

## **Bachelor in Design (Interior Design)**

### **INTRODUCTION**

Interior Design Course - Interior design is the art and science of enhancing the interior of a building to achieve a healthier and more aesthetically pleasing environment for the people using the space. An interior designer is someone who plans, researches, coordinates, and manages such projects. Interior design is a multifaceted profession that includes conceptual development, space planning, site inspections, programming, and research, communicating with the stakeholders of a project, construction management, and execution of the design.

The Interior design course aims to develop the ability to conceptualize, plan, design, and detail functional and aesthetic interior spaces ranging from small residential spaces to large public & commercial spaces. The learning is project-based with options to explore the functional, technical, planning aspects, as well as the softer artistic, aesthetic, thematic aspects of Interior Architecture and Design.

### **ABOUT PROGRAM**

Bachelor of Design in Interior Design is a 4-year undergraduate course, designed for students who have successfully completed the Higher Secondary level of education (10+2). The program is sub-divided into 8 semesters, wherein enrolled students are taught the art and science of interior decoration of building/ residence, towards making them more attractive, comfortable, and useful to human beings.

The program has been designed to offer to eligible student's specialization in a wide range of concepts and techniques involved in organizing, managing, and planning the interiors of residences and buildings, by understanding people's behavior and needs. The aim is to refurbish the places so that it reflects the choices and nature of the people occupying it. The course aims to educate students about the techniques and art of converting artistic talent and creativity in beautifying living spaces, involving choice and decoration of walls, roofs, floors, besides choice and placement of furniture and other indoor objects, lighting, and control of visual and sound effects, and anything that adds to the style and usability of the built environment.

### **VISION**

To acquire holistic approach creating design hub furnishing innovative solutions for emerging challenges that facilitates society and region with indigenous design and art infusion, manage and motivate delivery of impeccable quality with global standards.

### **MISSION**

- To practice logical, sequential, conceptual and revival skills for providing design innovations at global platform.
- To demonstrate virtues, sustainability, ethics and interpersonal skills for administrating ingenious design.

To formulate, manage, motivate and deliver strategic solutions integrating creativity, art, technology, quality and emerge as major design hub

## **EDUCATIONAL OBJECTIVES (PEO)**

The program is expected to enable the students to-

- PEO1** Prepare graduates for designing the Residential & Commercial Projects.
- PEO2** Equip future designers with technical skills, new technology to be able to produce working drawings, specifications, layouts and suggest materials and finishes for a specific project.
- PEO3** Help students to demonstrate a good understanding of the various components of interior designing by exposing them to a wide variety of live design projects, presentations, lab works, research papers and critique.
- PEO4** Develop designs, plan material and suggest systems for various spaces for aesthetic and effective functioning.
- PEO5** Familiarize students with computational techniques and software typically used in the profession of Interior Design
- PEO6** Provide a good grounding in the best practice of collating and disseminating information.
- PEO7** Prepare students to undertake further study at Masters Level.
- PEO8** Teach students to construct models for several processes in the real-world.
- PEO9** Integrate the process of design by working on projects, initially working with designers in the industry and taking on professional task responsibilities.
- PEO10** Interact and participate in projects with Industry experts and specialists and get hands on learning on live projects.

## **PROGRAM OUTCOMES (ALIGNED WITH GRADUATE ATTRIBUTES) (PO)**

At the end of this program, graduates will be able to

- PO1** Integrate knowledge, skill and attitude that will sustain an environment of learning and creativity
- PO2** Develop and integrate trends in interior design
- PO3** Understand the design, technology and techniques to design spaces effectively
- PO4** Understand building and safety codes, principles and practices for environmental and sustainable interior design
- PO5** Develop an understanding of various tools, techniques and software.
- PO6** Apply critical and contextual approaches across wide variety of subject matter.
- PO7** Develop logical thinking to comprehend key facts leading to formulation of the Solution process.
- PO8** Engage a process of research and design for holistic contribution to the profession.
- PO9** Develop self-confidence and awareness of general issues prevailing in the society
- P10** An ability to understand the market trends, client needs, project potentials and work with an inter disciplinary team
- PO11** An ability to create human responsive spaces and ensure project execution.

## ADMISSION

- The number of seats in the B.Des. (Interior Design) program for which admission is to be made in the College of Architecture will be decided by the Board of Management of MLSU.
- Candidates seeking admission to the first semester of the B.Des. (Interior Design) program should have secured a minimum of 55% in aggregate in the Higher Secondary examination (10+2) or any other examination of any University or authority accepted by the University as equivalent.
- The candidate can belong to any group of study (Science, Commerce or any other stream).
- The eligibility criteria such as marks, number of attempts & physical fitness shall be as prescribed by the University from time to time.
- Diploma holders in Civil Engineering, Architecture, Interiors or fine arts with minimum marks, as stipulated by the Admission Committee, are eligible for lateral entry to the 3rd semester of the B.Des program.
- In lateral entry system, candidates have to secure a minimum of 60% acquired a Diploma in Civil Engineering, Architecture, Interiors or fine arts through a minimum of three years of institutional study, after the 10th board examination (10+3) recognized by this University, are eligible for admission to the 3rd semester of the B.Des (Interior Design) program. On admission they are declared to have already earned the credits prescribed for the first two semesters.
- Notwithstanding the above, the actual admissions will be based on the rules and regulations of the UGC/ competent authorities.
- Candidates have to fulfill the medical standards required for admission as set out by the Admission Committee.
- The selected candidate will be admitted to the B.Des (Interior Design) program after he/ she fulfills all the admission requirements as indicated in the letter of admission after payment of the prescribed fees.
- In the matter of admissions to the B. Des (Interior Design) program the decision of the Admission Committee is final.
- If, at any time after admission, it is found that a candidate has not fulfilled all the requirements stipulated in the offer of admission, the Director/ HOD (College of Architecture) may revoke the admission of the candidate and report the matter to the Vice Chancellor.

## **STRUCTURE OF PROGRAMME**

- The program will have a curriculum with syllabus consisting of :
  - a. Theory based courses such as History of Interior Design, theory of Interior Design etc.,
  - b. Theory cum Studio based courses comprising of courses on Materials and Construction, Graphics, Computer Graphics, etc.
  - c. Studio based courses comprising of courses on Interior Design.
  - d. General course includes English composition and communication.
  - e. Elective Courses in related fields.
  - f. Office Training (internship) in the VI Semester for exposure to the Interior Design profession.
  - g. Graduation Project in the VIII semester.
  - h. One Compulsory Educational Tour apart from the site / field visits.
- The B.Des. (Interior Design) program will have a curriculum and course contents (syllabus), approved by the Academic Council.
- Credits are assigned to the courses based on the following general pattern:
  - One credit for each lecture period;
  - One credit for two or less tutorial periods;
  - One credit for each laboratory or practical or project session of two / three periods.
- The curriculum of the B.Des. (Interior Design) program is designed to have a total of 165 credits for the award of the B.Des. (Interior Design) degree.
- Theory and Laboratory / practical courses as prescribed in the curriculum carrying a maximum of 30 credits.
- The medium of instruction, examination and project reports will be in English.

### **Maximum duration of the program**

- Each semester shall normally consist the tile limit as per university rule. A student is ordinarily expected to complete the B.Des (Interior Design) program in eight semesters. However a student may complete the program at a slower pace by taking more time but in any case not more than 12 semesters under regular program excluding the semesters withdrawn on medical grounds etc.

### **Temporary withdrawal from the program**

- A student may be permitted by the Director (COA) to withdraw from the program for a semester or longer for reasons of ill health or other valid reasons. Normally a student will be permitted to discontinue from the program only for a maximum continuous period of two semesters.

### **Office Training (Internship)**

- The student will be required to undertake training for a minimum period of 150 working days during the 6th semester in a reputed architecture/interior design firm that has completed at least 5 years in professional consultancy. The students should arrange to send monthly progress reports from the respective offices imparting training. And prepare weekly progress report with the submission of training report.
- The evaluation will be carried out for 500 marks through a viva-voce examination conducted at the end of the semester, scrutinizing the portfolio of drawings done during training and the work diary. The viva-voce examination will be conducted by an internal examiner appointed by the University.
- If the student fails to secure a pass in the office training evaluation or fails to complete the minimum number of working days required for training, he/She will complete the same after the 8th semester and submit the drawings and reports for evaluation subsequently.

### **Graduation Project Work**

- B.Des. graduation projects should attempt to improve existing standards in interior design, and will be attempted individually by students. The internal assessment for 60% of marks will be done by a thesis review committee comprising of the Head of the Department, supervisor of the project and an external member who will be a renowned architect/interior designer. The review committee will conduct at least 4 reviews during the semester for evaluating the reports and drawings. At the completion of the project the student will submit the project report, presentation drawings and model which will be evaluated for the remaining 40% of marks by a viva-voce examination by a panel consisting of the Head of the Department and two external examiners appointed by the University. The grade will be awarded to the student on the basis of the total marks obtained by him/her out of 500.
- If the candidate fails to secure a pass in thesis project, he/she will be required to improve the project work based on the suggestions given by head of the department and the thesis guide and appear for the viva-voce examination during the end of the subsequent semes

**COURSE MATRIX**  
**B. DES. (INTERIOR DESIGN)**

YEAR I		SEMESTER - I							
	<b>THEORY</b>								
Course Code	Course Name	Hours			Marks			Cr	
		L	T	P	IM 20%	EM 80%	Total		
B1ID01-CT01	Basics of Theory of Design	2	0	0	20	80	100	2	
B1ID02-CT02	Anthropometrics & Ergonomics	2	0	0	20	80	100	2	
B1ID03-CT03	History of Interiors -I	2	0	0	20	80	100	2	
		<b>PRACTICAL/STUDIO</b>							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr	
B1ID04-CP01	Arts & Graphics	1	0	2	60	40	100	2	
B1ID05-CP02	Basics of Visualization and Representation	2	0	4	120	80	200	4	
B1ID06-CP03	Basic Design – I	1	0	4	90	60	150	3	
B1ID07-CP04	Model Making	1	0	2	60	40	100	2	
B1ID08-CP05	Computer Application -I	0	0	2	30	20	50	1	
B1ID09-CP06	Communication skills	0	0	2	30	20	50	1	
		<b>Total</b>	<b>11</b>	<b>0</b>	<b>16</b>	<b>450</b>	<b>500</b>	<b>950</b>	<b>19</b>
		<b>Total Teaching Hours</b>	<b>27</b>						

YEAR I		SEMESTER - II							
	<b>THEORY</b>								
Course Code	Course Name	Hours			Marks			Cr	
		L	T	P	IM 20%	EM 80%	Total		
B2ID01-CT04	Advanced Theory of Design	2	0	0	20	80	100	2	
B2ID02-CT05	History of Interiors –II	2	0	0	20	80	100	2	
B2ID03-CT06	Environmental Science	2	0	0	20	80	100	2	
		<b>PRACTICAL / STUDIO</b>							
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr	
B2ID04-CP07	Computer Application -II	1	0	2	60	40	100	2	
B2ID05-CP08	Advanced Visualization and Representation	1	0	4	90	60	150	3	
B2ID06-CP09	Basic Design – II	1	0	4	90	60	150	3	
B2ID07-CP10	Construction Materials and Techniques - I	1	0	2	60	40	100	2	
B2ID08-CP11	Value and Ethics	1	0	0	30	20	50	1	
B2ID09-CP12	Interior Space Drawing	1	0	2	60	40	100	2	
		<b>Total</b>	<b>12</b>	<b>0</b>	<b>14</b>	<b>450</b>	<b>500</b>	<b>950</b>	<b>19</b>
		<b>Total Teaching Hours</b>	<b>26</b>						

L – Lecture  
T – Tutorial  
P – Practical / Studio  
IM – Internal Marks

EM – External Marks  
Cr – Credit

YEAR II		SEMESTER - III						
		THEORY						
Course Code	Course Name	Hours			Marks			Cr
		L	T	P	IM 20%	EM 80%	Total	
B3ID01-CT07	Interior Landscape	2	0	0	20	80	100	2
B3ID02-CT08	History of Interiors – III	2	0	0	20	80	100	2
B3ID03-CT09	Basics of Interior Services	2	0	0	20	80	100	2
		PRACTICAL / STUDIO						
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3ID04-CP13	Computer Application III	1	0	2	60	40	100	2
B3ID05-CP14	Interior Design Studio –I	1	0	8	180	120	300	5
B3ID06-CP15	Elective - I	1	0	2	60	40	100	2
B3ID07-CP16	Construction Material And Techniques II	1	0	2	60	40	100	2
B3ID08-CP17	Furniture Design I	1	0	2	60	40	100	2
<b>Total</b>		<b>11</b>	<b>0</b>	<b>16</b>	<b>480</b>	<b>520</b>	<b>1000</b>	<b>19</b>
<b>Total Teaching Hours</b>		<b>27</b>						

