



## Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)

Re-accredited with 'A' Grade by NAAC. Recognised by UGC Under Section 12 B

Coimbatore - 641 043, Tamil Nadu, India

### B.Sc. Interior Design and Resource Management

#### Programme Specific Outcomes:

1. Exhibit efficient resource use potentials at home and work
2. Show case domain specific role clarity
3. Shine as competent graduates
4. Appreciate nuances of value based quality life skill oriented learning
5. Blend relevant instructions with real time applications in career.

#### Scheme of Instruction & Examinations

(For Students admitted from 2018-2019 & onwards)

Part	Subject Code	Name of paper / Component	Hours of instruction/ week		Scheme Examination				
			T	P	Duration of exam	CIA	CE	Total	Credit
		<b>First Semester</b>							
I	18BLT001/  18BLH001/  18BLF001	Tamil-Ilakkiam I- Ilakkanam, Ilakkia Varalaru /  Hindi – Prose and Non-detailed Text /  Language French I	5	-	3	50	50	100	4
II	18BLE001	English language for Communication– I	5	-	3	50	50	100	4

III	<b>Core course</b>								
	18BIDC01	Interior Design and the Visual Art	5	-	3	50	50	100	3
	18BIDC02	Colour and Lighting	5	-	3	50	50	100	3
	18BIDC03	Studio I - Design Applications in Art	-	5	3	50	50	100	2
		<b>Discipline Specific Electives</b>							
	18BIDI01	<b>DSE I</b> Perspectives of Home Science (RM)	4	-	3	50	50	100	3
		Games	-	1		-	-	-	
		<b>Second Semester</b>							
I	18BLT002/  18BLH002/  18BLF002	Tamil-Ilakkiam II- Ilakkanam, Ilakkia Varalaru /  Hindi – Grammar, Translation and General Essays /  Language French II	5	-	3	50	50	100	4
II	18BLE002	English language for Communication -II	5	-	3	50	50	100	4
III	<b>Core course</b>								
	18BIDC04	Furnishings in Interiors (inbuilt)	3	2	3	50	50	100	3
	18BIDC05	Management for Modern Living	5	-	3	50	50	100	3

	18BIDC06	Floriculture –Design and Merchandising	3	2	3	50	50	100	3
		<b>Discipline Specific Electives</b>							
	18BID102	Personality Development (Psy)	4	-	3	50	50	100	3
		Games	-	1		-	-	-	
		<b>Third Semester</b>							
I	18BLT003/  18BLH003/  18BLF003	Tamil-Ilakkiam III - Ilakkanam, Ilakkia Varalaru /  Hindi–Ancient and Modern Poetry/  Language French III	5	-	3	50	50	100	4
II	18BLE003	English language for Communication –III	5	-	3	50	50	100	4
III	<b>Core course</b>								
	18BIDC07	Landscape Designing – Concept and Principles	5	-	3	50	50	100	3
	18BIDC08	Furniture in Interiors	4	-	3	50	50	100	3
	18BIDC09	Principles of House keeping	3	-	3	50	50	100	3
	18BIDC10	Studio II – Principles of Drafting	-	3	3	50	50	100	2

		<b>Discipline Specific Electives</b>							
	18BIDI03	<b>DSE III</b> - Basics in Computer Applications (Resource Management)	2	3	3	50	50	100	3
		<b>Fourth Semester</b>							
I	18BLT004/  18BLH004/  18BLF004	Tamil-Ilakkiam IV Ilakkanam, Ilakkia Varalaru /  Hindi – Introduction to Hindi and Journalism /  Language French -IV	5	-	3	50	50	100	4
II	18BLE004	English language for Communication –IV	5	-	3	50	50	100	4
	<b>Core course</b>								
III	18BIDC11	Building Materials and Finishes	5	-	-	50	50	100	3
	18BIDC12	Consumer Economics and the Green Consumer	4	-	3	50	50	100	3
	18BIDC13	Art in Commercial Space	4	-	3	50	50	100	3
	18BIDC14	Studio III - CAD for Building Designs	-	3	3	50	50	100	2
	18BIDI04	<b>Discipline Specific Electives</b>  <b>DSE-IV</b> Entrepreneurship Development (Ext)	4	-	3	50	50	100	3
		<b>Internship during summer vacation for 30 days ( outside the campus)</b>							
		<b>Fifth Semester</b>							
III	18BIDC15	Family Resource Management	5		3	50	50	100	3

	18BIDC16	Principles of Ergonomics	5		3	50	50	100	3
	18BIDC17	Alternate Sources of Energy	5		3	50	50	100	3
	18BIDC18	Residential Space Planning (inbuilt)	3	2	3	50	50	100	3
	18BIDC19	Studio IV - 3Ds Max in Interior Design	-	5	3	50	50	100	2
	18BIDC20	Building Services for Interiors(Self study)	1	-	3	100	-	100	4
	18BIDC21	ID & RM(Computer based test)	-	-	3	-	100	100	2
	18BIDC22	Internship	-	-	-	100	-	100	4
		<b>Generic Elective (GE) Course</b>	2	-	-	100	-	100	2
		<b>Sixth Semester</b>							
III	18BIDC23	Applied Arts in Interior Decoration	5	-	3	50	50	100	3
	18BIDC24	Waste Management for Health and Wellbeing	5	-	3	50	50	100	3
	18BIDC25	Kitchen Equipment	5	-	3	50	50	100	3
	18BIDC26	Basics in Architecture	5	-	3	50	50	100	3

	18BIDC27	Studio V – CAD Application in Building Design	-	5	3	50	50	100	2
	18BIDC28	StudioVI - Model making Workshop	-	3	3	50	50	100	2
		<b>Total</b>						<b>4100</b>	<b>125</b>

<i>Semester</i>	<i>Subject Code</i>	<i>Name of paper / Component</i>	<i>Hours of instruction / week / Course</i>	<i>Credit / Course</i>	<i>Total Credits</i>
<b>Part IV Components</b>					
<b>A. Ability Enhancement Courses</b>					
<b>I. Ability Enhancement Compulsory Courses(AECC)</b>					
2	15BAES01	Environmental Studies (Foundation Course)	4	Remarks	4
5	17BSCS01	Communication skills	3	Remarks	2
6	17BSSS01	Soft skills	3	Remarks	2
<b>II Skill Enhancement Courses (SEC)</b>					
3		<b>Value added course</b> (from a basket of choices offered)	40 hrs. duration	Remarks	2
4		<b>Co-curricular Courses</b> Add on Certificate/Quantitative Aptitude /Certificate courses - Gandhian Studies/ Women's Studies/ Ambedkar Studies/ Verbal and Non - Verbal Reasoning / General Awareness / others as per list	Varied duration	Remarks	2
<b>B. Extra-curricular course</b>					
1 - 6	15BXNC01-06 / 15BXNS0106/ 17BXSP01-06	NCC / NSS/Sports (representing the Institute)	-	-	6
<b>Total Credits</b>					<b>18</b>

#### **Total credits to earn the degree**

- |                               |          |                    |
|-------------------------------|----------|--------------------|
| 1. Part I, II& III Components | -        | 125                |
| 2. Part IV components         | -        | 18                 |
| <b>Total</b>                  | <b>-</b> | <b>143 Credits</b> |

#### **Other Courses offered by the Department**

- **Discipline Specific Electives:**
  - For Psychology - 18BPSI02 /II Semester -Interior decoration
  - For Rural Development - 18BRDI04 /IV Semester-Interior decoration

And Sociology

- Value added course - 18BIDV01 Floral art
- **Generic Elective (GE) Course** - 18BIDO01 Interior décor  
- 18BIDO02 Entrepreneurship Development



