship and Design, 2017 Ted Crawford, AIGA Professional Practices in Graphic Design, Allworth Press, 2008 Douglas Davis, Creative Strategy and the Business of Design, 2016
Shan Preddy, How to Run a Successful Design Business: The New Professional Practice, Gower Publishing, Ltd., 2011
Min Basadur, Michael Goldsby, Design-Centered Entrepreneurship, 2016

2. BDS 7002 Design Documentation- II

L	T	P	CREDITS
2	0	4	5

Course Code & Name	BDS 7002 Design Documentation- II
Course Outcome	Exposure to site-specific study and their relevance; Documentation of Site visits and analysis, Ability to identify intervention area and come up with design solution.

Unit 1: Introduction
Introduction to Site specific study; Studying about various sites like museums, historical sites, market places, villages etc.; understanding aspects to be covered and documentation details; compilation etc.

Unit 2: Case studies
Studying case studies for different site-specific projects already done; understanding various aspects; how the project started and its relevance etc.

Unit 3: Project As per brief

Unit 4: Site Visit
The students will be visiting site as per brief conducting a study and document the same

Unit 5: Final presentation
Students are expected to present their site specific study and design solutions.

References:

Diana Panke, Research Design & Method Selection: Making Good Choices in the Social Sciences, 2018.

Hemanta Doloi, Ray Green, Sally Donovan , Planning, Housing and Infrastructure for Smart Villages.

BDS 7003 Design Research Seminar

L	T	P	CREDITS
2	0	8	6

Course Code & Name	BDS 7003 Design Research Seminar
Course Outcome	The peculiarities of research in understanding and practicing design - the heuristic, creative and systematic approaches to doing research both in and through Design.

References:

- Handbook of Design Research Methods in Education, Innovations in Science, Technology, Engineering, and Mathematics Learning and Teaching. Edited by Anthony E. Kelly,(George Mason University), Richard A. Lesh (Indiana University), John Y. Baek(Center for Advancement of Informal Science Education. First published 2008 by Routledge NEW YORK AND LONDON.
- Design Research Methodology, Lucienne T.M. Blessing, Amaresh Chakrabarti, 2009.

4. BDS 7004- Universal Design

L	T	P	CREDITS
2	0	4	4

Course Code & Name	BDS 7004 Universal Design
Course Outcome	Introduce the concept of Universal Design as a design approach; Exposure to accessibility standards and research techniques.

Unit 1: **Orientation**

What is Universal Design? Its Origin and emergence, Need and its relevance today, Examples of UD.

Unit 2: Principles and Goals

Principles of Universal Design, Goals of Universal Design, Understanding above from various design spectrums- Product, building, information, service

Unit 3: Deep Dive

Universal - Inclusive - Accessible Design, Universal Design for Learning (UDL), Use of Assistive technologies, Research techniques like- AGNES (Age gain now empathy system simulation suit), Current ecosystem, Government Initiatives & policies.

Unit 4: Accessibility Standards and Guidelines

Physical accessibility standards for Barrier free environment, Web accessibility, WAI (Web Accessibility Initiative), World Wide Web Consortium (W3C)

Unit 5: Mini Project

As per brief

References:

Edward Steinfeld and Jordana L. Maisel, Universal Design – Creating Inclusive Environments, 2012William Lidwell, Kritina Holden, Jill Butler; Universal Principles of Design, 2003 Bruce Hanington, Bella Martin; Universal Methods of Design, 2012
James Holmes-Seidle , Barrier-Free Design, 1996
CPWD, Guidelines and space standards for Barrier free built environment for Disabled and Elderly Persons, 1998

5. BDS 7005 Seminar / Workshop

L	T	P	CREDITS
0	0	0	2

Course Code & Name	BDS 7005 Seminar / Workshop
As per University Curriculum	

As Instructed, Students will work with Local Artisans in the Semester Break followed by a submission of report.

6. BDS 7006 Industrial Training

L	T	P	CREDITS
0	0	0	4

Course Code & Name	BDS 7006 Industrial Training
Course Outcome	Attain hands-on experience on a live project

Students would avail the opportunity to work with Design Firm/ Studios/ Industry under their guidance for a period of 4 weeks. The students are required to make a presentation of work done, submit a report and a letter/ certificate of their training.

Bachelor of Design | 4th Year (Semester VIII)

1. BDS 8001- Design Degree Project

L	T	P	CREDITS
0	0	0	24

Course Code & Name	BDS – 8001 –Design Degree Project
Course Outcome	Ability to apply and demonstrate all the skills and knowledge acquired in the previous semesters to solve a design problem.

Students in this semester would take sponsored /self-sponsored full-time Design projects. The project can be taken as per interest area of student or Industry project.

The project can be sponsored by industry or organizations and even self-sponsored.

***NOTE- Design Project will be as per the electives taken in the Previous Semesters.**