YEAR II		SEMESTER - IV						
		THEORY						
Course Code	Course Name	Hours			Marks			Cr
		L	T	P	IM 20%	EM 80%	Total	
B4ID01-CT10	Sustainable Design	2	0	0	20	80	100	2
B4ID02-CT11	Basics of Structural Design	2	0	0	20	80	100	2
B4ID03-CT12	Interior Services (Intermediate)	2	0	0	20	80	100	2
		PRACTICAL / STUDIO						
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4ID04-CP18	Computer Application IV	1	0	2	60	40	100	2
B4ID05-CP19	Interior Design studio – II	1	0	8	180	120	300	5
B4ID06-CP20	Construction Material And Techniques III	1	0	2	60	40	100	2
B4ID07-CP21	Elective – II	1	0	2	60	40	100	2
B4ID08-CP22	Furniture Design II	1	0	2	60	40	100	2
<b>Total</b>		<b>11</b>	<b>0</b>	<b>16</b>	<b>480</b>	<b>520</b>	<b>1000</b>	<b>19</b>
<b>Total Teaching Hours</b>		<b>27</b>						

L – Lecture  
T – Tutorial  
P – Practical / Studio  
IM – Internal Marks  
EM – External Marks  
Cr – Credit

YEAR III		SEMESTER - V							
	THEORY								
Course Code	Course Name	Hours			Marks			Cr	
		L	T	P	IM 20%	EM 80%	Total		
B5ID01-CT13	Lighting and Acoustics in Interiors	2	0	0	20	80	100	2	
B5ID02-CT14	Advanced Structural Design	2	0	0	20	80	100	2	
B5ID03-CT15	Advanced Interior Services	2	0	0	20	80	100	2	
	PRACTICAL / STUDIO								
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr	
B5ID04-CP23	Construction Material and Techniques IV	1	0	4	90	60	150	3	
B5ID05-CP24	Interior Design Studio - III	1	0	8	180	120	300	5	
B5ID06-CP25	Elective – III	1	0	4	90	60	150	3	
B5ID07-CP26	Workshop	1	0	2	60	40	100	2	
	Total	<b>10</b>	<b>0</b>	<b>18</b>	<b>480</b>	<b>520</b>	<b>1000</b>	<b>19</b>	
	Total Teaching Hours	<b>28</b>							

YEAR III		SEMESTER - VI							
	THEORY								
Course Code	Course Name	Hours			Marks			Cr	
		L	T	P	IM 20%	EM 80%	Total		
B6ID01-CT16	Professional Practice	2	0	0	20	80	100	2	
B6ID02-CT17	History of Modern Movement	2	0	0	20	80	100	2	
	PRACTICAL / STUDIO								
Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr	
B6ID03-CP27	Interior Design Studio - IV	1	0	8	180	120	300	5	
B6ID04-CP28	Dissertation	1	0	2	60	40	100	2	
B6ID05-CP29	Elective – IV	1	0	4	90	60	150	3	
B6ID06-CP30	Construction Material and Techniques-V	1	0	4	90	60	150	3	
B6ID07-CP31	Renovation and Alteration	1	0	2	60	40	100	2	
	Total	<b>9</b>	<b>0</b>	<b>20</b>	<b>520</b>	<b>480</b>	<b>1000</b>	<b>19</b>	
	Total Teaching Hours	<b>29</b>							

L – Lecture  
T – Tutorial  
P – Practical / Studio  
IM – Internal Marks  
EM – External Marks  
Cr – Credit



YEAR IV		SEMESTER - VII						
PRACTICAL / STUDIO								
Course Code	Course Name	Hours			Marks			Cr
		L	T	P	IM 20%	EM 80%	Total	
B7ID01-CP32	Training	0	0	0	300	200	500	10
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>300</b>	<b>200</b>	<b>500</b>	<b>10</b>
<b>Total Teaching Hours</b>		<b>0</b>						

YEAR IV		SEMESTER - VIII						
PRACTICAL / STUDIO								
Course Code	Course Name	Hours			Marks			Cr
		L	T	P	IM 20%	EM 80%	Total	
B8ID01-CP33	Thesis	3	0	14	300	200	500	10
<b>Total</b>		<b>3</b>	<b>0</b>	<b>14</b>	<b>300</b>	<b>200</b>	<b>500</b>	<b>10</b>
<b>Total Teaching Hours</b>		<b>17</b>						

L – Lecture  
T – Tutorial  
P – Practical / Studio  
IM – Internal Marks  
EM – External Marks  
Cr – Credit

LIST OF ELECTIVES									
Sem. & Elective No.	Course Code	Course Name	Hours			Marks			Cr
			L	T	P	IA 60%	ETE 40%	Total	
SEM. III (E-I)	B3ID06 - CP15	Cultural Anthropology	1	0	2	60	40	100	2
		Interior Model Making							
		Interior Sketching							
SEM. IV (E-II)	B4ID07 - CP21	Visual and Performing Arts	1	0	2	60	40	100	2
		Vernacular Architecture and Interiors							
		Representation of Spaces							
SEM. V (E-III)	B5ID06 - CP25	Interior Accessories and Product Design	1	0	4	90	60	150	3
		Revitalization of Art and Crafts							
		Graphics & Animation							
SEM. VI (E-IV)	B6ID05 - CP29	Interior Photography	1	0	4	90	60	150	3
		Entrepreneurship Development							
		Art and Graphics in Interior Design							

**BASICS OF THEORY OF DESIGN**

Course Code	Course Name	L	T	P	IM 20 %	EM 80 %	Total	Cr
B1ID01-CT01	Basics of Theory of Design	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand the basics elements and principles of design
2	To develop the understanding of shapes in reference to elements and principles
3	To understand space making using solid shapes creating visual composition
4	To develop the vision of color and color wheel in different scenarios
5	To develop the meaning of space in reference to color and other elements

**UNIT 1 - INTRODUCTION TO DESIGN**

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

**UNIT 2 - CONCEPTS OF GEOMETRY**

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

**UNIT 3 – PRINCIPLES OF COMPOSITION**

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

**UNIT 4 – THEORY OF COLOURS**

Introduction –visible spectrum, coloured light, colour temperature, colour interaction, colour blindness. Color wheel – primary, secondary, tertiary colors, color wheel, color schemes color value, intensity, and modification of color hues – tints, shades, Neutralization. Color charts – types, making and using. Color harmony, use of color harmony. Psychological impact of color – warm, cool and neutral colors, impact of specific hues, meanings of color, color and form, color and light, color and surface qualities, color and distances and scales.

**UNIT 5 – USE OF COLOURS**

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

**REFERENCE BOOKS**

1	Hanks, A.David. Decorative Designs of Frank Lloyd Wright, Dover Publications, Inc. New York, 2003.
2	Ching, Francis D.K. Architecture Form, space, and Order, 3rd ed. Van Nostrand Reinhold, New York, 2007.

B. Des.

SEMESTER – I

**ANTHROPOMETRICS & ERGONOMICS**

Course Code	Course Name	L	T	P	IM 20 %	EM 80 %	Total	Cr
B11D02-CT02	Anthropometrics & Ergonomics	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To analyse and identify the anthropometrics and ergonomics in daily life
2	To understand and analyse the stress factors on human body in various tasks
3	To be able to create a standard measurement / dimension for a given task based on percentile methods.
4	To understand and analyse the furniture for different types of works and their effects on human body.
5	To understand and analyze the cognitive and behavioral aspects of humans with respect to furniture.

**UNIT – 1 INTRODUCTION**

Introduction to Ergonomics, Need for study of ergonomics, Human Factors. Domains and Principles of Human Factors/ Ergonomics

**UNIT – 2 ANTHROPOMETRY**

Anthropometry, Proportions and Ratios of Human Body. Anthropometric data representation and percentiles. Concept of average, reach and clearance.

**UNIT - 3 STUDY OF SIMPLE OBJECT ANTHROPOMETRY**

Study of anthropometric data regarding simple objects like door handle, white board, hand railing etc

**UNIT - 4 STUDY OF SITTING AND WORKDESK ANTHROPOMETRY**

Study of anthropometric data regarding a work desk. Analyze posture and body supportive devices, Chair characteristics, Vertical work surface, Horizontal work surface, movement, work Counter.

**UNIT - 5 ERGOMIC STUDY OF COMPLEX OBJECT**

Study of complex object ergonomics, with respect to Physical, Cognitive and Organizational aspects of the object, human relation.

**TEXT BOOKS**

1	Human Dimension And Interior Space- By Julius Panero and Martin Zelnik
2	Indian Anthropometric Dimensions for Ergonomic Design Practice, By Debkumar Charabarti

**REFERENCE BOOKS**

1	Handbook of human factors and ergonomics, By Gavriel Salvendy
2	International Encyclopedia of Ergonomics and Human Factors, Edited by Informa Healthcare, Waldemar Karwowski

B. Des.

SEMESTER – I

**HISTORY OF INTERIORS - I**

Course Code	Course Name	L	T	P	IM 20 %	EM 80 %	Total	Cr
B1ID03-CT03	History of Interiors - I	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand the evolution of art in interiors during the prehistoric period
2	To understand the different traditional contemporary art form with different tools and techniques
3	To explore the different ornaments and accessories in historic interiors
4	To understand the spatial scale in Buddhist, Islamic and Hindu art forms
5	To explore the various art forms throughout the world during 19th and 20th century

**UNIT 1 - PURPOSE AND RELEVANCE OF ART DEVELOPMENT**

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

**UNIT 2 - EXPLORATION OF ARTFORMS**

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

**UNIT 3 – STUDY OF ORNAMENTS & ACCESSORIES**

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

**UNIT 4 – INTRODUCTION TO HERITAGE INTERIORS**

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

**UNIT 5 – NEW DIRECTIONS IN ART**

Context for new directions in art in the late 19th and early 20th century - Impressionism – post Impressionism – Fauvism- Expressionism- Cubism –Dadaism – Surrealism - abstract art – Futurism - Constructivism – Surrealism – De Stijl -Abstract Expressionism - Pop art - Op art- new forms and media of art. Study of famous and influential Artists, Craftsmen and people who pioneered innovations in their own fields and their influence on design and other fields. Works of Van Gogh, Dali, William Morris, Picasso, Da Vinci.

**TEXT BOOKS**

1	Alan Barnard & Jonathan Spencer, Encyclopaedia of social and cultural anthropology, Routledge; 1 edition, 2002
2	Niggel Rapport, Social and Cultural Anthropology: The Key Concepts, Routledge, 2000
3	Elizabeth. D. Hutchinson, Sage publications, Dimensions of Human Behavior, person and Environment, 2007.
4	Kumar Raj (Ed) Essays on Indian Art and Architecture. Discovery pub., New Delhi, 2003
5	Ghosh. A (Ed). Jain Art and Architecture Vol 1-3. BharatiyaJnanpith.New Delhi.
6	Christine M. Piotrowski, Becoming an Interior Designer, John Wiley and Sons, 2003.

**REFERENCE BOOKS**

1	Henry Wilson, India: Decoration, Interiors, Design, Watson Guptill, First American edition, 2001
2	Michael Freeman, India Modern, Periplus editions, 2005



B. Des.

SEMESTER – I

**ARTS & GRAPHICS**

Course Code	Course Name	L	T	P	IM 60 %	EM 40 %	Total	Cr
B1ID04-CP01	Arts & Graphics	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand the usage of different points of pencils and apply in sketching.
2	To understand and analyze the geometric patterns in nature and understand variety of forms as a medium for indoor and outdoor sketching.
3	To learn the fundamentals of drawing equipment and method of presentation.
4	To create, compose sheets using different drawing tools on different mediums.
5	To learn and understand measurement and scaling techniques for representing furniture and landscape elements.

**UNIT 1 - INTRODUCTION TO PENCIL EXERCISES**

Knowledge about usage of different points of pencils, handling of pencils, practicing lines and tone building exercises.

**UNIT 2 - EXERCISES OF OBJECT DRAWINGS AND SKETCHING OBJECTS**

Natural geometric forms with emphasis on depth and dimension, detail & texture, sunlight & shadow. Still Life – Furniture, Equipment – Understanding Depth, light, shade, Shadow Etc. Outdoor Sketching: Natural Forms/Built Forms. Understanding variety in Forms. Sketching Human Form: Anatomy and Expressions – Graphical Representations.

**UNIT 3 – SCALE AND PROPORTION**

Definition, Importance, Different types of proportion in interior designing, proportion of various elements of Interior designing, to use scale and proportion in designing

**UNIT 4 – COLOR PSYCHOLOGY**

Introduction- color psychology, color psychology affects designing, impact and role of different colors, use of color proportion for a space

**UNIT 5 – GRAPHICAL REPRESENTATION**

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.

**REFERENCE BOOKS**

1	Maureen Mitton, Interior Design Visual Presentation: A Guide to graphics, models and presentation techniques, 3rd edition, wiley publishers, 2007
2	MogaliDelgadeYanes and Ernest Redondo Dominquez, Freehand drawing for Architects and Interior Designers, ww.Norton& co., 2005
3	Francis D.Ching, Design Drawing, Wiley publishers
4	Thoms, E.French. Graphics Science and Design, New York: MC Graw Hill.