## **Interior Design and the Visual Art**

**Semester I**  
**18BIDC01**

**Hours of Instruction/week: 5**  
**No. of Credits: 3**

**Objectives:** Prepare students to:

1. **Develop/ expand knowledge:** Understand and interpret the principles of art in interior design and decipher the nuances of Indian interior design
2. **Learn skills:** Use the elements and principles to create beautiful designs and interiors
3. **Differentiate ideologies:** Interior decoration Vs Interior design

### **Unit 1: Introduction to Interior design 15**

- Conceptual meaning of interior design and interior decoration
- Meaning and philosophy of art; categories of art related to interior design and architecture: *visual, plastic, decorative, applied arts*
- Type of arts - Visual art and graphic art; visual design and graphic design
- History, growth and development of Interior decoration in India
- Characteristics of Indian Interior Design-cultural and ethnic influences
- Definition and functions of an Interior designer
- Qualities of a good designer in visual and graphic arts
- Relation of good taste and perception of Interior Design

### **Unit 2: Basic design fundamentals 15**

- Concept of design; ABC of basics of design – Aesthetics, Basic design and Creativity, their significance in design development
- Varieties of art: Art, abstract and surreal
- Definition and classification of design - structural and decorative, Natural and Man-made, vernacular and technological, requirements of good structural and decorative design
- Purpose of designing
- Classification of decorative design- naturalistic, conventional, geometric, abstract, historic and biomorphic
- Types of design decisions-functional and visual or aesthetic designs
- Types of visual art – applied art, industrial design, graphic design, fashion design, interior design, decorative art, Art Nouveau and Art deco

### **Unit 3: Language of the visual arts – Basic design elements 15**

- Meaning, importance and use in visual and graphic arts
- Point or mark
- Line-types-actual, implied, psychic, Line and direction-vertical, horizontal, diagonal, curved, zigzag; characteristics of line - creation and use

- Shape –two dimensional; categories: geometric and organic or free forms, positive and negative shapes
- Forms-three dimensional; categories: rectilinear and curvilinear
- Space – positive and negative
- Size
- Texture – classification
- Colour – theories and application
- Pattern and ornamentation – use in interior decor

#### **Unit 4: Visual principles**

**15**

- Principles of design: meaning and the basic five design principles; use in art and interior design
- Balance, Rhythm, Harmony, Proportion and Emphasis – meaning, types (classification) and methods of achieving; their role in interior designing
- Evaluation of design-criteria for evaluation

#### **Unit 5: Visual and graphic art in accessories**

**15**

- Definition and importance of accessories as art forms
- Classification – functional, decorative and both
- Selection of accessories, placement of accessories - Location and back ground for accessories, Difference between accessories and collection
- Pictures as accessories - types of picture, selection of pictures, mounting , framing and hanging
- Art-painting, drawings, prints, photographs, reproductions and posters
- Crafts-pottery, blown and stained glass, wood craft, basket making
- Sculpture
- Antiques
- Plants and flowers as accessories

Total Hours - 75

**Course outcomes:** On completion of the Course, students will be able to:

1. Interpret, draw, analyze and evaluate designs for their functionality
2. Distinguish designs of functional value from those of aesthetic value
3. Comprehend significance of design concepts as an integral component of man's living styles from bygone days
4. Appreciate role of designs in various contexts, cultures and ethnic influences and apply visual elements and principles in designing interiors
5. Customize/ optimize use of visual arts, accessories and antiques for designing interiors and other aspects

**Text books:**

1. **Chaudhari, S.N**, (2005), “Interior Design”, Jaipur: Aavishkar Publishers, India.
2. **Kasu, A.A**, (2005), “Interior Design”, Delhi: Ashish Book Centre
3. **Shaw, R.B.**, (2003), “Interiors by Design”, London, New York: Ruland Peters and Small
4. **Pile, J.**, (2003), “Interior Design” , 3<sup>rd</sup> Ed, New Jersey, USA: Pearson
5. **Piotrowski, C**, (2004), “Becoming an Interior Designer”, New Jersey, USA: John Wiley & Sons,

**Reference books:**

1. **Asher, F.M.** (2003), “Art of India – Prehistory to the Present”, Encyclopedia Britannica Inc
2. **Yang, J**, (2003), "Art Deco 1910-39", Craft Arts International, 2003, Issue 59, PP. 84-87.
3. **Meggs, P. B**, (1983), “A history of graphic design”, New York: Van Nostrand Reinhold.
4. **Frank, I**, (2000), “The Theory of Decorative Art: An Anthology of European and American Writings”, 1750–1940. New Haven: Yale University Press.
5. **Campbell, G.** (2006), “The Grove Encyclopedia of Decorative Arts”, New York: Oxford University Press.
6. **Thornton, P.** (2000), “Authentic Decor: Domestic Interior”, 1620–1920. London: Seven Dials.

## Colour and Lighting

Semester I

Hours of Instruction/week: 5

18BIDC02

No. of Credits: 3

### Objectives:

1. Understand the qualities of colour and lighting as design elements
2. Apply theoretical knowledge on colour and light to practical situations in interior design
3. Learn skills on recent trends in use of colour and lighting in functional contexts

### Unit 1 Importance of colour and lighting

15

Sources of colour; sources of light - natural, artificial lighting  
Benefits of effective lighting in the house  
Colour as an element in Interior Designing

### Unit 2 Colour theories

15

The Color Spectrum, Physiology of vision  
Colour system – Prang colour and Munsell colour system; Qualities of colour;  
Colour schemes – concept and classification – related and contrasting colour schemes

### Unit 3 Lighting for Home Interiors

20

Sources of lighting – Natural and Artificial lighting  
Natural: Source- Sun-merits  
Artificial: Sources-Incandescent & Fluorescent-merits and demerits  
Types of lighting – general lighting, task lighting, accent lighting  
Requirements for good lighting; measurement of lighting  
Methods of artificial lighting – direct, indirect, semi direct, semi indirect, direct-indirect  
Architectural lighting - diffused, cove, panel, spot, concealed etc.,  
Lighting accessories – switches, sockets, fuse, outlets, lamp holders, lamps and shades

### Unit 4 Application of colour and light in Interiors

15

Use of color and light in various functional contexts  
Residential interiors-living room, bed room, children's room, kitchen, bathroom  
Non-Residential interiors- hotels and motels, restaurants, showrooms, retail

outlets, school and colleges, health care facilities  
Factors affecting colour and lighting in interiors - planning lighting for interiors – home and commercial space  
Psychological effects of colour

**Unit 5 Recent trends in usage of colour and lighting in Interiors 10**

Modern features in use of color and lighting in residential and commercial spaces

Trendy materials in lighting and lighting fixtures

**Total Hours : 75**

**Course Outcomes:** On completion of the Course, students will be able to:

1. Recognize Color and light as essential qualities in the physical world
2. Introduce Color in all art forms
3. Design and solve complex colour and lighting problems using the principles learnt
4. Apply color and light in various functional contexts
5. Appraise recent trends in the usage of color and lighting in interiors

**Text books:**

1. **Seetharaman. P, and Pannu.P,**(2009),Interior Design and Decoration, New Delhi: CBS Publishers and Distributors Pvt Ltd
2. **Choudhury, A.K.R.,** (2000). Modern Concepts of Colour and Appearance. New Delhi: Oxford and IBH Publishing Co. Pvt. Ltd
3. **Pile, J.,** (2003), Color in Interior Design, New York: Mc Graw Hill Companies

**Reference books:**

1. **Chaudhari, S.N.,** (2006). Interior Design. Jaipur: Aavishkar Publishers
2. **Faulkner, R. and Faulkner, S.** (1987). Inside Today's home, New York: Rinehart Winston, London.
3. **Holtzschue, L.,** (1995). Understanding Color - An introduction for Designers, New York: John Wiley and Sons

## Studio I - Design Applications in Art

Semester I

Hours of Instruction/ week: 5

18BIDC03

No of credits: 2

**Objectives:** Prepare students to

1. Produce a variety of creative responses through exploration of art ideas
2. Understand various design principles
3. Apply the knowledge gained in producing two dimensional and three dimensional compositions in art works.