B. Des.

SEMESTER – I

**BASICS OF VISUALIZATION AND REPRESENTATION**

Course Code	Course Name	L	T	P	IM 60 %	EM 40 %	Total	Cr
B11D05-CP02	Basics of Visualization and Representation	2	0	4	120	80	200	4

**COURSE OUTCOMES**

1	To understand the subject and scales and sciography
2	To impart knowledge about orthogonal projection
3	To learn about projection of various solids and their combinations
4	To understand the development of surfaces and intersection of surfaces
5	To learn to draw the isometric projection of planes, and objects

**UNIT 1 -SCALES**

Introduction to subject and necessary instruments of drawing. Different types of lettering for titles and annotation of drawings. Introduction to various types of lines such as outline, construction line, centre line etc. Knowledge to draw straight & curved lines with different qualities. Terminology & abbreviations used in drawings. Learning good lettering to improve and maintain quality of presentation. Use of scale in drawings and their use in practice & construction of plain & diagonal scale. Reduction and enlarging of given drawings

**UNIT 2-PROJECTIONS**

Learning meaning of terms 'Plan and Elevations' and using them for drawing simple objects through orthographic projections. Orthographic projection of lines for any given condition determination of true length, traces and inclinations to the planes of projection of any given line. Traces of planes, plane figure inclined to one or both the reference planes. Simple solids like prisms, pyramids, tetrahedron cone, spheres in different position to the reference plane.

**UNIT 3-SOLIDS**

Different ways of presentation of solids in 3D projections like Axonometric, Isometric, oblique. Learning principles of solids, applying them to work out and drawing developed surfaces of simple geometric solids and using them to make models of some of them. Section planes in different angles, drawing of true section and introduction of slicing method. Interpenetration of solids.

**UNIT 4 - SCIOGRAPHY**

Introduction to sciography, understanding shade & shadow, umbra & penumbra, Principles of conventional angle of light and its rays acting as a projectors to cast shadow of simple plane. Studying sciography and methods of representing it in 2D projections. Applying sciography to 3D geometrical projections especially Isometric projections.

**UNIT 5 –MATERIAL PROJECTIONS**

Understanding basic principles of perspective drawings. Introduction of basic elements such as station point, picture plane, eye level, centre of vision, cone of vision, vanishing points etc. Drawing one point and two point perspectives through plan and elevation method, plan and vanishing points method & measuring point method. Types of perspective projections such as one point, two point, three point, worm's eye view, bird's eye view, Normal view etc.

**REFERENCE BOOKS**

1	N.D.Bhatt, 'Elementary Engineering Drawing', 53rd edition, Charotar, 2014
2	CariLaraSvensan and William Ezara Street, 'Engineering Graphics',
3	K. Venugopal, 'Engineering Drawing and Graphics', New Age Publishers, 2004.



4	S. Rajaraman, 'Practical Solid Geometry'
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**B. Des.****SEMESTER – I****BASIC DESIGN – I**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B1ID06-CP03	Basic Design – I	1	0	4	90	60	150	3

**COURSE OUTCOMES**

1	To possess a comprehensive understanding of the historical evolution of Fine Arts, interdependencies between Visual Arts and related disciplines, and familiarity with the life and works of influential artists.
2	To master fundamental theories of visual perception, gaining proficiency in applying principles such as proximity, repetition, continuity, and figure-ground relationship, as well as exploring the elements of Line, Form, Colour, Texture, and Space.
3	To develop advanced skills in art and design, including the application of principles such as Balance, Proportion, Harmony, Contrast, and Emphasis, as well as ordering principles like Axis, Symmetry, Hierarchy, Datum, Rhythm, and Repetition in both two-dimensional compositions and architectural expressions.

**UNIT 1 – ELEMENTS OF VISUAL ARTS**

Brief historical review of Fine arts and interdependency of Visual arts, Architecture, painting & sculpture. Exposure to the life & works of famous artists & art forms. Theories related to visual perception –Proximity, repetition, simplest and largest figure, continuity & closure, Figure & ground relationship. Study of Line, Form, Colour, Texture, Space through Observation, Perception and Expression. Study of classification of colours with different hues, values and shades. Colour wheel and colour composition, Properties of colour.

**UNIT 2 - PRINCIPLES OF ART AND DESIGN**

Exploration of the basic principles of composition such as Balance, Proportion, Harmony, Contrast, Emphasis, character with building examples. Ordering principles such as Axis, Symmetry, Hierarchy, Datum, Rhythm & Repetition etc. and its role in architectural expression.

**UNIT 3 – TWO DIMENSIONAL EXPLORATIONS**

Introduction to Principles of Organization/ Composition. Study of Visual properties of 2-Dimensional forms both Geometrical & Non-Geometrical surfaces and visual textures, optical illusions etc. Emphasizing on Elements and Principles of Art and Design by Composing Shapes and Forms in Various Mediums.

**UNIT 4 – INDOOR AND OUTDOOR SKETCHING**

Learning to Draw by Seeing and Observing. Free hand line sketching and drawing of natural & manmade, Still and Moving Objects such as Human Figures, Vegetation, Automobiles, Historic or new built up structures etc.

**UNIT 5 – RENDERING**

Shading Techniques using Materials such as Pencils, Pencil Colours, Water Colours, Poster Colours, Pen and Ink, charcoal & crayons for development of environmental and architectural ideas. Simple geometric objects, complex geometries and objects in nature & Architecture, shade and shading techniques.

**REFERENCE BOOKS**

1	Robert Gill, "Rendering with pen and ink", Thames & Hudson 1990
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2	Gianni A. Sarcone, "Drawing & Illustration", Arcturus Publication 2012
3	Otto G. Ocvirk, "Art Fundamentals", Mcgraw Hill 2006
<b>B. Des.</b>	
<b>SEMESTER – I</b>	

### MODEL MAKING

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B11D07-CP04	Model Making	1	0	2	60	40	100	2

#### COURSE OUTCOMES

1	To learn scale and techniques to make simple form models.
2	Developing hand on experience and applying techniques to make clay models.
3	Developing hand on experience and applying joinery techniques to make wooden models.
4	Developing photography skills.

#### UNIT - 1: MODEL MAKING:

- (a) Surface Modelling: Basic geometry like cube, cuboid, cylinder, cone, pyramids by single surface development through cutting and pasting.
- (b) Form Modelling: basic geometry by using thermocol & various solid materials to understand the characteristics of materials.

#### UNIT - 2: MODEL MAKING (ADVANCE):

Study of complex figures to achieve complexity in model making, with addition & subtraction in basic geometry by using paper, mount sheet, mount boards etc.

#### UNIT - 3: PHOTOGRAPHY:

About the Types of Camera, accessories, lenses, films their usages, setting of camera, aperture, & Shutter speed settings, compositions with respect to view finder, E.V. value colour, white balance, I.S.O. & Exposure.

#### UNIT -4 : CARPENTRY & METAL WORKSHOP:

Types of joint in wood such as butt, dovetails, rebate, tongue and groove etc. how to cut and weld the metal, molding, bolting, usages of fabrication in architecture.

#### UNIT -5 : MODELING & CASTING TECHNIQUES:

volumetric study using clay and Plaster of Paris, Clay Modeling, Types of Clay, Casting in Plaster of Paris and other materials.

#### REFERENCE BOOKS

1	PyoMi Young: Construction and Design Manual: Architectural Models
2	ArjanKarsen& Bernard Otte : Model Making- Conceive, Create and Convince

**B. Des.****SEMESTER – I****COMPUTER APPLICATION - I**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B11D08-CP05	Computer Application - I	0	0	2	30	20	50	1

**COURSE OUTCOMES**

1	Introducing basic computer skills as relevant to the profession
2	To learn word and image processing to make short reports and seminar presentations
3	To understand the co-ordinate systems, UCS, shortcuts in AutoCAD
4	To work on drafting a plan with dimensioning and layers

**UNIT 1 – WORD PROCESSING**

Basic templates for creating text documents, editing, formatting, spelling/grammar check, dictionary and thesaurus, page layout, fonts, indentation, inserting tables and images, document review and annotation in software like MS Word.

**UNIT 2 – NUMERICAL PROCESSING**

Preparing and editing spreadsheets in software like MS Excel. Collating raw data into numbers for analytical use.

**UNIT 3 – M.S. POWERPOINT**

Slide Presentations in software like MS PowerPoint, insertion of drawings, audio/video clips.

**UNIT 4 – COMPUTER APPLICATIONS**

Introduction to Computer Applications in Architecture. Introduction to drafting and modeling software relevant to architecture viz. AutoCAD, Proge CAD, ZWCAD, Draft sight, Google Sketchup, 3ds Max etc.

**UNIT 5 – BASICS OF AUTOCAD**

Simple exercises in to 2D CAD software (AutoCAD/Revit) specifically for proficiency of, drawing/editing objects, text, dimensioning, making and inserting blocks, etc. and an understanding of units settings, scale, limits, line type, line weight, layers, colours, and print commands.

**REFERENCE BOOKS**

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

**B. Des.****SEMESTER – I****COMMUNICATION SKILLS**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B11D09-CP06	Communication skills	0	0	2	30	20	50	1

**COURSE OUTCOMES**

1	Enhance the communicative competence with focus on syntax and fluency
2	Excel in oral and written medium and prepare them for employability

**UNIT 1 – IMPORTANCE OF COMMUNICATION**

Communication: Importance of Communication; Elements of good individual communication; organizing oneself; different types of communication; Barriers in the path of Communication  
Suggested Reading: Daily Newspaper, E newspaper

**UNIT 2 –LISTENING SKILLS**

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

**UNIT 3 – CREATIVE WRITING SKILLS**

Creative Writing: Scope of creative writing; Report Writing, Paragraph, Letter Writing (formal and Informal), Memo, Circular, Preparation of Agenda, Minutes of the meeting, Notice, Description of projects and features  
Suggested Reading: Daily Newspaper, E newspapers

**UNIT 4 –SPEAKING SKILLS**

Speaking: How to converse with people, how to communicate effectively; Pronunciation drills, Phonetics, vowels, Diphthongs, consonants, Dialogue and Conversational skills, Role play, Telephone etiquette. Interview technique, preparing for interviews (HR questions)  
MockInterviews

**UNIT 5 –DIGITAL COMMUNICATION**

Impact of internet on communication; communication through computers; voice mail; broadcast messages; e-mail auto response; etc. Video conference; Tele conference  
Suggested Reading: Daily Newspaper, E newspapers

**REFERENCE BOOKS**

1	Professional Speaking Skills by ArunaKoneru, Oxford University Press, 2017
2	Krishna Mohan &MeeraBanerji: Developing Communication Skills Macmillan India ,2 <sup>nd</sup> edition,2009
3	K. Ashwathappa: Organizational Behavior, Himalaya Publishing House

**B. Des.****SEMESTER – II****ADVANCED THEORY OF DESIGN**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B2ID01-CT04	Advanced Theory of Design	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand the articulation of roof plane in interior spaces
2	To understand the articulation of wall and floor plane in interior spaces
3	To analyze and understand the organization of various forms to define spaces
4	To understand the concept of function relationship and its outcome of circulation through spaces
5	To understand the design theories of Architects

**UNIT 1 - BUILDING COMPONENTS AND DESIGN –ROOF PLANES**

Role of roof planes in defining the ambience of an interior space – manipulation of roof planes – example across typologies.

**UNIT 2 - BUILDING COMPONENTS AND DESIGN – WALL AND FLOOR PLANES**

Role of wall planes in defining the ambience of an interior space – manipulation of wall planes – example across typologies - Role of floor planes in defining the ambience of an interior space– example across typologies.

**UNIT 3 – ORGANISATION OF FORMS**

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

**UNIT 4 – CIRCULATION**

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

**UNIT 5 – APPLICATION OF DESIGN THEORIES**

Small exercises to understand how theories come together to create good design – application of theories within typology and across typologies

**TEXT BOOKS**

1	Francis D. K. Ching, 'Architecture - Form, Space and Order', Van Nostrand Reinhold Company, 2007
2	V.S.Pramar, 'Design Fundamentals in Architecture', Somaiya Publications, New Delhi, 2007

**REFERENCE BOOKS**

1	Leland M.Roth, 'Understanding Architecture', Routledge; 3 edition, 2013
2	Foundations in Architecture: An Annotated Anthology of Beginning Design Project, Van Nostrand Reinhold NY, 1993.
3	Logic and Design in Art, Science and Mathematics by Krome Barratt, Globe Pequot Press, 2005.

**B. Des.****SEMESTER – II****HISTORY OF INTERIORS–II**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B2ID02-CT05	History of Interiors–II	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand various architectural and interior elements from the ancient civilizations
2	To review the classic styles and oriental influences from the past
3	To understand how various styles from Europe shaped Architecture and interiors during the middle ages
4	To understand the role of decorative styles in history of architecture and interior design
5	To appreciate various styles learnt through individual designs across diverse range of sources.

**UNIT 1 - ELEMENTS OF STYLE**

Elements of style and determinants of Interior environments in Ancient Civilization: emphasis shall be on Architectural elements, furniture, decorative arts, colours & materials. Egyptian - Indus Valley Civilization The ancient Near East

**UNIT 2 - CLASSICAL WORLD AND ORIENTAL INFLUENCES**

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

**UNIT 3 – FROM THE MIDDLE AGES TO RENAISSANCE**

Early Christian and Byzantine, Romanesque and Gothic, Renaissance.

**UNIT 4 – DECORATIVE STYLES**

Ornamentation and decoration - Baroque, Rococco, and other royal styles

**UNIT 5 – APPLICATION OF STYLES IN INTERIORS**

Exercises involving mix and match across styles involving eclectic compositions across typologies and themes.