**List of Exercises:**

1. Identify and research a particular aspect of art and design – paintings, graphic media, and photographs for their design, composition, colour combinations, and applications.
2. Evaluate art objects for design – elements, principles, colour and purpose.
3. Study and analyse forms, patterns and colour schemes in nature. Modify natural forms and apply on two dimensional and three dimensional objects
4. Design greeting cards for different occasions
5. Application of various colour harmonies in room interiors and observe the effects of colour on each – living, bedroom, pooja, children's room
6. Develop designs suitable for various floor decorations – Kolam, Rangoli and flower carpet
7. Arrange areas applying the elements, principles and colours in commercial displays – textile display, handicrafts and reception areas
8. Select suitable pictures for different rooms; Practice mounting of pictures following law of margins – vertical, horizontal and square pictures
9. Develop designs (basic motif) involving elements and use in various applications in interiors – fabric design, stained glass, stencil painting, mural and collage involving all the principles of composition.

10. Study and analyse man-made objects for their purposes, functional suitability, appearance etc and suggest for improvements in the same

Total Hours - 75

**Course Outcomes:** On completion of the course the students will be able to

1. Use and apply various elements and principles on two dimensional and 3 dimensional compositions
2. Develop designs suitable for various applications
3. Practice various techniques in creating art
4. Derive inspiration from natural sources of design and use in functional contexts
5. Critically analyse designs of existing man-made objects

**Text Books:**

1. **Kasu, A.A**, (2005), "Interior Design", Delhi: Ashish book centre, India.
2. **Seetharaman.P and Pannu.P**, (2009), "Interior Design and Decoration", New Delhi: CBS Publishers, India.
3. **Mullick.P**, (2007), "Textbook of Home Science", New Delhi: Kalyani Publishers, India.

**Reference Books:**

1. **Chaudhari.S.N**, (2006), "Interior Design", Jaipur : Avishkar publishers, India.
2. **Rao,P.M**, (2005), " Interior Design – Visual Presentation", USA :John Wiley and Co Sons.
3. **Shaw.R.B**, (2003), "Interiors by Design", New York: Ruland Peters and small CICO Book Publications, London.

## **Furnishings in Interiors**

**Semester II**

**Hours of Instruction/ week: 3+2**

**18BIDC04**

**No of credits: 3**

**Objectives:** Enable students to

4. Know about various fibres, weaves and finishes
5. Understand role of fabrics used in interiors
6. Develop skills in estimating the cost of furnishing a house.

### **Unit 1: Composition of fabrics and construction of fabric**

**10**

Classification and properties of fibres

Construction of yarns and fabrics – weaving, knitting, felting and bonding nets and laces

Finishes applied to fabrics – basic and special

Colouring the fabrics – dyeing and printing- Block, Stencilling, Tie &Dye &Batik

### **Unit 2: Importance of furnishings**

**8**

Meaning and importance, general factors to be considered in selection of furnishings, recent trends in furnishing the interior.

### **Unit 3: Furnishings in interiors**

**12**

Types of living room linen – sofa, sofa covers, cushion covers, Bedroom furnishing linen – table cloth, pillow covers, bed spreads, place mat, table napkins, kitchen napkins, towels. Selection, use and care of household linen.

### **Unit 4: Floor coverings and window treatments**

**10**

Types of floor covering – rugs and carpet.

Types of windows-Dormer, Ranch, Picture, Window wall, Double hung, Sliding, Casement, Awning, Bay, Bow, French window, Arch window.

Window Treatments: Hard – Blinds, Shades, Shutters, Lambrequin, short screens.

Soft – Curtains & Draperies –One way draw, Tieback, Crisscross, Casement, Glass curtain. Tier, Cafe, and Double hung draw.

Decorative curtain head – swag, cascade, valance.

Accessories for window curtains.

Use, selection and care – stain removal, mending, darning and patch work



## **Unit 5: Requirements and cost of Furnishings**

**5**

Listing the basic requirements of furnishings for different rooms, estimating the materials for construction of curtains and draperies, formulating a budget for furnishing a home

### **Practical:**

**30**

1. Collecting fabric samples for different basic and fancy weaves
2. Learning to stitch in a sewing machine
3. Constructing samples of different pleats-knife, box, cartridge, loop, eyelets
4. Construction of pillow covers and cushion covers
5. Surface enrichment for cushion cover, pillow cover, napkin and table cloth with – mirror work, applique, fabric painting and embroidery
6. Mending and patch work

Total Hours - 75

**Course Outcomes:** On completion of the Course the students will be able to

1. Understand the composition, construction, and finishes applied on fabrics for furnishings.
2. Analyse recent trends in furnishings
3. Gather information on various household linen, their selection and care.
4. Adopt various window treatments in interiors.
5. Calculate the cost of furnishing a house.

### **Text Books:**

1. **Anita .T**, (2011), “Textiles for Apparel and Home Furnishing”, New Delhi: Sonali Publications, India.
2. **Kharuna.S**, (2012), “Fabrics for Fashion and Textile Design”, New Delhi: Sonali Publications, India.
3. **Chaudhari.S.N**, (2006), “Interior Design”, Jaipur: Aavishkar Publisher, India.

### **Reference Books:**

1. **Stepat.D.Van**, (1991), “Introduction to Home Furnishing”, New York: The MacMillan Company.
2. **Premavathy .S, Sonia.B and Preeti. M**, (2005), “An Introduction to Family Resource Management”, New Delhi: CBS Publishers & Distributors, India.

3. **Rose Sinclair**, (2015), “Textiles and Fashion-Materials, Design and Technology”, UK: Wood head Publishing Limited- Elsevier.
4. **Hillard.E**, (2000), “Brilliant Colour at Home”, London- Kyle Eathie Ltd, New York.

### **Management for Modern Living**

**Semester II**

**Hours of Instruction/week: 5**

**18BIDC05**

**No. of Credits: 3**

**Course Objectives:** Prepare students to:

1. Know the concept, nature and role of home management in the changing world
2. Understand the motivating factors and their interrelatedness
3. Develop decision making and management skills in use of resources in different stages of family life cycle

**Unit 1: Introduction to management**

**12**

Concept of management; nature and role of home management in changing world; need for management

Home maker as manager; qualities of an efficient home maker; obstacles for good management

**Unit 2: Motivating factors in management**

**20**

Values, goals and standards; Values - types – intrinsic and instrumental, factual and normative values; personal values, Parker’s values

Goals- meaning and definition, classification of goals – long term, intermediate and means end goals

Standards: concept, classification, attributes – clarity, flexibility and reality changing standards, criteria for choosing standards; standard of living Interrelationship of values, goals and standards

**Unit 3: Decision making**

**20**

Definition, relation of decision making to management

Types of decisions – non programmed and programmed, group and individual decision, social and economic decision, routine and conscious decision, technical, legal and political decisions, central and satellite decision

**Unit 4: Resources**

**8**

Meaning and definition of resources; classification of resources

Characteristics of resources  
Role of resources in management  
Factors affecting the use of resources; guide to increasing satisfaction in the use of resources

**Unit 5: Management process and Family life cycle**

**15**

The Management Process: Concept and definition  
Planning- steps in planning, characteristics, role of planning, limitations of planning  
Organizing – process, importance  
Controlling – characteristics, process, requirements for effective control system, steps  
Evaluation – characteristics, methods  
Concept of the family life cycle -Stages of family life cycle  
Recent trends; management of resources in different stages

**Total Hours: 75**

**Course Outcomes:** On completion of the Course the students will be able to

1. Adopt efficient homemaking skills with good managerial potentials
2. Practice values, identify goals and set standards in day-to-day living
3. Handle all situations in the family and apply decision making skills
4. Identify human and non-human resources for efficient management of the family
5. Face challenges put forth by recent trends in availability of resources

**Text books:**

1. **Mann, M.K.**, (2004). Home Management for Indian Families. New Delhi: Kalyani Publication
2. **Seetharaman, P**, (2005), Introduction to Family Resource Management. New York: CBS Publishers, London.
3. **Goel, S.**, (2016), Management of Resources for Sustainable Development. New Delhi: Orient Blackswan Publication, India.