**TEXT BOOKS**

1	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.
2	Giedion Sigfried, Space, Time and Architecture: The growth of a new tradition, 5th ed. Harvard University Press, Cambridge, 2008

**REFERENCE BOOKS**

1	Pile. F John, Gura Judith (2013) A History of Interior Design, Wiley, New York, 4th edition
2	Sir Banister Fletcher, A History of Architecture, CBS Publications (Indian Edition), 20th Edition 2002.

**B. Des.****SEMESTER – II****ENVIRONMENTAL SCIENCE**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B2ID03-CT06	Environmental Science	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand our natural resources, ecosystem and the biodiversity of the planet
2	Obtain basic knowledge on environment pollutions, its types and pollutants
3	Understanding the Social Issues and the impact of Population on the Environment
4	To understand the role of Designers in Preservation and conservation of Environment.

**UNIT 1 - INTRODUCTION TO WORLD ART & CULTURES**

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

**UNIT 2 – ECOLOGY & ECO SYSTEMS**

Structure and function of an ecosystem, Fundamentals of Ecology, Types of Eco system, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

**UNIT 3 – BIODIVERSITY AND ITS CONSERVATION**

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

**UNIT 4 – ENVIRONMENTAL POLLUTION**

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

**UNIT 5 – SOCIAL ISSUES AND THE ENVIRONMENT**

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

**REFERENCE BOOKS**

1	Cunningham, W.P. Cooper T.H. Gorhani, E& Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
2	Text Book for environmental Studies For UGC, Er ach Bharucha, 2004
3	Ecology & Environment – P.D Sharma.

**B. Des.****SEMESTER – II****COMPUTER APPLICATION - II**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2ID04-CP07	Computer Application II	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand the basics of 3D drawings with sketch up software
2	To understand the theory behind 3d modeling with wireframe structures
3	To apply the various commands in REVIT and create architectural drawings
4	To explore on the solid modeling techniques in the software
5	To understand the rendering and presentation techniques for a drawing

**UNIT 1 - SKETCH UP Basics**

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

**UNIT 2 - 3DMAX Basics**

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

**UNIT 3 – REVIT (2D + 3D IN SAME PLATFORM) Basics**

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

**UNIT 4 – SOLID MODELING (TRANSFORMING SPACES)**

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

**UNIT 5 – RENDERING & PRESENTATION TECHNIQUES**

Rendering and presentation. Printing and plotting. (V ray, In design, Illustrator, Lumion)

**TEXT BOOKS**

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



**B. Des.****SEMESTER – II****ADVANCED VISUALIZATION AND REPRESENTATION**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2ID05-CP08	Advanced Visualization and Representation	1	0	4	90	60	150	3

**COURSE OUTCOMES**

1	To acquire proficiency in pen and brush techniques, mastering exercises in shapes, lines, and textures as a foundation for artistic expression.
2	To develop advanced rendering skills, including tonal values, gray scales, color studies, and perspective drawing in various media, fostering a nuanced understanding of visual representation.
3	To achieve a holistic mastery of artistic elements, integrating landscape elements, human figures, shadows, and complex geometries to create compelling and realistic perspectives, enhancing their ability to communicate visually.

**UNIT 1 – PENS & BRUSHES**

Introduction to pen and brush exercises – Simple exercises of shapes and lines, lines and textures, pen lines, ruling with pen and brush, brush lines etc.

**UNIT 2 - TONES AND RENDERING**

Tones and Rendering – tones in pen drawings, value scales, Gray values, Grading tones etc. Simple exercises of tonal values and textures with pen. Color study, monochrome and wash rendering etc. Rendering of the perspectives in different media through drawing pencil, sketch pen, pencil color, monochrome, wash rendering etc.

**UNIT 3 – LANDSCAPE AND SHADOWS**

Integrating landscape elements, human figures, shadows, foreground etc in the perspectives.

**UNIT 4 – SCIOGRAPHY**

Introduction to Sciography – Simple and composite forms, shadows on horizontal, vertical planes and on their own surfaces. Study of shade and shadows of simple geometrical solids of various forms and groups of forms in Interiors.

**UNIT 5 – PERSPECTIVE**

Perspective: Characteristics of perspective drawings, perspectives of simple geometric solids and Spaces and complex geometries. Advanced examples in one point or parallel perspective, two point Interior perspectives of rooms. Introduction to three-point perspective of furniture.

**TEXT BOOKS**

1	Maureen Mitton, Interior Design Visual Presentation: A Guide to graphics, models and presentation techniques, 3rd edition, wiley publishers, 2007
2	MogaliDelgadeYanes and Ernest Redondo Dominquez, Freehand drawing for Architects and Interior Designers, ww.Norton& co., 2005

**REFERENCE BOOKS**

1	Francis D.Ching, Design Drawing, Wiley publishers
2	Bately, Claude. Design Development of India Architecture.
3	Bellings, Lance Bowen. Perspective space and Design.
4	Conli, Claudius. Drawings by Architects.

5	Joseph D, Amelio, Perspective Drawing Hand book, Dover publications, 2004
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**B. Des.****SEMESTER – II****BASIC DESIGN – II**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2ID06-CP09	Basic Design – II	1	0	4	90	60	150	3

**COURSE OUTCOMES**

1	Ability to identify and analyze the elements, principles and vocabulary of three-dimensional design
2	To generate design module and use anthropometry as a tool in design
3	To understand and create spaces of comfort and spatial quality

**UNIT 1 – FORM**

Form and nature, Visual and emotional effects of geometric forms and their derivatives – sphere, cube, pyramid, cylinder, cone etc. Properties of forms. Transformation of forms such as dimensional, subtractive, additive forms. Articulation of forms.

**UNIT 2 - SPACE**

Space defining elements – horizontal and vertical elements, Openings in space defining elements, spatial relationship, spatial organization.

**UNIT 3 – ANTHROPOMETRY**

Space and human activity. Average measurements of human body in different postures, its proportion and graphic presentation. Basic human functions and their implications for space requirement. Minimum and optimum areas for various functions.

**UNIT 4 – PROPORTION AND SCALE**

Visual and Human scale, Theories of proportions – Modular theory, golden section, Ken, etc. Application of these theories in Nature, Art & Architecture.

**UNIT 5 – 3D EXPLORATIONS**

Study of 3D Forms using principles of Design like repetition, symmetry, rotation, rhythm etc. for making murals, sculptures, installations using different materials like clay, plaster of Paris, wood, paper, metal etc. Abstraction used as basis of development of ideas.

**TEXT BOOKS**

1	Francis D.K. Ching, “Architecture Form, Space & Order”, John Wiley & Sons, Incorporated 2007
2	Simon Unwin, “Analysing Architecture”, Routledge 2003

**REFERENCE BOOKS**

1	Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
2	Francis.D. Ching& Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004.

**B. Des.****SEMESTER – II****CONSTRUCTION MATERIALS AND TECHNIQUES-I**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2ID07-CP10	Construction Materials and Techniques I	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To Understand the stone varieties and properties to use in interior building industry.
2	To Understand the Earth, Soil And laterite and their varieties and properties to use in interior building industry.
3	To Understand the brick, clay products & pozzolanas varieties and properties to use in interior building industry.

**UNIT 1 - BUILDING STONES**

Classification of rocks, Quarrying of building stones, Properties of building stones, Common building stones and their uses, Qualities of good building stones, Defects in stones and their remedial measures, Physical tests on stones such as absorption test, hardness test, crushing test etc., Artificial stones, Dressing and various finishes on stones. B.I.S. specification for stones.

Various building elements such as foundation, wall, roof/floor and openings using stones in load bearing construction. Classification of arches. Construction of staircase, ramp, retaining wall, columns and piers in stone. Use of stone in various building components such as door window frame, lintel, sill, etc.

**UNIT 2 - EARTH, SOIL AND LATERITE**

Types and Properties of Earth, Soil and Laterite. Construction systems such as adobe, rammed earth, wattle and daub, CSEB etc., Problems of Earth, Soil and Laterite construction and their remedial measures. Soil stabilizers, Physical tests on earth, soil & laterite, BIS specification Various building elements such as foundation, wall, openings using earth, soil and laterite in load bearing construction. Construction of staircase, ramp, retaining wall, Column and Piers in earth, soil and Laterite. Adobe, rammed earth, wattle & daub construction in mud.

**UNIT 3 – BRICKS**

Composition of good brick earth, Manufacturing of bricks, Properties of bricks, Qualities of good bricks, Classification of bricks, Market forms of bricks such as hollow brick, bullnose brick, perforated, etc. Uses of bricks in building, storage of bricks, Physical tests for bricks, Brick substitutes, BIS specifications. Various building elements such as foundation, wall, roof, floor and openings using bricks in load bearing construction. Special bonds in brick such as rat trap bond, herring bone bond, etc. Details at junctions and quoins. Construction of staircase, ramp and retaining wall in Brick.

**UNIT 4 – CLAY PRODUCTS & POZZOLANAS**

Types of Tiles, Characteristics of a good tile, Manufacture of tiles, Earthenware, Stoneware, Porcelain, Clay blocks. Natural & Artificial Pozzolanic materials, Advantages of addition of pozzolanas, Storing of pozzolanas, Chemical & physical characteristics of fly ash. BIS specifications. Various building elements such as roof and floor using clay products such as roof and floor tiles. Use of clay products in various building components.

**UNIT 5 – PROTECTIVE FINISHES, MACHINES & EQUIPMENTS**

Protective finishes on building stones, earth laterite bricks and clay products. Protective finishes such as Damp proofing and water proofing in case of construction in stones, earth, laterite and bricks. Study of Machines & Equipments for manufacturing, transportation, preparation and laying of building stone, earth, brick and clay products. Drawings of machines and equipments used for manufacturing, transportation, preparation and lying of building stone, earth, brick and clay products.

**REFERENCE BOOKS**

1	Rangwala, S.C. Building Construction 22nd ed. Charota Pub. House Anand, 2004.
2	Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi, 2003.

**B. Des.****SEMESTER – II****VALUE AND ETHICS**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B2ID08-CP11	Value and Ethics	1	0	0	30	20	50	1

**COURSE OUTCOMES**

1	Understanding values and its importance in current scenario
2	Understanding human rights and identifying social evils
3	Spreading awareness amongst others to help curb injustice and spread human values

**UNIT 1 - NEED FOR STUDY**

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

**UNIT 2 - PERSONAL VALUES**

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

**UNIT 3 – SOCIAL VALUES**

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

**UNIT 4 – PROFESSIONAL VALUES**

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

**UNIT 5 – BEHAVIOURAL VALUES**

Behavioral values – Individual values and group values. Anger: Investigation of reasons, watching one’s own anger; Understanding anger as: a sign of power or helplessness, distinction between response and reaction. Right utilization of physical facilities. Determining one’s needs, needs of the self and of the body, cycle of nature. Relationship with teachers. Inside the class, and outside the class, interacting with teachers. Complimentary nature of skills and values. Distinction between information & knowledge Goals: Short term goals and long term goals; How to set goals; How to handle responsibilities which have to be fulfilled while working for goals.

**TEXT BOOKS**

1	Values (Collection of Essays)., Published by : Sri Ramakrishna Math.,Chennai— (2008)
2	Prof. R.P.Dhokalia., Eternal Human Values NCRT – Campus Sri Aurobindo Marg., New Delhi
3	Holy Books of all religions



**B. Des.****SEMESTER – II****INTERIOR SPACE DRAWING**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B2ID09-CP12	Interior Space Drawing	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand how to represent an interior space using multi-view drawings
2	To understand material texture, light and shadows and its use in interior space perception
3	To learn 3 dimensional presentation techniques of interior spaces. Isometric, Perspectives, Exploded isometrics
4	To enable student to produce working drawings of an interior space with material specifications

**UNIT 1 – MULTI VIEW DRAWINGS OF AN INTERIOR SPACE**

Orthographic representation of interior space. Plans, Sectional Elevations.

**UNIT 2 – MATERIAL TEXTURES, LIGHT & SHADOW**

Presentation of interior multi view drawings with use of material textures, light and shadows, using different mediums, hand drawn and digital.

**UNIT 3 – ISOMETRIC DRAWINGS OF INTEIOR SPACE**

Interior space representation, furniture using isometric drawings. Exploded isometrics of furniture details.

**UNIT 4 – PERSPECTIVE DRAWINGS OF INTEIROR SPACE**

Interior space representation using one point, two point perspectives.

**UNIT 5 – WORKING DRAWINGS**

Material specifications, representation of details for execution.

**TEXT BOOKS**

1	Francis D K Ching, Architectural Graphics
2	Kilmer, Working Drawings & Details for Interiors, John Wiley & Sons., 2009

**REFERECE BOOKS**

1	Dr. B.C Punmia , Building construction , Laxmi publications Pvt. Ltd., New Delhi, 1993.
2	Francis D. K. Ching - Building Construction Illustrated, VNR, 1975
3	W.B.Mckay, Building construction, Longmans, UK 1981
4	Design Sketching, Eric Olofsson, lara Sjolen

**B. Des.****SEMESTER – III****INTERIOR LANDSCAPE**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B3ID01-CT07	Interior Landscape	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To learn the basic palette of design outside the premise of the built envelope
2	To get an in-depth knowledge of plant life and the science behind their life
3	To learn way of using plants as a design element and understand its visual and physical dimensions
4	To understand the role of hardscape elements and assess their role individually
5	To explore the application of various tools in specific spatial context

**UNIT 1 - LANDSCAPE AND BUILT ENVIRONMENT**

Introduction and role of landscape design in the built environment. Types of natural elements – stones, rocks, pebbles, water forms, plants and vegetation. Introduction to the study of plants in relation to landscape design and interiors. Types of indoor plants, visual characteristics: i.e., color, texture, foliage. Indoor plants and their visual characteristics-Science of maintaining and growing greenery

**UNIT 2 - VISUAL PERCEPTION**

Flowers- its colors, texture and its visual perception in various indoor spaces and science of flower arrangement Indoor plants in Indian context. Plant biology, soil, moisture, light nutrient, atmospheric conditions, growing medium, pests & diseases. Botanical nomenclature, anatomy and physiology of plant growth. Market survey and costs.