**Reference books:**

1. **Sharma, N.**, (2006), Home Management, Ahmedabad: Murari Lal Publishers
2. **Shukul, M and Gandotra, V.**, (2006) Home Management and Family Finance, New Delhi: Dominant Publishers
3. **Sharma, V.**, (2005). Modern Home Management. Jaipur: Shree Niwas Publications

## **Floriculture- Design and Merchandising**

**Semester II**

**Hours of Instruction/week: 3+2**

**18BIDC06**

**No. of Credits: 3**

**Course Objectives:** Prepare students to:

1. Acquire skills in identifying ornamental plants
2. Understand the methods of cultivation of economic flowers
3. Develop talent and acumen in making floral designs and marketing skills

### **Unit 1: Introduction**

**12**

History of floral design; meaning and importance of floriculture  
Flower and foliage -classification; conditioning and storing of cut flowers and greens  
Ornamental plants-annuals, biennials, herbaceous perennials,  
Shrubs-foliage and flowering , Climbers and creepers , Cacti and succulents , Bulbous plants , Palms and ferns, Orchids , Arboriculture-foliage trees, flowering trees, avenue trees

### **Unit 2: Mechanics and application of Principles of design in floral art**

**4**

Design Principles, Design Elements, Mechanics and Supplies used in floral design- flowers and containers, stem holders, floral foam, wire mesh, sand and clay

### **Unit 3: Flower arrangement and Floral ornaments**

**12**

Flower arrangement – importance, steps , components of flower arrangement  
Mechanism, flowers and containers, basic principles, basic shapes, styles Ikebana - history, materials required, general rules and basic styles of Ikebana Dry arrangement – preservation of plant materials-foliage and flowers, prolonging the vase life of flowers, garland and other floral ornament-flower carpet, floral bouquets, button holes

### **Unit 4: Indoor gardening**

**9**

Pot culture-meaning, selection of pots, plants suitable for pot culture, potting and re-potting techniques  
Hanging baskets, indoor plants - display and placement, care of indoor plants  
Bonsai-meaning, plants suitable for bonsai culture, techniques, styles; Terrarium

### **Unit 5: Retail flower business**

**8**

Types of flower shops; job opportunities in the retail flower shop, training for a job in the retail flower shop, pricing strategies

Selling in the shop – characteristics and delivering system

Displays in the shop – purpose, categories of display – theme and product displays; designing display arrangement.

**Total Hours: 45**

**30**

**Practical:**

1. Arranging flowers using design Principles – balance, proportion and scale, focal point, emphasis, rhythm and harmony.
2. Arranging different types of free style flower arrangement – line, mass, line and mass, miniature, floating, hanging, circular, triangular, crescent, Hogarth curve
3. Ikebana – Principles involved in arranging flowers and arranging Japanese method of flower arrangements.
4. Other varieties of arrangements – dry arrangements, fruit arrangement, vegetable arrangements.
5. Arranging flowers for various occasions – wedding, reception, bouquets, hair decorations, garlands and button holes.
6. Drying flowers using different methods – hanging method, desiccant drying, glycerine, bleaching and drying.
7. Demonstrations by retail florists
8. Designing display arrangements: arranging according to different method of display-repetition, step, zig zag, pyramid and radiation.

**Total Hours: 75**

**Course Outcomes:** On completion of the Course the students will be able to

1. Do floral arrangements based on principles and elements of design
2. Classify flowering and ornamental plants.
3. Follow the steps in storing and handling of flowers to retain freshness
4. Make different types of floral arrangements.
5. Explore possibilities of a career in the retail flower business

**Text books:**

1. **Singh, A.K and Sisodia, A**, (2017), Textbook of Floriculture and Landscaping, New Delhi: New India Publishing Agency, India.
2. **Griner, C**, (2011), Floriculture Designing and Merchandising, New Delhi: Oxford & IBH - Publishing Company, India.
3. **Kumar, N**, (2010) Introduction to Horticulture, Nagarkoil: Rajalakshmi Publications, India.

**References books:**

1. **Bose et al**, (2011). Floriculture and Landscaping. Calcutta: Allied Publishers, India.
2. **Randhawa, G.S. and Mukhopadhy, A**, (2000). Floriculture in India. Chennai: Allied Publishers Limited, India.

3. **Larson, A,** (2013), Introduction to floriculture, New York: Academic Press Publishers, London.

### **Landscape Designing- Concept and Principles**

**Semester III**  
**18BIDC07**

**Hours of Instruction/week: 5**  
**No. of Credits: 3**

**Course Objectives:** Enable students to:

1. Familiarise with the concept and history of landscape garden
2. Gain knowledge on raising gardens.
3. Understand principles to be followed in raising various types of garden.

**Unit 1: Concept of garden** **10**

Conceptual meaning of garden.

Importance of landscape gardening. History and development of gardening in India

**Unit 2: Types of garden** **15**

Formal garden, informal garden

English garden, Italian garden, French garden, Persian garden , Chinese garden, Moghal garden, Japanese garden ,wild garden and woodland garden, Xeriscape gardening- water efficient landscaping

**Unit 3: Designing garden in residential and commercial areas** **20**

Basic principles in landscaping – simplicity, balance, focalisation, rhythm and line, scale and proportion

Garden components – Trees, climbers and creepers, edge and hedges ,topiary and trophy, lawn, sunken garden, green house and garden adornments

Landscaping places of public importance - commercial areas.

Designing a home landscape garden

**Unit 4: Lawn** **15**

Importance of lawn and preparation of land for raising lawn

Methods of lawn making,

Plants suitable for lawn

Maintenance and protection of lawn grass

## Unit 5: Garden tools and implements

15

Meaning and importance

Digging and pruning tools, sprayers and dusters

Tools for intercultural operations

Appliances for watering and general garden equipment

**Total Hours: 75**

**Course outcomes:** Upon successful completion of the course, students will be able to:

1. Identify and characterise the historical context of professional landscape architecture
2. Create, analyze and evaluate three dimensional landscape designs effectively and critically.
3. Explore and analyze planting solutions for different types of garden
4. Possess knowledge and understanding about efficient landscaping
5. Apply practical knowledge constructively in the field of landscaping

### Text books:

1. **Bose et al**, (1999), “Floriculture and Landscaping”: Calcutta, Naya Prakash, India.
2. **Singh,A. and Sisodia,A**, (2017) , “Floriculture and Landscaping:, New Delhi: New India Publishing Agency,India.
3. **Bruce,S**, (2016), “Thinking about Landscape Architecture: Principles of a Design Profession for the 21st century”: New York, Routledge Taylor and Francis group, London.

### References books:

1. **Kumar, N**, (1999), “Introduction to Horticulture”, Nagarkoil: Rajalakshmi Publications, “ICAR Publications”, India.
2. **Randhawa, G.S, and Mukhopadhy, A**, (2000) “Floriculture in India”, Chennai: Allied Publishers, India.
3. **Reed Sue**, (2010),”Energy-Wise Landscape Design: A New Approach for Your Home and Garden”:, Canada, New Society publishers, North America

## **Furniture in Interiors**

**Semester III**

**Hours of Instruction/week: 4**

**18BIDC08**

**No. of Credits: 3**

**Course Objectives:** Enable students to

- Understand and develop the art and skill of designing furniture for various purposes in home interiors
- Gain knowledge on selection, arrangement, care and maintenance of furniture
- Differentiate types and styles in furniture - use and process in furniture construction, joints.

**Unit 1: Introduction to furniture**

**10**

Meaning and importance, classification

Furniture for comfort, rest and relaxation, work and storage, built-in and portable

Factors influencing furniture decisions – family needs, preferences, availability, principles of design and financial limit.

Factors to be considered in furniture selection and tips to buy furniture

**Unit 2: Styles of furniture**

**15**

Traditional, contemporary (Intermediate) and modern design in furniture.

Traditional furniture - Queen Anne, Chippendale, English Sheraton, Hepplewhite and Adam Period; American Colonial - American, Colonial and Federal. Georgian, Contemporary – 20<sup>th</sup> century furniture, Modern – features of modern furniture, modular furniture

**Unit 3: Construction of furniture**

**15**

Materials used in furniture construction-wood, cane, metals, plastics, fabrics, glass, modern materials – MDF, fiber glass, ply woods, veneers

Steps involved in construction – shaping, carving, turning, fluting, reading

Joining of furniture - types of joints

Upholstered furniture, upholstering – types, methods and materials used

**Unit 4: Use of furniture in interiors**

**12**

Arrangement of furniture using principles of design, general guiding concepts in arranging furniture, planning furniture for selected activities

**Unit 5: Care and maintenance of furniture**

**8**



Care of different types of furniture – wood, metals, plastic, and cane. Furniture polishes – types, natural and synthetic varnishes  
Other types of furniture finishes

**Total Hours: 60**

**Course Outcomes:** On completion of the Course, students will be able to:

- Identify and select furniture for different areas of a residence
- Analyse the furniture for the process involved, joints, joineries used and finishes applied in furniture construction
- Differentiate or interpret the styles in furniture
- Analyse the trends in furniture usage
- Care and maintain furniture used in a given area.

**Text books:**

1. **Gandotra V, Shukul M and Jaiswal N**, (2011). Introduction to Interior Design and Decoration, New Delhi: Dominant publishers, India.
2. **Premavathy .S**, (2005) Interior Design and Decoration, New Delhi: CBS Publishers and Distributors, India.
3. **Stuart. L**, (2013) Furniture Design: An Introduction to Development, Materials and Manufacturing, Laurence King Publishing, London.

**Reference books:**

1. **Faulkner, R. and Faulkner,S**, (1987). Inside Today's home, New York: Rinebart Winston, India.
2. **Mendelson, C**. (2005). Home Comforts the Art and Science of keeping house, New York: Scriber Company, London.
3. **Stepat, D.Van**, (1991). Introduction to Home Furnishings. New York: The Macmillan Company, London.

## Principles of Housekeeping

**Semester III**

**Hours of Instruction/week: 3**

**18BIDC09**

**No. of Credits: 3**

**Objectives:** Prepare students to:

1. Understand the concepts of Housekeeping
2. Develop skills in Housekeeping services
3. Gain knowledge on housekeeping equipment and supplies

### **Unit 1: Housekeeping and Sanitation**

**8**

Meaning, functions of housekeeping, , importance of housekeeping, need for good housekeeping, areas of housekeeping; Types of restaurants, Classification of Hotels , Introduction to Front office- Definition - Layout of Front office  
Sanitation: importance, types of cleaning, cleaning materials and equipment, general cleanliness of all rooms; personal grooming and etiquette,  
Personal hygiene and clothing; launderette

### **Unit 2: Role of Interior Decoration in Housekeeping**

**10**

Lighting and lighting systems in a hotel, layout of a room, lighting plan; Furniture and furnishing in hotels, classification of furniture, selection and arrangement, grouping of furniture according to their purpose, functionality, their form and construction, technology, modular furniture; Types of windows, curtains, valences and blinds  
*Soft coverings and accessories:* Upholstery of furniture, linen: Classification, characteristics, type and Importance of linen in office premises. Selection, procurement and storage of linen for rooms. Material management in effective linen service such as carpets, curtains, upholstery etc  
*Bed making procedures:* types of services and beds, maintenance and distribution of linen, Accessories: Pictures, flower arrangement; floor decoration and indoor plants. Platter carving: fruits & vegetables for carving, leaf and floral garnish designs for plating arrangements, displays and cocktail presentation, geometric patterns and carving techniques

### **Unit 3: Renovation and Refurbishment**

**10**

Renovation: Definition, purpose of renovating, types of renovations, reasons, barrier to renovations, suitability, renovation process and problems

Refurbishment: Importance of refurbishment and redecoration, temporary closure and continuous occupancy, critical path for renovation for rehabilitation, activities during renovation and post renovation

**Unit 4: Table Service** **8**

*Tablesides service:* French Service, Russian Service, English Service, American Service;  
*Table Settings:* Formal and Informal, Indian and Western Style, Table Appointments-  
Linen, Cutlery, Glassware and Table Napkins- Different Types of Folding.

**Unit 5: Waste Prevention** **9**

Solid waste, waste prevention – techniques and strategies, collection and disposal of wastes; pest control and eradication; reducing use of toxic chemicals. Principle of energy conservation, its generation, distribution and prevention of wastage

**Total Hours: 45**

**Course outcomes:** On the completion of the Course, students will be able to:

1. Appraise the role of housekeeping in various buildings.
2. Identify the housekeeping areas in a building
3. Develop personal abilities in housekeeping to work in commercial establishments.
4. Practice personal grooming and etiquette.
5. Adopt good waste management practices as an efficient housekeeping method.

**Text Books**

1. **Park, K.**, (2003), “Preventive and social medicine”, Jabalpur: M/s Banarsidas Bhanot Publication.
2. **Aggarwal, D.K.**, (2006), “House Keeping and Management”, Delhi: NCT Printers and Publishers, India.
3. **Andrews** (2007), “Text Book of Hotel Housekeeping”, Chennai: Tata McGraw-Hill Education publication, India.
4. **Andrews** (2007), “Textbook of Front Office Mgmt & Operation”, Chennai: Tata McGraw-Hill Education Publication, India.

**Reference books**

1. **Matt A. Casado**, (2011), “Housekeeping Management”, Pennsylvania State University - Wiley Publication.
2. **Raghubalan** (2009), “Hotel Housekeeping: Operations and Management”, Edition 2, Reprint, India: Oxford University Press.
3. **G. Raghubalan and R.Smritee**, (2015), “Hotel Housekeeping: Operations and Management”, Edition 3, India: Oxford University Press.

4. **Bhatnagar S.K** (2002), “Front Office Management”, Frank Bros. & Co. (Publishers) Ltd.

## **Studio II - Principles of Drafting**

**Semester III**  
**18BIDC10**

**Hours of Instruction/week: 3**  
**No. of Credits: 2**

### **Course Objectives: Enable students to:**

1. Develop basic skills in the use of drawing instruments and drafting techniques.
2. Improve skills in presenting 2D, 3D manual drawings and isometric drawings
3. Understand the basics of residential drawing.