**UNIT 3 – DESIGN WITH PLANTS**

Design with plants – Basic principles of designs. The physical attribute of plants and relation to design. Appearance, functional and visual effects of plants in landscape design and built environment. Selection and management of plant material in relation to the built environment

**UNIT 4 – HARDSCAPE**

Design concepts related to use of paved area, pathway, verandahs and patios, sculpture, lightings, garden furniture, architectural feature and grouping them into meaningful compositions for visual and functional effects.

**UNIT 5 – LANDSCAPE DESIGN PARAMETERS**

Landscaping design parameters for various types of built forms- indoor and outdoor linkage to spaces. Landscaping of courtyards, terrace gardens/ Balcony Gardens - residential and commercial forms. Automatic irrigation costing and installation of micro irrigation systems.

**TEXT BOOKS**

1	Joseph De Chiara, Julius Panero, and Martin Zelnik Time-Saver Standards for Interior Design and Space Planning, 2nd edition, Mc-Graw Hill Professional, 2001.
2	Andreas Uebele, Signage Systems and Information Graphics , Thames and Hudson, 2007
3	Craig Berger, Wayfinding: Designing and Implementing Graphic Navigational Systems, Rotovision, 2009.

**REFERECE BOOKS**

1	Chris Calori, Signage and Way finding Design: A Complete Guide to Creating Environmental Graphic Design Systems, Wiley and sons, 2007.
2	David Gibson, The Way finding Handbook: Information Design for Public Places, Princeton Architectural Press; 1st edition, 2009.



3	Rayan Abdullah and Roger Hubner, Pictograms, Icons and Signs, Thames and Hudson, illustrated edition, 2006
<b>B. Des.</b>	
<b>SEMESTER – III</b>	

### HISTORY OF INTERIORS III

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B3ID02-CT08	History of Interiors III	2	0	0	20	80	100	2

#### COURSE OUTCOMES

1	To understand the importance of culture and tradition in interior
2	To understand the shapes and patterns that emphasize the elements in interiors
3	To learn the different types of materials that could bring changes in the country
4	To understand about imperialism and colonialism in Indian context
5	To learn about the different contemporary styles in interiors

#### UNIT 1 - INTERIOR SPACE AND RELIGION- BUDDHIST, JAIN AND HINDU

Buddhist, Jain and Hindu faith - Harmony between architecture and interior in religious spaces – the play of light and shadow – art, sculpture, mouldings, wall treatments, roof treatments, floor treatments – interiors as reflection of the faith – examples and case studies across faiths

#### UNIT 2 - INTERIOR SPACE AND RELIGION – CHRISTIAN AND ISLAMIC

Christian and Islamic faith - Harmony between architecture and interior in religious spaces – the play of light and shadow – art, sculpture, mouldings, wall treatments, roof treatments, floor treatments – interiors as reflection of the faith - – examples and case studies across faiths

#### UNIT 3 – REGIONAL VERNACULAR INTERIORS

Elements of style, materials and concepts of interiors in vernacular secular architecture across North and South India -Jammu and Kashmir – Gujarat – Goa - Kerala – Tamil Nadu – examples and case studies

#### UNIT 4 – IMPERIALISM AND COLONIALISM IN INDIA

Elements of Style - Ornamentation and decoration – quality of space – Colonial, Regency, Indo Sarcenic - examples and case studies

#### UNIT 5 – APPLICATION OF STYLES IN INTERIORS

Range of contemporary Indian interiors – constituents of ‘earthy Indian interiors’ – Colors, materials, motifs and elements associated with Indian Interiors. Exercises and case studies

#### TEXT BOOKS

1	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
2	Elaine, Michael Dywer, Christopher Mackinnon, Norman A. J. BerisfordDenby , A History of Interior Design, Rhodoc International, 2000
3	GiedionSiegfried, Space, Time and Architecture: The growth of a new tradition, 5th ed. Harvard University Press, Cambridge, 2008

**B. Des.****SEMESTER – III****BASICS OF INTERIOR SERVICES**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B3ID03-CT09	Basics of Interior Services	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To identify the domestic water supply system and design the size of the tank
2	To identify and differentiate the various sanitary fitting in the domestic setup
3	To understand the appropriate sanitary system with respect to the layout and the economics
4	To know the waste management system in residences and rain water harvesting.
5	To understand the various electrical appliances, their symbols and their installations with respect to NBC and prepare the electrical layout for the interiors.

**UNIT 1 - WATER SUPPLY**

General idea of sources of water supply. Standards for quality of water. Domestic water systems, suction and storage tanks and their capacity. Pipes and their sizes and jointing. Consumption of water. Down take supply to various fittings

**UNIT 2 - SANITARY FITTINGS**

Types of fittings like taps, ball valves, hot water supply systems, bathtubs, showers, jets, cocks, valves etc. Faucets for kitchens, bathrooms and toilets. Check valves, foot valves, sump pump check valves

**UNIT 3 – SANITATION**

Basic principles of sanitations and disposal of waste materials from buildings. Connection to outdoor drainage system, size requirements, types of pipes available in the market. Water carriage systems, standard sanitary fittings, traps, pipes and their jointing. Flushing systems. Bathroom interior layouts, extensive market survey of products available, economics of products available, fixing of the products with other finishing materials.

**UNIT 4 – SOLID WASTE**

Waste management : Refuse, different forms of refuse garbage, house refuse , refuse chutes , rainwater harvesting etc

**UNIT 5 – ELECTRICITY**

Electrical Installations: Building wiring system. Service wires, metering distribution boards, circuits, MCB cutouts. Conductors, wiring methods, switch boards, electrical devices in the buildings, light and power circuits. Indian electricity rules, relevant provisions of NBC. Preparation of electrical layout scheme for a interior using standard electrical symbols

**TEXT BOOKS**

1	Rangwala, S.C. water supply and Sanitary Engineering : Environmental Engineering, Charotar pub house, Anand, 2008
2	Electrical wiring and contracting (vol. 1 to vol.4), London. The New era Publishing Company
3	DrFrithAbnwos and others, Electrical Engineering hand book.
4	William . J. Guinness, Mechanical and Electrical Systems for Buildings, New York :McGraw Hill.

**B. Des.****SEMESTER – III****COMPUTER APPLICATION III**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3ID04-CP13	Computer Application III	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To acquire advanced proficiency in BIM commands, enabling them to model complex building forms, design roofs and staircases, and customize architectural elements with precision.
2	To master scheduling techniques, creating detailed documentation schedules for doors, windows, and walls, and utilizing advanced formatting and calculation methods, while seamlessly extracting information for external applications like MS Excel.
3	To develop expertise in light and energy analysis within BIM, incorporating interior and exterior lighting, conducting solar studies, and creating animated simulations, contributing to informed decision-making for sustainable and efficient building design.

**UNIT 1 - ADVANCE BIM COMMANDS**

Complex modeling: Creating complex building forms by using massing i.e. blend mass, mass by extrusion, creating voids in them. Roofs: Creating various type of roofs i.e. flat roof, sloped roof designing roof in elevation views, defining slope and creating openings in roof slab, insertion of layers in roof slab. Staircase: Creation of various types of staircase and ramp i.e. straight, dog legged, spiral etc. Designing and customization of staircase as per requirement.

**UNIT 2 - SCHEDULING**

Creating various schedule for documentation purpose. Type of schedule i.e. door, window, wall etc. Insertion of various fields in schedule i.e. type, width, cost etc. Formatting and calculating totals. Extracting information to external utilities like MS Excel.

**UNIT 3 – LIGHT AND ENERGY ANALYSIS**

Using BIM for simple lighting and energy analysis. Insertion of various interior and exterior lights and its customization. Creating sun path and animation of solar study of a whole day.

**UNIT 4 – IMPORT AND EXPORT OPTIONS**

Import and export the file into other file formats i.e. JPEG, PDF, CAD etc. for printing, rendering and documentation purpose. Advance print options for setting paper size, orientation.

**UNIT 5 – RENDERING**

Applying various materials, scale, render quality, setting backgrounds etc. Creating moving animations and saving it in various formats.

**TEXT BOOKS**

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

**B. Des.****SEMESTER – III****INTERIOR DESIGN STUDIO –I**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3ID05-CP14	Interior Design Studio –I	1	0	8	180	120	300	5

**COURSE OUTCOMES**

1	To emerge as skilled designers, proficient in anthropometry, creative conceptualization, and graphic communication, with a comprehensive portfolio reflecting their ability to address diverse design challenges through thoughtful application of design principles.
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The primary focus should be on

- Anthropometry
- Design methodology
- Conceptual exploration and representation.
- Creativity
- Scale/ proportion
- Documenting space
- Graphic design (page layout and composition)
- Concepts sketching
- Application of design principles and elements
- Portfolio development

The list of suggested topics to be covered as design problems shall be a single space like: Single room residence, Doctor's clinic, kindergarten class room, Crèche, Architect's studio, Lawyer's office, small cafeteria, bank extension counter, florist shops, medical outlets, clothing store, shoe store, accessory store, book shop, waiting lounges for – hospitals, corporate, hotels, etc. Note: At least three major exercises and four minor design/time problems should be given.

Internal marking shall be done in stages project wise:

- Schematic layouts
- Final layout
- Sectional elevations
- Typical details
- Complete project with all details

3D drawings with colour rendering

**TEXT BOOKS**

1	Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
2	Francis. D. Ching & Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004.
3	Maureen Mitton, Interior Design Visual Presentation: A Guide to Graphics, Models, and Presentation Techniques. John Wiley and Sons, 2003
4	Robert Rengel, Shaping Interior Space, Fairchild Books & Visuals ,2002



<b>B. Des.</b>	<b>SEMESTER – III</b>
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**CONSTRUCTION MATERIALS AND TECHNIQUE-II**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3ID07-CT16	Construction Materials and Technique II	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To Understand Lime and Sand and their properties to use in interior building industry.
2	To Understand Cement as building material and uses in interior industry.
3	To Understand the varieties and properties of Timber to use in interior building industry.
4	To Understand the varieties and properties of Industrial Timber to use in interior building industry.

**UNIT 1-LIME AND SAND**

Sources of lime, Classification of lime & their characteristics, Manufacturing of lime, uses of lime in building elements and components, Building limes according to BIS. Natural sources of sand, classification of sand, properties of sand, classification of Mortars, proportion of lime mortar. Various building elements such as foundation, wall, openings using lime products. Construction of staircase, ramp and retaining wall in lime products.

**UNIT 2-CEMENT**

Introduction to Indian cement industry, Composition and properties of cement, Setting action of cement, Manufacturing of Cement, Tests and storage of cement, Varieties of cement and its application in various building elements and components. BIS Specifications. Various building elements such as foundation, wall, openings using cement products. Construction of staircase, ramp and retaining wall in cement products such as hollow and perforated cement blocks.

**UNIT 3-TIMBER**

Classification of tree, Structure of tree, Defects in timber, Qualities of good timber, Preservation of timber, Seasoning of timber, Market forms of timber, Uses of timber, Indian timber trees. BIS Specifications. Details of carpentry joints in timber, wall construction in timber. Study of timber fasteners. Columns & Piers in timber. Roofs in timber. Terms used for sloped timber roofs wooden roof truss and its types, covering of sloped roof in timber with various roof covering materials. Timber flooring like woodblock and parquet floor. Doors in timber such as braced and battened, paneled, glazed and sliding. Windows in timber such as paneled, battened, glazed, top hung, pivoted, gable window, dormer window, bay window, French window, etc.

**UNIT 4-INDUSTRIAL TIMBER**

Properties of veneers, ply woods, Block board, fibre boards, Impreg timber, Compreg timber etc. Application of Industrial timber. BIS Specifications. Various building elements such as walls roof, floor and openings in industrial timber. Wall paneling and flooring construction using industrial timber. Door, windows in industrial timber.

**UNIT 5-PROTECTIVE FINISHES, MACHINES & EQUIPMENTS**

Protective finishes on lime, cement, timber and timber products. Study of machines & equipments for manufacturing, transportation, preparation and lying of lime, cement and timber & industrial timber. Drawings of machines and equipments used for manufacturing, transportation, preparation and laying of building timber and timber products. Stairs and ramps in timber.

**REFERENCE BOOKS**

1	Rangwala,S.C.Building Construction 22 <sup>nd</sup> ed.CharotaPub.HouseAnand,2004.
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2	SushilKumar.T.B.ofBuildingConstruction19thed.StandardPub.Delhi, 2003.
3	FrancisD.Ching,Building Construction Illustrated,Wileypublishers,2008.