### **List of Exercises:**

1. Orientation to drafting tools – table, boards, mini drafter, instruments box, set square and ‘T’ square; drafting medium – paper, tracing paper, film and drawing materials
2. Scale and dimensioning – scale – actual, reduction and enlarged; Units of measurement and scale factor, Dimensioning – meaning types – illustrating different types of dimensioning methods.
3. Lettering: single stroke, double stroke, vertical/ inclined, upper case, lower case and inclined letters and numerals
4. Geometrical Construction  
Introduction, points and lines, angles, triangles, quadrilaterals, polygons, circles and arcs  
Bisecting a line or an arc  
Divide a straight line into a given number of equal parts.  
Construction of planes and solid
5. Draw a regular Polygon – given one side – 2 methods – Pentagon, Hexagon and Octagon.
6. Types of Projection: Orthographic, Isometric and Perspective Projection  
Orthographic projection of solids: cube, cylinder, pyramids on a base of a square, rectangle, circle, triangle, pentagon, hexagon  
Axonometric view of – cube, cuboids, box, cylinder, hexagon and pyramid
7. Isometric projections of solids  
Isometric drawing – Isometric view of different shapes  
Isometric drawing - Isometric scale, isometric projection of square and rectangle.
8. Isometric and Axonometric view of chair, table, cupboard, steps and stool.
9. Perspective drawing-one point perspective and two point perspective, visual ray and vanishing point method
10. Record Submission

**Total Hours: 45**

**Course Outcomes:** On the completion of the Course, students will be able to:

1. Use drawing instruments and drafting techniques
2. Adopt scale, dimensioning and lettering techniques in presentation drawings
3. Draw orthographic and isometric drawings
4. Exhibit drafting skills to express design ideas
5. Draft perspective projections using different methods

**Reference Books**

1. **Lal.R and Rana.R .,** (2015),A Textbook of Engineering Drawing: Along with an introduction to AutoCAD® 2015, New Delhi: IK International Publishing House
2. **Natarajan K. V,** (2006), *A Text Book of Engineering Graphics*, Chennai : Dhanalakshmi Publishers, India.

## **Building Materials and Finishes**

**Semester IV**

**Hours of Instruction / week: 5**

**18BIDC11**

**No. of credits: 3**

**Objectives:** Prepare students to

1. Gain knowledge on concepts, types and use of building materials and selection tactics
2. Learn use of materials at different levels or stages of a building construction and aesthetic concepts of using finishes in buildings
3. Differentiate ideologies: traditional Vs recent building materials and their usage

### **Unit 1: Introduction**

**10**

Meaning and concept of building materials

Classification of building materials

Components of a building – Sub structure and superstructure and use of specific building materials.

### **Unit 2 : Construction materials**

**20**

Materials used at various levels of building – foundation, basement, plinth, wall, roof, ceiling, flooring, beams and columns, etc.,

Use, types, characteristics, advantages and disadvantages of brick, stone, sand, cement, wood, metals, glass and plastic.

Selection factors

### **Unit 3: Finishing materials**

**20**

Wall finishes – plastering, white washing, paint, wall paper, wood panelling, metal wall covers, tiles; use, selection, merits and demerits

Floor finishes – cement, mosaic, marble, tiles, wood, asphalt tiles, resilient materials; use, selection, merits and demerits.

Finishes applied to other areas.

### **Unit 4 : Roof and ceiling materials**

**15**

Roof – wood, metal, slate, tile, asphalt shingles, glass fibre shingles

Ceiling - false ceiling, plaster of paris, metal, glass, wood, acoustical ceiling materials, light ceiling – thermocol; use, selection, merits and demerits

**Unit 5 : Recent advances in building materials and finishes****10**

Construction materials, interior finishes and exterior finishes, partition materials.

Approximate cost of building materials and finishes.

Concept of green building materials.

**Total Hours: 75**

**Course Outcomes:** On completion of the Course students will be able to

1. Identify and select proper construction materials and finishes for building construction
2. Demonstrate knowledge of properties of various building materials
3. Describe usage and characteristics of building materials and finishes for strength, durability and aesthetics.
4. Explain the components of a building and analyse the availability of materials for building construction
5. Interpret construction materials Vs finishes & interior Vs exterior materials

**Text books:**

1. **Arora, S.P and Bindra, S.P.**, (2013) A Text book of building Construction. New Delhi: Dhanpat Rai Publications,India.
2. **Rangwala, S.C.**, (2008). Engineering Materials. Gujarat: Charotar Publishing House, India.
3. **Rangwala, S.C**, (2009). Building Construction. Gujarat: Charotar Publishing House, India.

**References:**

1. **Stewart and Walton, S (2000)**. Paint Recipes for surfaces. New York: Anness Publishing Ltd., London.
2. **Verma, B.P.**, (2003).Civil Engineering Drawing. Drawing and House Planning; New Delhi : Khanna Publishers,India.
3. Projects and Repairs using Concrete, Brick, Block and Stone (2000). Creative Publishing International.

## **Consumer Economics and the Green Consumer**

**Semester 1V**  
**18BIDC12**

**Hours of Instruction / week: 4**  
**No. of credits: 3**

**Course Objectives: Enable the students to**

1. Gain knowledge on various consumer economic issues
2. Understand concepts of consumer protection and consumer movement
3. Comprehend consumers' attitude and perception towards green marketing

**Unit 1 : Concept of Consumer economics** **8**

Meaning and importance of consumer economics  
Role of consumer economics in family welfare  
Concepts of consumerism, consumer and customer

**Unit 2 : Human wants, Demand and Supply** **10**

Definition, classification of human wants –necessities, comfort and luxuries .  
Meaning of demand and supply.  
Relation between utility, demand and supply, factors influencing demand and supply.

**Unit 3: Purchasing behaviour** **12**

Meaning and definition, characteristics of buyer behaviour  
Types of consumer behaviour  
Buying motives – types of consumer buying behaviour and buying process.  
Law of Diminishing marginal utility, Equimarginal utility and law of substitution, Factors influencing buyer behaviour.

**Unit 4: Consumer Protection** **15**

Exploitation of consumers, rights and responsibilities of consumers  
Consumer protection measures – legal and non-legal  
Consumer Protection Act (CPA) 1986; consumer redressal forum

**Unit 5 : Green Consumerism** **15**

Meaning and importance of green consumerism, Need to follow green consumerism,



Green purchasing-attitude towards green purchase and environmentally sustainable products.

Green marketing-bio degradable, environmentally friendly and safe, benefits and demerits of green products. Key issues related to green consumerism for the future

**Total hours : 60**

**Course Outcomes:** On completion of the Course, students will be able to

1. Identify the major influences on consumer behaviour
2. Analyze the implications of demand and supply.
3. Implement the most appropriate measures to tackle market situations
4. Identify the need for consumer protection and outline the areas covered by consumer protection laws.
5. Appreciate green purchase behaviour and advocate positive attitude towards green products.

**Text book:**

1. **Pattanchetti, C.C. and Reddy**, (2002). Principles of Marketing, Coimbatore: Rainbow Publishers, India.
2. **Steven ,D.S**, (2016). Consumer Economics: A Practical Overview”, New York: Routledge Taylor and Francis group.
3. **Juliana, M**, (2011). Green consumerism, United States: SAGE Publishers.

**Reference books:**

1. **Gupta, C.B. and Nair, R.N**, (2004). Marketing Management: Sultan Chand and Sons,
2. **Rajan Nair and Nair Sanjith R. Nair.**, (2003). Marketing: New Delhi: Sultan Chand Publications, India.
3. **Suja Nair**, (2002). Consumer Behaviour: New Delhi. Sultan Chand and Sons.
4. **Kathiresan, S. Radha, V**, (2004), Marketing: Chennai, Prasanna Publisher.

## Art in Commercial Space

Semester IV

Hours of Instruction / week: 4

18BIDC13

No. of credits: 3

**Objectives:** Enable students to

1. Understand, define and grasp key terms and principles involved in the components of commercial art.
2. Obtain a broad understanding of displays and be able to employ strategies for making timely and attractive, profitable display decisions in retailing.
3. Learn processes and techniques used in the retail industry to attract customers

### Unit 1 : Concept of Retailing

10

Introduction to retailing: Definition and scope, evolution of retailing, types of retail and retail locations, trends in retailing, benefits , retailing types in India, Emerging sectors in retailing The art of selling-displays/products/marketing, design of display units, design of boutiques, showrooms. Concepts in modern day retail interiors – materials & finishes – colour, texture & pattern, Retail purchasing and pricing, Components of Retail Promotion Mix, Retail Advertising Media, Architectural designs in commercial buildings - basic concepts, features of retail store architecture.

### Unit 2 : Visual Merchandising

10

Introduction, Objectives, Techniques, Visual Merchandising at different stores- Apparel store, Furniture store, Gift store. Store exteriors - store signs, facade; banners planters and awnings, elements of display. Product display –hierarchy of product display ,Exhibition spaces – display for exhibition; Lighting design for commercial spaces task/display/atmospheric/focal lighting; Colouring commercial spaces – coding/decoding/visual communication; Design of commercial environments such as Malls, Shopping Arcades Etc. Visual Graphics, photography and signage

### Unit 3 : Store Management in Merchandising

10

Introduction, Objectives, Types of stores, Location of a store, Types of retail locations, Planning a store Layout, Point of purchase display; Types of store Layouts- Grid layout, Forced-path layout, Free-form layout, Boutique layout, Combined layout, Store layout-- general arrangement, principles and factors; Store Space Allocation, Heads of space allocation in a store, Managing customer navigation in a store, General rules of Customer Traffic in a store, The loop for guiding the shoppers through a store

### Unit 4 :Window Design and Interior Display

15

Window Display: Meaning and definition, Concept and objectives of window

design, significance of display; windows, highpoints, focal points, nesting tables, staircase landings, step raisers, lift area, pennants/danglers, cash counters, space on hire like pillars and entrances; Purpose and importance of display, Rules of display planning, Display settings, Store design, Merchandising : Types of merchandise, merchandise display - exterior and interior, Merchandise presentation strategies, Seasonal displays, other techniques of merchandise placement, Colour blocking, physical materials used to support the display, components of display, Useful display fixtures - Shelves, Gondolas, Round racks, Four ways, Saccades and fixation, Replenishes, Planogramming.

**Unit 5 : Non- store Merchandising**

**15**

Introduction, objectives, non-store retail merchandising, Television retailing/home shopping, Internet retailing/online shopping, Catalogue management, Product presentation in Non- store retail merchandising, Graphic representations – Visual composition and Abstraction- Exercises involving Logo design, collage, calligraphy and printing

**Total hours: 60**

**Course Outcomes:** On completion of the Course students will be able to:

1. Identify elements needed for appropriate displays.
2. Locate possible problems in putting layouts together and work out ways of sorting them out
3. Create displays that achieve the required visual effect consistent with the company's visual design policy
4. Follow company procedures for safety and security
5. Practice as successful entrepreneurs adopting appreciable display methods.

**Text Books**

1. **Wells, W. D, Moriarty, S and Burnett,J** (2005), “Advertising: Principles and Practice” (7th Edition), Prentice Hall Publishers
2. **Kazmi, S. H. H and Batra, S. K** (2008), “Advertising and Sales Promotion”, New Delhi : Excel Books, India.
3. **Nair, R.** “Marketing”, Sultan Chand and Sons Publishers, New Delhi, 2002.
4. **Morgan, T.** (2010) “Window Display: New Visual Merchandising”,. Laurence King Publishing.
5. **Fernie, J, Fernie, S, Moore, C and Fernie, A.** “Principles of Retailing”, Routledge, (Taylor and Francis Group),

**Reference Books**

1. **Uffelen, V. C.,** (2008)“Malls & Department Stores”,(2 edition), Braun Publish,.
2. **Gormann, G. M.,** (1996) “Visual Merchandising and Store Design Workbook”, St Books; Workbook edition.

3. **Kubba, S.**, (2003) “Space Planning for Commercial and Residential Interiors”, McGraw-Hill Professional; 1 edition.
4. **Ebster, C. and Garus, M.**, (2011), “Store Design and Visual Merchandising: Creating Store Space That Encourages Buying”, Business Expert Press.

### **Studio III - CAD for Building Designs**

**Semester IV**  
**18BIDC14**

**Hours of Instruction / week: 3**  
**No. of credits: 2**

**Objectives: Enable students to:**

1. Understand the power and precision of computer-aided modeling and drafting
2. Create 2D representations of 3D objects as plan view, elevations and sections
3. Develop the ability to construct accurate 2D geometry and complex 3D shapes

**List of Exercises:**

1. **Introduction** to AutoCAD software, Screen structure, Coordinate systems- Absolute, Relative Rectangular, Relative Polar Coordinate, Units, Limits, Zoom
2. **Basic shapes:** Line, Arc, Circle, Rectangle, Polygon, Spline, and Ellipse.
3. **Editing tools** – Erase Undo, Move, Copy, Mirrors, Rotate, Trim, Extend, Scale, Stretch, Array, Offset, Fillet, and Chamfer
4. **Drafting Settings:** Polygon, Rectangle, Explode, Array, Scale, Offset, Trim, Extend, Break, Fillet
5. **Properties** : Colour, line type, line type scale, Line weight, Layer
6. **Text:** M Line, D Text, Text Edit
7. **Annotating:** Text & Hatching, B Hatch, H Edit, P Line, P Edit, and ADC.
8. **Dimensions** – Linear, Aligned, radial, diameter, Arc length, Jogged, Continuous, Baseline, Dimension style.
9. **Drawing:** Designs for door and window grill, gate, doors, Stair Systems
10. **Project** : Building Plan, Site Plan, Roof Plan, Elevations, Sections

**Total Hours: 45**

**Course Outcomes: On completion of the Course students will be able to:**

1. Appreciate basic concepts of the AutoCAD software
2. Apply the technique to develop construction drawings
3. Manipulate drawings through editing and plotting techniques
4. Understand geometric construction and Produce 2D Orthographic Projections
5. Demonstrate dimensioning concepts and techniques in 3D presentation

## **Family Resource Management**

**Semester V**

**Hours of Instruction / week: 5**

**18BIDC15**

**No. of credits: 3**

**Objectives: Enable students to:**

- Recognize the resources available in a family setting
- Understand the techniques involved in efficient use of available resources
- Develop the skills in utilizing the available resources in the residence programme.

### **Unit 1 : Time Management**

**15**

Time management – importance, factors influencing; tools used in time management – work unit, peak load, work curve, rest period and time norm; factors to be considered in making time and activity plans; steps in time plans; control of time plans and evaluating time plans.

### **Unit 2: Energy Management**

**20**

Energy demand in different stages of family life cycle; efforts based on home making activities; fatigue – types; ways of overcoming fatigue; controlling and evaluating energy. Work Simplification- definition, importance, work simplification techniques – process chart, operation chart, memo motion, cycle graph and path way chart; principles of body mechanics; Mundell's classes of change.

### **Unit 3: Money Management**

**18**

Income – definition, types – annual income profile, methods of handling income Methods of supplementing family income, Steps in money management – budget- importance, types, steps in making budget, factors affecting budget, advantage and disadvantages, obstacles to budgeting. Engel's law of consumption; controlling – checking, mental and mechanical check; account keeping – importance of account keeping, systems, guidelines in keeping accounts; evaluation

### **Unit 4: Credit and Savings**

**12**

Credit and savings; need for credit, importance, classification, factors affecting cost of credit, sources and type, legal credit instrument, guides to the wise use of credit; reasons for saving; objectives, types of saving institutions.

## **Unit 5: Residence Stay Programme**

**10**

Concept and objectives; organizing the residence stay – planning, menu, duties, budget, management of resources.