**B. Des.****SEMESTER – III****FURNITURE DESIGN I**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B3ID08-CT17	Furniture Design I	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand and use basic theories of design to develop furniture in different styles.
2	To apply principles of universal design to create comfortable furniture
3	To refer from history and other case studies to get inspired and apply learning's to their designs
4	To express concepts with appropriate terms and reflect the design by developing furniture of different categories.

**UNIT 1 – ASPECTS OF FURNITURE DESIGN**

Form, Function, Space Design, Ergonomics &amp; Human Factors, Materials

**UNIT 2 – SIMPLE FURNITURE DESIGN - RESEARCH**

Case Study, Ergonomic Study, Function and related space design.

**UNIT 3 – SIMPLE FURNITURE DESIGN - CONCEPT**

Concept generation of the selected simple furniture design.

**UNIT 4 – SIMPLE FURNITURE DESIGN – DESIGN DEVELOPMENT**

Design Development, Material Explorations, Drawings and Detail Development

**UNIT 5 – SIMPLE FURNITURE DESIGN – FINAL PROTOTYPE & DESIGN**

Scaled models, 1:1 Drawings, Final Presentation Drawings

**REFERENCE BOOKS**

1	Atlas of Furniture Design – Vitra Design Museum, by Marto Kries
2	1000 Chairs – Peter Fiell and Charlotte Fiell
3	More Shop Drawings for Craftsman Furniture – Robert W. Lang
4	Furniture Design – An Introduction to Development, Material, and Manufacturing – Stuart Lawson



**B. Des.****SEMESTER – IV****SUSTAINABLE DESIGN**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B4ID01-CT10	Sustainable Design	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	Illustrate the impact of buildings on environment
2	Identify the roles of human capital and interiors in indoor environment.
3	Understand the use of principles of sustainable design in interiors using real time applications.
4	Explore the energy conservation techniques in interiors and to understand the benefits of green interiors.
5	To know the various methods used to enhance the indoor quality of interiors.

**UNIT 1 – INTRODUCTION**

Concept of Sustainability ,growing recognition for sustainable design ,efficient use of natural resources , Environment and Energy cost , role of human capital , buildings impact on people and environment ,Green interiors and materials , Interiors impact on inhabitants and occupants in interior.

**UNIT 2 - SUSTAINABLE INTERIORS**

Importance of Sustainability in Interior Design- Evaluation of materials –embodied energy of interior material – its concepts and calculation – Choice of selection of materials and application in interiors – Design process and case studies with material board .

**UNIT 3 – PRINCIPLES OF SUSTAINABLE DESIGN**

Origins of sustainable development – Principles – Understanding place - connecting with nature – Understanding natural process – Understanding environmental impact - Embracing co-creative design process – Understanding Case studies relating to the above.

**UNIT 4 – GREEN INTERIORS**

Introduction to Green Interior – Energy conservation material for building – Grass wall (vertical gardens)- Grass roofing – Benefits of green interiors — Characteristics - Indoor landscape – Bio pools – Anthropometrics – use of Colour- Wall linings – Floor finishes – Ceiling finishes – Furniture and Accessories – Lighting.

**UNIT 5 – INDOOR ENVIRONMENTAL QUALITY**

Rating systems in India – Indoor air quality – Visual quality – Acoustic quality – Noise control – Control of systems – Thermal absorption – Green prefab walls – Roof treatment- people Water efficiency – waste efficiency – Environmental Quality enhancement – services(Green toilet & Green Kitchen).

**REFERENCE BOOKS**

1	Sustainability in Interior Design by Sian Moxon , Lawrence King Publishing , 2012
2	Sustainable Design for Interior Environments, second Edition, Susan M.Winchip, 2007
3	The sustainable design book by Rebecca proctor, Lawrence King Publishing 2015

**B. Des.****SEMESTER – IV****BASICS OF STRUCTURAL DESIGN**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B4ID02-CT11	Basics of Structural Design	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To be aware of various built elements used in the building construction.
2	To understand the concept of structural systems in building and their importance in load transfer.
3	To be familiar with the loads acting on building.
4	To understand behavior of buildings during the action of various loads acting on it.
5	To describe the structural properties of materials used in the building.

**UNIT 1 – BUILT ELEMENTS**

Introduction to built elements – study of built elements in the interiors with respect to materials used. Basic construction methods and general specifications. General types and classification of different types of buildings: overview of different functional, structural and architectural elements.

**UNIT 2 - STRUCTURAL SYSTEMS**

Introduction to basic structural systems, elements of structure, their functions and behavior, beams, slabs, columns, walls, foundations, frame structures, composite structures, load bearing wall systems, trusses, rigid frames, linear and curved elements, : simply supported, cantilever and overhanging beams for various loads, : effect of simple geometric forms in the overall structural behavior. Construction of elements like lintels, sunshades, staircases, arches – parts, types, types of columns – RCC, fabricated, built-up brick column, floating column, etc.,

**UNIT 3 – STRUCTURAL LOADS**

Primary and secondary forces acting on the structures – gravitational force, live load, wind, temperature variation, distribution of loads through the elements of the structural system.

**UNIT 4 – STRUCTURAL BEHAVIOUR**

Characteristic requirements of a structural design – stress and strains, strength, stiffness and stability. Discussion on factors affecting them and the ways of satisfying these requirements. Study of behavior of structures through models and testing them for given loads.

**UNIT 5 – STRUCTURAL PROPERTIES & ELEMENTS**

Structural properties of basic materials like masonry, timber, concrete and steel etc. Light weight space structure, small and large scale surface structure, integrated display system and structural elements. Structural systems and their layout for a small building. Structural systems for elements of interior spaces – false ceilings, false flooring, suspended floors & ceilings, etc. Structural system for urban interior spaces – malls, fair grounds, exhibition spaces, etc. Awnings, space frames, etc. Assignments: Sketches of various types of structures, trusses, arches, lintels, sections of chajjas, awnings, etc.,

**TEXT BOOKS**

1	Rowland J. Mainstone : Development of Structural Form
2	Rangwala : Engineering Materials
3	S.P.Bindra, S.P.Arora, Building Construction
4	B.C. Punmia : Strength of Materials vol - I

**B. Des.****SEMESTER – IV****INTERIOR SERVICES ( INTERMEDIATE)**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B4ID03-CT12	Interior Services ( Intermediate)	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand the heating, ventilation and air conditioning systems
2	To learn on the various firefighting systems and provision of fire systems in NBC
3	To learn about the vertical transportation systems in multi-storied buildings
4	To understand on the various safety and security systems.
5	To have a brief understanding on the various building management systems

**UNIT 1 – HVAC**

Heating Ventilation & Air Conditioning (HVAC) systems: Air conditioning, Mechanical ventilation – mechanical inlet and extraction systems. Functions of air conditioning, Principles of AC, capacity of AC, Types of AC systems – window AC, split, ductable, central AC and their details. Air distribution systems – ducts, air inlets.

**UNIT 2 - FIRE SAFETY**

Fire – causes and spread of fire. Design considerations for fire safety, Devices for firefighting – portable, built in wet riser system, sprinkler system, fire hydrant. Class of fire and occupancy, study of fire regulations as per NBC

**UNIT 3 – VERTICAL TRANSPORT**

Services for multi storied buildings - Vertical transportation systems – Introduction – lifts, escalators vertical & horizontal, definition, location, arrangement, structure, drives, traffic analysis, supervisory control, remote monitoring.

**UNIT 4 – SAFETY AND SECURITY**

Security and safety systems – introduction, designing a security system – burglar alarm, CCTV, central alarm systems, intrusion sensors and space sensors. Other services – cable TV, PABX, computer labs – access flooring, server rooms.

**UNIT 5 – BUILDING AUTOMATION AND ENERGYMANAGEMENT**

Building automation and energy management – Introduction, History of development of BAS, typical BAS, criteria for choosing the right BAS, open system architecture. Information technology, communications & artificial intelligence in intelligent buildings. Design in computer age, engineering intelligence through nature.

**TEXT BOOKS**

1	Rangwala, S.C. water supply and Sanitary Engineering : Environmental Engineering, 19th ed, Charotar pub house, Anand, 2004.
2	Electrical wiring and contracting (vol. 1 to vol.4), London. The New era Publishing Company
3	Dr Frith Abnwos and others, Electrical Engineering hand book.

**B. Des.****SEMESTER – IV****COMPUTER APPLICATION IV**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4ID04-CP18	Computer Application IV	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand the basics of 3D drawings with sketch up software
2	To understand the theory behind 3d modeling with wireframe structures
3	To apply the various commands in REVIT and create architectural drawings
4	To explore on the solid modeling techniques in the software
5	To understand the rendering and presentation techniques for a drawing

**UNIT 1 - RENDERING**

To introduce 2D and 3D rendering and visualization software. Basic setup including page size, resolution, colour scheme i.e. CMYK/RGB, units etc. Introduction to basic rendering tools: Selection tools i.e. lasso tool, marquee tool, magic wand tool, brush and its customization using option bar, paint bucket tool, gradient tool, text tool. Layers: Creation of new layers, arranging/merging layers applying effects using layers i.e. colour, shadow, gradient, patterns, emboss, opacity etc. Importing/ Creating patterns for hatching.

**UNIT 2 - LAYERS**

Creation of new layers, arranging / merging layers applying effects using layers i.e. color, shadow, gradient, patterns, emboss, opacity etc. Importing / Creating patterns for hatching.

**UNIT 3 – IMPORT AND EXPORT OPTIONS**

Importing and exporting 2D and 3D models to and from various software in jpeg, eps, pdf etc. Packaging and Saving high resolution images and videos.

**UNIT 4 – CREATING RENDERED IMAGES**

Exporting files into JPEG, pdf and other format.

**UNIT 5 – PRINT OPTIONS**

Page setup, Page Layout, image resolution, etc.

**TEXT BOOKS**

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

**B. Des.****SEMESTER – IV****INTERIOR DESIGN STUDIO –II**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4ID05-CP19	Interior Design studio – II	1	0	8	180	120	300	5

**COURSE OUTCOMES**

1	To understand spaces in urban context and be able to create concepts that will enhance the knowledge towards modernity
2	To explore and create spatial design with respect to different eras

The primary focus should be on –

- i. Documenting space (sketch and photo documentation)
- ii. Space planning process (block diagram, concept statement)
- iii. Concept sketching
- iv. Application of design principles and elements
- v. Creativity/ originality
- vi. Design Process/ methodology
- vii. Structural integration
- viii. Style
- ix. Colour Rendering
- x. Anthropometry and ergonomics
- xi. Furniture Design
- xii. Material selection
- xiii. Graphic design (page layout and composition)
- xiv. Portfolio development

Design portfolio to include designs in response to today's situation of urban society, i.e., Contemporary spaces required in modern society – needs, realities, value system etc.. The spaces to be considered shall be: home, office, bank, school, college, public level spaces - restaurant, lounge (hotel), etc.

The list of suggested topics to be covered as design problems:

- Thematic space making with Art and craft forms of our own culture in India – East, West, North, Central and so on and
- Design of built units of various geographical locations and culture by involving historical periods, styles and use of craft in its inherent quality and form - integrating craft and living environment.

Note: At least two major exercises and three minor time problems should be given. Internal marking shall be done in stages and project wise:

- Schematic layouts
- Final layout
- Sectional elevations
- Designs & details

**TEXT BOOKS**

1	Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
2	Francis.D. Ching& Corky Bingelli, Interior Design Illustrated, 2nd edition, Wiley publishers, 2004.

**REFERENCE BOOKS**

1	Neufert Ernest, Architect's Data, Granada pub. Ltd. London, 2000.
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2	Robert Rengel, Shaping Interior Space, Fairchild Books & Visuals, 2002.
<b>B. Des.</b>	<b>SEMESTER – IV</b>

### CONSTRUCTION MATERIAL AND TECHNIQUE-III

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4ID06-CP20	Construction Material And Techniques-III	1	0	2	60	40	100	2

#### COURSE OUTCOMES

1	To possess a comprehensive understanding of concrete materials, their properties, and the application of construction methods, enabling them to execute diverse projects with proficiency.
2	To equip students with specialized knowledge in the use of special structural concrete, polymers, plastics, and various construction materials, fostering their ability to contribute to innovative.
3	To gain practical skills in employing protective finishes, utilizing machines and equipment for manufacturing and construction, enhancing their competence in executing interior projects

#### UNIT 1–CEMENT CONCRETE

**MATERIAL:** Brief history of development of concrete, ingredients of concrete, properties of concrete like strength, durability, workability etc. BIS specification for concrete, Methods of proportioning concrete mixes, Factors effecting strength of concrete, Important operations in concreting like mixing, transporting, placing, compacting, curing & removal of form work. Tests on fresh concrete like slump test, flow test etc & on hardened concrete like compression test, tension test etc. Concreting under special condition, Guniting and Shotcrete work for repair of concrete.

**CONSTRUCTION:** Application of cement concrete in foundation, Cement concrete flooring on ground level, cement concrete floor tiles, Paver Blocks in flooring ; Cement Concrete Blocks Such as hollow, solid and cellular in wall construction along with steel bars at the junction. Application of cement concrete products.

#### UNIT 2 –SPECIAL STRUCTURAL CONCRETE

**MATERIAL:** Basic introduction to special concrete used for structural work ex reinforced concrete, Fiber reinforced concrete, Light weight concrete, fly ash concrete, High strength-high performance concrete, No-fines concrete, ready mix concrete. Introduction to theory of reinforcing concrete, Properties and advantage of reinforced concrete, types & grades of steel bars as per BIS specification, Bending and placing of reinforcement in RCC Work.

**CONSTRUCTION:** Application of RCC in various building elements such as shallow foundation for isolated column, RCC wall, DPC / Plinth & floor / roof beam. Arches & Lintels in RCC. Door, window, frames in RCC. Construction of different types of RCC stairs.

#### UNIT 3–PLASTICS & POLYMER

**MATERIAL:** Brief history of plastics, polymerization of plastics, Classification & Properties of plastics, fabrication of plastic articles, Application of plastics in building services & building construction Geosynthetics and its classification, Properties & uses of geo-textiles. Natural & synthetic rubber, Uses of rubber in building construction, Vulcanization of rubber.

**CONSTRUCTION:** Application of PVC & Rubber in various building elements & components, Vinyl, Linoleum & rubber flooring, plastic doors & windows, PVC roofing.

#### UNIT 4–ASBESTOS, ASPHALT, BITUMEN & TAR

**MATERIAL:** Introduction and history of Asbestos, Asphalt, Bitumen & Tar. Asbestos & its forms, properties, uses and harmful effects of asbestos. Asphalt & its types such as natural asphalt & residual asphalt. Bitumen & its forms in the market, Modified Bitumen, tar and its types. Uses of these materials in building construction.

#### UNIT 5–PROTECTIVE FINISHES, MACHINES & EQUIPMENTS

**MATERIAL:** Brief introduction of adhesives, Sealants & joint fillers and protective finishes for cements concrete, RCC, Plastic, Asbestos, Asphalt, bitumen & tar. Study of machines & equipment for manufacturing, transportation, preparation, laying/Casting, Compaction, repairing of these materials.

**TEXT BOOKS**

1	W.B.Mckay, "Building Construction", Vol.1,2,3-Longmans U.K2010.
2	B.C.Punmia, "Building Construction", Laxmi Publications Pvt.Ltd., New Delhi, 2005.

**B. Des.****SEMESTER – IV****FURNITURE DESIGN II**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B4ID08-CP22	Furniture Design II	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand the working of Modular Furniture Systems
2	To understand the basics of storage system design
3	To understand the use of modular system hardware's and manufacturing process

**UNIT 1 – MODULAR SYSTEMS**

Introduction to modular systems. Current use of modular systems in Workspace Design, Kitchen Design, Storage System Designs. Materials and hardware systems used in modular furniture.

**UNIT 2 – ADVANCED FURNITURE DESIGN- RESEARCH**

Case Study, Ergonomic Study, Function and related space design.

**UNIT 3 – ADVANCED FURNITURE DESIGN- CONCEPT**

Concept generation of the selected simple furniture design.

**UNIT 4 – ADVANCED FURNITURE DESIGN-DESIGN DEVELOPMENT**

Design Development, Material Explorations, Drawings and Detail Development

**UNIT 5 – ADVANCED FURNITURE DESIGN- FINAL PROTOTYPE & DESIGN**

Scaled models, 1:1 Drawings, Final Presentation Drawings

**TEXT BOOKS**

1	Robbie. G. Blakemore, History of Interior Design and Furniture: From Ancient Egypt to Nineteenth-Century Europe, Wiley publishers, 2005.
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**REFERENCE BOOKS**

1	Bradley Quinn, Mid-Century Modern: Interiors, Furniture, Design Details, Conran Octopus Interiors, 2006.
2	Jim Postell, Furniture Design, Wiley publishers, 2007.

**B. Des.****SEMESTER – V****LIGHTING AND ACOUSTICS IN INTERIORS**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B5ID01-CT13	Lighting and Acoustics in Interiors	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	Illustrate the qualities of natural light
2	Identify the roles of lighting system in artificial lighting
3	Prepare lighting layouts , specify light , different type of applications
4	Identify the qualities of sound and its behavior in different context
5	Illustrate the quality of sound insulation materials and their application in interiors.

**UNIT 1 – INTRODUCTION TO LIGHTING**

Introduction - Light - Electromagnetic radiation, Visual task requirements, Units of Light, Light, Vision and Buildings, Standards of Lighting and Visual comfort. The sky as a source of light, Daylight factor, Lighting - Windows, Room proportions and other building elements, Daylight penetration, Calculation of day light factor.

**UNIT 2 - ARTIFICIAL LIGHTING**

General lighting system - Direct light - Indirect light - defused light - Types of fittings - Down - lighters – wall washers - up - lighter Task lighting – Accent lighting - terminology like Lux, Lumens - illuminations required in Various areas - Variety of Lamps - Incandescent lamps - Tungsten Halogen lamps - fluorescent lamps - Mercury lamps - sodium vapor lamps - Emergency lighting - Lighting Accessories - Protection devices-etc..

**UNIT 3 – LIGHTING PLANNING**

Artificial lighting and different types of Planning for lighting: - Position of lighting points – strength of light – type of light –type of light& its cover Type of fixtures, Elements of fixtures etc. Different type of lighting system in residential, commercial and office interiors planning and design

**UNIT 4 – ACOUSTICS**

Sound, Nature of sound. Behavior of sound in enclosed spaces. Concept of Geometric Acoustics. Reflection of sound and their applications. Absorption of sound. Sound absorption coefficient. Reverberation & Reverberation Time Calculation.

**UNIT 5 – SOUND INSULATING MATERIALS**

Sound absorbing materials - porous materials, Panel / Membrane absorbers & Cavity / Helmholtz Resonators. Absorption coefficients of indigenous acoustical materials. Space / Functional absorbers. Mounting conditions and its impact on sound absorption. Materials used for sound insulation, Different methods of reduction & insulation of unwanted sound, etc. Design Principles of Auditorium, Electro- Acoustics & Open-Air Auditorium, Air& Structure Borne Sound Propagation Environmental Acoustics

**TEXT BOOKS**

1	Benjamin Evans, "Daylight in Architecture", McGraw-Hill Book Company, New York,
2	Pritchard, D.C., "Lighting", Longman Scientific & Technical, Harlow.
3	Medan Mehta. James Johnson, Jorge Rocafort, "Architectural Acoustics: Principles and Design", Prentice-Hall, New York, 1998.



**B. Des.****SEMESTER – V****ADVANCED STRUCTURAL DESIGN**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B5ID02-CT14	Advanced Structural Design	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	Develop knowledge on earthquake forces on structures and building behavior under earthquake loading
2	Develop knowledge on Wind load and their action on high-rise structures.
3	Import knowledge on pre-stressing and post tensioning members and their behavior under various loading.
4	Understand the different materials and their importance in prefabrication process.
5	Understand the different methods of prefabrication used for different components.

**UNIT 1 – SEISMIC FORCES ON STRUCTURES**

Causes of Earthquake -Geological faults -Tectonic plate theory -Elastic rebound – Epicenter Hypocenter - Primary, shear and Raleigh waves -Seismogram -Magnitude and intensity of earthquakes -Magnitude and Intensity scales -Spectral Acceleration -Ductile details for RCC members

**UNIT 2 - WIND LOAD ON STRUCTURES**

Terminology -Wind Data -Gust factor and its determination -Wind speed variation with height - Shape factor - Aspect ratio -Drag and lift

**UNIT 3 – PRINCIPLES OF PRESTRESSING**

Materials for pre-stressed concrete -Different methods and systems -introduction to pre-stressing and post tensioning-Uniform and non-uniform pre-stressing -Losses in pre-stress

**UNIT 4 – INTRODUCTION TO PREFABRICATED STRUCTURES**

Need for prefabrication -Principles -Materials -Modular coordination -Standardization -Systems - Production - Transportation -Erection.

**UNIT 5 – PRE-FABRICATED COMPONENTS**

Behaviour of structural components -large panel constructions -Construction of roof and floor slabs -Wall panels -Columns -Shear walls

**TEXT BOOKS**

1	Wai Kwong Lau, "Building Construction with Precast Concrete Structural Elements", LAP Lambert Academic Publishing, 2010
2	Krishna Raju N., Prestressed concrete, Tata McGraw Hill Company, New Delhi 2012
3	S. R. Damodarasamy, S. Kavitha "Basics of Structural dynamics and Aseismic Design", PHI Learning Private Limited., 2009.
4	Ted Stathopoulos & Charalambos C. Baniotopoulos, Wind Effects on Buildings and Design of Wind- Sensitive Structures, Springer, 2007

**B. Des.****SEMESTER – V****ADVANCED INTERIOR SERVICES**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B5ID03-CT15	Advanced Interior Services	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand about services in residential high-rise building and complexes.
2	To explain about services in commercial high-rise building.
3	To understand functioning of service in civic building types like shopping malls, theatres, auditoriums etc.
4	To explore the functioning of service aspects of swimming pools and its influence on design.
5	To understand about services in site planning , drainage etc.

**UNIT 1 – INTRODUCTION - HIGH RISE BUILDINGS**

Introduction to services in High rise building, residential high rise and services, Amenities lighting and natural ventilation services, electrical and allied installations, mechanical ventilation, acoustics, sound insulation and noise control, installation of lifts, water supply, gas supply, Fire safety.

**UNIT 2 - COMMERCIAL BUILDING**

High rise office building, services, basement parking, ramps, lighting and natural ventilation, electrical and allied installations, air conditioning, mechanical ventilation, acoustics, sound insulation and noise control, water supply and sewage treatment, Storm water and Rainwater collection, Water recycling

**UNIT 3 – CIVIC BUILDING**

Shopping mall theatres, auditoriums, sports halls, lighting and natural ventilation, electrical and allied installations, mechanical ventilation, acoustics, sound insulation and noise control, installation of lifts, water supply, Fire safety and access controls

**UNIT 4 – SWIMMING POOLS**

Types of swimming pool, turnover rate, swimming pool user load, dimensions and sizes, design of swimming pool, material, floor slopes, transition point, water depth, walkway and deck areas, starting platforms, electrical installations, ventilation, shower and bathroom, water treatment system.

**UNIT 5 – SITE SERVICES**

Service detailing for Artificial water bodies, drainage, storm water pond, rain water collection, landscape site planning, landscape open spaces, children play areas, storm water drainage, sewage disposal system, Rain water harvesting:- Rainwater harvesting techniques, methods of recharging ground water, construction details

**TEXT BOOKS**

1	S.K Garg Water Supply Engineering, Environmental Engineering (Volume 1).
2	Dr. B.C Punamia Building Construction.
3	Duggal, K. N., Elements of Environmental Engineering, S Chand and Co. Ltd., New Delhi,2008.

**B. Des.****SEMESTER – V****CONSTRUCTION MATERIAL AND TECHNIQUE-IV**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B5ID04-CP23	Construction Material and Techniques IV	1	0	4	90	60	150	3

**COURSE OUTCOMES**

1	To Understand the different types and forms of steel available in the market.
2	To apply the use of aluminum in building interiors and it's various applications.
3	To understand the fixing details of glass.
4	Understand the different fabrics and soft furnishing in interior.

**UNIT 1– IRON &STEEL**

**MATERIAL:** Brief history of Iron, Study of Iron ores its varieties, Manufacturing of Pig-Iron and wrought iron, Properties of iron, composition and Types of cast iron & wrought iron, Properties & uses of cast & wrought iron, types of casting techniques. Brief history of steel, manufacturing of steel, Properties of Steel, market forms of steel, Mechanical treatment of steel such as hot working & cold working of steel, Heat Treatment of steel.

**CONSTRUCTION:** Application of iron and steel in various building elements such as steel grillage foundation, pad foundation, Steel column & beams, Trusses in steel, North light truss, Monitor Roof, Structural Floor/roof industrial flooring, Door/Window openings in iron & steel, Metal stair case, Methods of connecting steel work.

**UNIT 2 –ALUMINIUM & THEIR ALLOYS**

**MATERIAL:** Brief history of Aluminum, Manufacturing & properties of Aluminum, market forms of aluminum, Uses of Aluminum and Its alloys in building industries.

**CONSTRUCTION:** Application of aluminum in various building elements such as aluminum door & window, Structural glazing, curtain wall.

**UNIT 3–GLASS & GLASS PRODUCTS:**

**MATERIAL:** Brief introduction of history of glass, composition of glass, manufacturing & classification of glass, Properties of glass, Types of glasses & their performances, Treatments of glass, Glass industry, Glass as a green building material. Uses of glass in building industry.

**CONSTRUCTION:** Application of glass in various building elements and components. Glass Floor, wall & partitions systems, Skylight, Glass staircase.

**UNIT 4–FABRICS AND OTHER FURNISHING MATERIALS:**

Fabrics and other furnishing materials–fibers–natural–silk,cotton,linen,damask,furs,etc:artificial - polyester, nylon, rayon, etc , textiles, fabric treatments, carpets, durries, tapestries Drapery, upholstery, wall coverings, etc.–properties uses and application in the interiors

**UNIT 5–SOFT FURNISHING**

Details of soft furnishings :types of Draperies, curtains, blinds, types of stitches, valences, linings, tiebacks, hanging details etc

**TEXT BOOKS**

1	W.B.Mckay, “Building Construction”, Vol.1, 2, 3-LongmansU.K2010.
2	B.C.Punmia, “Building Construction”, Laxmi Publications Pvt. Ltd.,NewDelhi,2005.
3	Kilmer, Working Drawings & Details for Interiors, John Wiley & Sons.
4	S.C.Rangwala, “EngineeringMaterials”,Charotar Publishing House,India,2007.

**B. Des.****SEMESTER – V****INTERIOR DESIGN STUDIO – III**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B5ID05-CP24	Interior Design Studio - III	1	0	8	180	120	300	5

**COURSE OUTCOMES**

1	To understand projects of commercial value with a theme
2	To explore and create spatial design with respect to different genres

Design projects to highlight the theme of a commercial space in terms of showroom, Restaurant, Working space and draw out different design solutions highlighting the specialties. Students should be able to work out a Theme, and design solution to represent the theme in different context and material, design language and innovative solutions.

Note: One major exercises and two minor time problems should be given. Internal marking shall be done in stages and project wise:

- Schematic layouts
- Final layout
- Sectional elevations
- Designs & details

**B. Des.****SEMESTER – V****WORKSHOP**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B5ID07-CP26	Workshop	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To perceive and analyze a space with respect to human body dimensions, recognizing the functional aspect and imparting the in designing a furniture
2	Describing the machine process for construction of furniture and designed objects and evaluating the material manipulation used for making interior products and designed objects
3	Demonstrate competency towards innovative design parameters, prevailing trends, and material manipulation in manufacturing interior products and lifestyle accessories
4	Produce a model of interior space that demonstrates different furniture types, of varying scales.
5	Execute a furniture design with detail working drawing for construction of the furniture, describe the materials and finishes and execute a prototype of the same with documenting the complete process.

**UNIT 1 – MANUFACTURING PROCESSES**

To identify the required manufacturing process for the selected design. Understand the tools and equipment necessary for the process.

**UNIT 2 – SHOP DRAWING**

To produce component drawings for manufacturing. Full-scale drawings of the design.

**UNIT 3 – MATERIAL PROCUREMENT**

To identify material, sizing and estimate for the prototype.

**UNIT 4 – PROTOTYPE MANUFACTURING**

Make a scaled model of the selected design.

**UNIT 5 – PROTECTIVE FINISHES**

Apply a protective/ finishing coat to the prototype.

**TEXT BOOKS**

1	Laura Slack, What is product Design, Roto Vision publishers, 2006
2	Treana Crochet and David Vleck, Designer's Guide to Decorative Accessories, Prentice Hall, 1st edition, 2008.
3	Michael Ashby, Kara Johnson, Materials and Design: The Art and Science of material selection in product design, Butter Worth Heinemann, 1 <sup>st</sup> edition, 2002.

**B. Des.****SEMESTER – VI****PROFESSIONAL PRACTICE**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B6ID01-CT16	Professional Practice	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand about entrepreneurship and projects
2	To understand issues in professional practice
3	To explain about tender and its applications
4	To explore materials and its application in interiors
5	To explain about volumetric estimation in interiors.

**UNIT 1 – BUSINESS**

Setting up an individual business, Hiring, Project scheduling, Work delegation, organization Project Budgeting, Stakeholder management, Risk management, Execution and implementation

**UNIT 2 - PRACTICE**

Professional Correspondence in practice, issues of professional practice, Professional behavior, Ethics and code of conduct, Different styles of Interior practice, Types of fees and process.

**UNIT 3 – TENDER**

Tender, Tender documents and contract and supervision preparation of tender for large interior projects

**UNIT 4 – SPECIFICATION**

General and Detail Specification. Material specification and quality control, Principles of specifications, classification of specifications, specifications writing.

**UNIT 5 – CERTIFICATION**

Measurements, Billing and Payment Certification, Volumetric estimate of interiors for commercial design

**TEXT BOOKS**

1	Ted Crawford, AIGA Professional Practices in Graphic Design, Allworth Press, 2008
2	Shan Preddy, How to Run a Successful Design Business: The New Professional Practice, Gower Publishing, Ltd., 2011
3	Best, K. (2006). Design management: managing design strategy, process and implementation
4	Cooper, R., Junginger, S., & Lockwood, T. (Eds.). (2013). The handbook of design management

**B. Des.****SEMESTER – VI****HISTORY OF MODERN MOVEMENT**

Course Code	Course Name	L	T	P	IM 20%	EM 80%	Total	Cr
B6ID02-CT17	History of Modern Movement	2	0	0	20	80	100	2

**COURSE OUTCOMES**

1	To understand the modern theory of interior design
2	To explain difference in modernism and post war modernism
3	To understand the structure of international style.
4	To explain the postmodern style of interiors
5	To explore contemporary design aspects in interiors.

**UNIT 1 – MODERN ERA**

Industrial Design Art Nouveau, The Post Industrial era works of Charles Renée Mackintosh, Antonio Gaudi, Gerrit Rietveld and their expressionist interior design.

**UNIT 2**

Bauhaus and post war modernists, Walter Gropius/ Bauhaus, De Stijl, Mies Van Der Rohe, Art Deco, Postwar Modernism.

**UNIT 3**

Modernism Interiors of Le Corbusier, Frank Llyod Wright, Louis Khan, Kenzo Tange and Oscar Niemeyer

**UNIT 4**

International style The works of Alvar Alto, Phillip Johnson, Charles and Ray Eames , Eero Saarinen, Eero Arnio, Arne Jacobsen

**UNIT 5**

Post modernism and minimalism interiors of Zaha Hadid, Santiago Calatrava, Frank Gehry and Peter Eisenmann.

**REFERENCE BOOKS**

1	Interior Design, Francis D.K. Ching, John Wiley & Sons, New York
2	Interior Design & Decoration, Sherril Whiton, Prentice Hall
3	Interior Design Course, Mary GilliatCoyran, Octopus Ltd., London
4	Time Saver Standards for Interior Design, Joseph De Chiara, McGraw Hill, New York

**B. Des.****SEMESTER – VI****INTERIOR DESIGN STUDIO - IV**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B6ID03-CP27	Interior Design Studio - IV	1	0	10	180	120	300	6

**COURSE OUTCOMES**

- |   |   |
|---|---|
| 1 | To understand large scale interior projects and services          |
| 2 | To generate coordination drawings with consultants and architects |

Design problems of larger scale and complexity to be introduced to make the students understand the role of services in functioning of interior space in relation to buildings. Students should be able to generate working drawings to scale and co-ordinate the services such as electrical, plumbing and air conditioning to provide a complete solution to the user. Public spaces such as Shopping Malls, Auditorium, Theatre, Multi storeyed office spaces, Hotel interiors, and Airport lounges can be considered for design.

Note: One major exercises and one minor time problem should be given. Internal marking shall be done in stages and project wise:

- Schematic layouts
- Final layout
- Sectional elevations
- Designs & details
- Electrical and Lighting layout
- Plumbing Drawing
- HVAC co-ordination

**B. Des.****SEMESTER – VI****DISSERTATION**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B6ID04-CP28	Dissertation	1	0	2	60	40	100	2

**COURSE OUTCOMES**

- |   |  |
|---|--|
| 1 | To prepare a report on any qualitative aspect of interior design |
|---|--|

Understanding of the current and past scenario of Interior Design globally or any state of India. Every student to identify a field study of selected material , culture , Design process , lighting , services etc and submit a dissertation highlighting the innovations and development happening around the world that would be applicable to Interior Design



**B. Des.****SEMESTER – VI****CONSTRUCTION MATERIAL AND TECHNIQUES - V**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B6ID06-CP30	Construction Material And Techniques - V	1	0	4	90	60	150	3

**COURSE OUTCOMES**

1	To possess a comprehensive understanding of building protection techniques, including damp proofing, water proofing, fire and pest resistance, and thermal insulation, ensuring their ability to address diverse challenges in construction.
2	To acquire practical skills in selecting and applying a variety of protective and decorative finishes, demonstrating proficiency in the use of materials such as paints, varnishes, and distempers on different surfaces.

**UNIT 1–DAMP PROOFING**

**MATERIALS:** Causes and effect of dampness, techniques and methods of damp prevention, materials used for damp proofing– flexible, semi-rigid and rigid materials. Damp proofing treatments in buildings.

**CONSTRUCTION:** General preparatory work for damp proofing. Treatment of foundations, dampness from adjacent ground, treatment of foundation on poor soil, treatment above ground level. External and internal tanking, in-situ damp proofing treatment, cavity wall construction

**UNIT 2 –WATER PROOFING**

**MATERIALS:** Difference in water proofing and damp proofing, various systems of water proofing, materials for water proofing such as bitumen felt and paints, epoxy formulations, lime concrete, slurry coats, polyethylene film, glass fiber tissue reinforced bitumen, etc.

**CONSTRUCTION:** Preparatory work for water proofing. Water proofing for different roof types such as concrete and masonry flat or sloping roofs, timber sloping roof, shell roofs etc. Parapet and coping details, water proofing of underground reservoirs & swimming pools. Covering of expansion joints, water proofing techniques for roof gardens, etc

**UNIT 3–FIRE & PEST RESISTANCE**

**MATERIALS:** Important considerations in fire protection, Non-combustible and combustible materials. Properties of some common materials such as timber, stone, bricks, terracotta, steel, wrought iron, cast iron, Aluminum, glass, asbestos, cement, mortar etc. Classification of pests, effects of pests in buildings, pest control methods such as Biological, Environmental, Mechanical & Chemical. Laws & Regulations for pest control.

**CONSTRUCTION:** General measures of fire safety in buildings such as smoke detectors, alarm systems, etc. Fire extinguishing arrangements, escape routes, etc. Pest control measures by design and constructional means for new and existing buildings. Design criteria internal & external anti-termite measures at foundation level & masonry level

**UNIT 4–THERMAL INSULATION**

**MATERIALS:** Effects of heat transfer and thermal insulation behavior of the material and building components, General principles of thermal insulation, materials of heat insulation such as slab or block insulations, blanket insulations, loose fills, insulating boards, reflective sheet materials etc.

**CONSTRUCTION:** Methods of heat insulation of roofs, exposed walls and exposed windows, doors and ventilators.

**UNIT 5–PROTECTIVE & DECORATIVE FINISHES AND MACHINES & EQUIPMENT**

**MATERIALS:** Objectives of building finishes, characteristics and ingredients of a good paint. Paints: classification and types. Covering capacity of paints, preparation of paints. Varnishes & Varnishing; Objectives and characteristics of a good varnish, ingredients of varnish, types of varnishes, process of varnishing. Polishes & polishing. Distempers & distempering, properties of distempers. Miscellaneous finishes such as wall filling, papering, whitening, coal tarring, wax polishing, wood oiling, glazing etc.

**CONSTRUCTION:** Application of paints on different surfaces such as wood, metal, plastered concrete surfaces etc. in detail. Application of varnishes, distempers in various building elements, components & furniture. Tools and equipment for various protective and decorative finishes.

**B. Des.****SEMESTER – VI****RENOVATION AND ALTERATION**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B6ID07-CP31	Renovation and Alteration	1	0	2	60	40	100	2

**COURSE OUTCOMES**

1	To understand the reusability of space
2	To explore multiple activities and flexible space adaptation
3	To understand recycle and reuse of materials
4	To understand techniques in alteration and renovation in interiors
5	To explore public behavior and spaces for renovation

**UNIT 1**

Renovation of interiors for class rooms, seminar halls and AV halls – schemes for library, smart class rooms and discussion areas.

**UNIT 2**

Renovation and alteration of interior requirements for gymnasium, indoor stadium and aquatic complex – schemes for interiors of stadium with focus on lighting requirements and visibility.

**UNIT 3**

Alterations of interiors in Heritage Buildings focusing on conserving the architectural integrity of the building hotels, restaurants, cafes, pubs, discotheque, saloons and banks, etc. - schemes for the same.

**UNIT 4**

Renovation and alteration of interiors for airports, MRTS, railway stations and bus terminals – schemes for the same

**UNIT 5**

Renovation and alteration of interiors for entertainment buildings such as clubs, multiplex and amusement parks – schemes for video games parlor, food court areas and exclusive indoor game areas of clubs

**REFERENCE BOOKS**

1	Edward D Mills- planning Buildings for administration, entertainment and recreation – Krieger publishers, New York, 2006
2	Carlson Broto- architecture on sports facilities – pg 1 publishing, Spain, 2005
3	Designs for 20th century Interiors – Fiona Leolie, VH Publications, London.

**B. Des.****SEMESTER – VII****TRAINING**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B7ID01-CP32	Training	0	0	0	300	200	500	10

**COURSE OUTCOMES**

1 | To observe and learn the tools, techniques and design process from practitioners

Every student must work with Interior Designers, identification of the Designers to be done in discussion with the concerned faculty. The student should involve in the work of these people and observe and document the materials, tools, techniques and process used by them in the projects. Every student will have to submit a detailed report with drawings, photographs of the work in which the student was involved with the practitioners and designers and the learning outcome.

**B. Des.****SEMESTER – VIII****THESIS**

Course Code	Course Name	L	T	P	IM 60%	EM 40%	Total	Cr
B8ID01-CP33	Thesis	3	0	14	300	200	500	10

**COURSE OUTCOMES**

1 | To explore the design options in a project

Students in this semester would take full time project (technically complex project). The students can do design degree project in house but it would be advisable for them to go to industry, design firm and do the design project. Project may be Industry-sponsored Project or a continuation of the Minor Project to implement in a practical basis.