**Total Hours: 75**

**Course Outcomes:** On completion of the Course the students will able to

1. Identify the resources and factors influencing the use of resources.
2. Understand use of tools in time management in day to day life.
3. Apply work simplification techniques while planning work.
4. Develop skills to draw a budget within the available income and to maintain accounts.
5. Manage efficiently the available resources during residence stay.

### **Text Books:**

1. **Nickell.P (2002), Management in Family Living**, New York: CBS Publishers.
2. **Pushpa Chakravorty (2007), Home Management**, New Delhi: Pointer Publishers.
3. **Rama Yadav (2009), Home Management**, Jaipur : Alfa publications.

### **Reference books:**

1. **Seetharaman Premavathy (2005), Introduction to Family Resource Management**, Chennai: CBS Publishers.
2. **Sharma and Niraja (2006), Home Management**, Ahmedabad: Murari Lal Publishers.
3. **Goel (2016), Management of Resources for Sustainable Development**, New Delhi: Orient Blackswan, Pvt. Ltd.

## Principles of Ergonomics

Semester V  
18BIDC16

Hours of Instruction / week: 5  
No. of credits: 3

### Objectives: Enable students to:

1. Understand the relationship between the goals of ergonomics with design goals
2. Build knowledge on human interaction with task and technology
3. Relate products, environments and performance on well being considering human characteristics and limitations

#### Unit 1: Significance and scope of ergonomics

15

Aims, objectives and benefits of ergonomics, Definition and scope of ergonomics and systems of work, The role of the ergonomist, Fitting the job to the person and the person to the job, Human characteristics, capabilities and limitations, Interfaces between job, person and environment

#### Unit 2 : Biological Ergonomics

15

Anatomy and Physiology of Musculoskeletal -Skeletal system, Muscular-Contraction initiation, Tendons, Joints, ligaments and bursae and their Clinical significance in ergonomics. Anthropometry: Meaning, importance, methods of taking measurements; types of dimensions – structural and functional, Static and Dynamic, Anthropometry landmark: Sitting postures, squatting and cross-legged postures, Anthropometric measuring techniques, Applying work physiology -body metabolism, work capacity and fatigue,

#### Unit 3 : Biomechanics

15

Concept of biomechanics; work postures- postural variations and discomfort; measurement – physical work capacity, factors affecting energy requirement, caloric cost of various activities; methods of measuring costs, Control of Movements ,Types of Muscular Work, Muscular Fatigue , Types of Muscle Contractions ,Measurement of Muscular Strength

#### Unit 4: Physical Factors of the Work Environment

15

Lighting: Visual acuity and colour vision, Lighting levels, contrast and glare ; Noise: Noise induced hearing loss, Distraction, annoyance and emergency signals, Thermal Environment: Body temperature regulation and acclimatization, thermal comfort and

discomfort, Vibration -effects and subjective assessment

### **Unit 5 : Workplace Layout and Equipment Design**

**15**

Principles of workstation and system design, Risks to health: Work-Related Musculoskeletal Disorders: Types of Work-Related MSD's, Ergonomic Program for WMSD's , Occupational safety and stress at workplace to reduce the potential fatigue, errors, discomforts and unsafe acts. Furniture support, Vertical arm reach and design application, Humanising design: Design and human compatibility, comfort and adaptability aspects

**Total Hours: 75**

#### **Course Outcomes: On completion of the Course students will be able to:**

1. Distinguish the terms referring to health and safety and ergonomics
2. Identify and use ergonomic controls to reduce and prevent work-related disorders
3. Comprehend interrelatedness of work, worker and work environment on productivity
4. Adhere to safety principles during work performance
5. Relate significance of anthropometry to work place designing

#### **Text Books**

1. **Phillips, C.A.**,(2000), 'Human Factors Engineering', New York: John Wiley and Sons, Inc., USA.
2. **ILO**,(2001) 'Introduction to work study', New Delhi: Oxford & IBH publishing Co. Ltd., India.
3. **Hughes P and Ferrett E.**, (2009), 'Introduction to Health and Safety at Work', Oxford, Elsevier Science.
4. **Stranks J.**, (2006), 'Safety at Work', Key terms, Oxford, Elsevier Science.

#### **References:**

1. **Bridger, RS**,(2003), 'Introduction to Ergonomics', 2nd Edition, Taylor & Francis.
2. **Stephen Konz and Steve Johnson**, (2007), 'Work Design: Occupational Ergonomics', 7th Edition Holcomb Hathway.
3. **Dul & Weerdmeester**,(2003), 'Ergonomics for Beginners', Taylor & Francis.
4. **McKeown & Twiss**,(2001), 'Workplace Ergonomics: A Practical Guide', IOSH services.
5. **Dul J and Weerdmeester B.**, (2001), 'Ergonomics for beginners', London: CRC Press, UK.
6. **R.S.Bridger**,(2003), 'Introduction to Ergonomics', Taylor & Francis.
7. **Wilson & Corlett**, (2005), 'Evaluation of Human Work', Taylor & Francis.



## **Alternate Sources of Energy**

**Semester V**

**18BIDC17**

**Hours of Instruction / week: 5**

**No. of credits : 3**

### **Course Objectives :**

1. Become aware of the importance and principles of alternate energy sources.
2. Be sensitive to the present energy scenario in India.
3. Acquire knowledge on principles and technologies to use different types of solar devices.

### **Unit 1: Energy - Concept and Classification 15**

Meaning, importance, classification of energy resources – based on usability – primary, secondary, intermediate

Traditional use- conventional, non-conventional

Long-term availability – non renewable, renewable

Commercial application – commercial and non-commercial, energy scenario in India, environmental impact of fossil fuel use

### **Unit 2: Energy conservation 15**

Alternate sources of energy – meaning, importance

Types of alternate sources – solar, biomass, tidal and wave energy

### **Unit 3: Solar energy 20**

Principles and Technology of solar cooker, solar water heater, solar dryer, solar distillator, solar pump and solar photovoltaic cells

### **Unit4: Biogas technology 15**

Meaning, importance, principles, types of biogas plants and use of biogas

### **Unit 5: Wind energy 10**

Origin of wind, types of wind mills – horizontal axis machine, vertical axis machine, Major applications of wind power

**Total Hours: 75**

**Course Outcomes:** On completion of the Course the students will be able to

1. Appreciate significance of energy in different forms
2. Practice use of solar device and help in conserving fossil fuel
3. Benefit from the merits of using alternate energy sources

4. Act as prudent consumers in the use of natural energy resources
5. Contribute to the dual goals of conservation of energy resources and reduction of environmental pollution.

**Text books:**

1. **Khan,B.H (2006). Non-Conventional Energy Resources.** Bombay:Tata McGraw-Hill Publishing Company Ltd.
2. **Rai,G.D (2004),** Non Conventional Energy Sources, Fourth Edition,Delhi: Khanna Publishers.
3. **Agarwal,S.K (2005), Non-conventional Energy Systems.**New Delhi: APH Publishing Corporation.

**Reference books:**

1. **Vandana.S (2002), Alternative Energy.**New Delhi: APH Publishing Corporation.
2. **Curly.R (2005),** Renewable & Alternative Energy, New York:Britannica Educational Publishing.
3. **Garg.H.P. and Prakash.J(2007),Solar Energy Fundamentals and Applications,** New Delhi: Tata McGraw-Hill Publishing Company Ltd.

## **Residential Space Planning**

**Semester V**  
**18BIDC18**

**Hours of Instruction / week: 3+2**  
**No. of credits: 3**

### **Course Objectives: Enable students to:**

1. Understand the concept of life space and principles of planning
2. Acquire knowledge on institutions supporting housing activities in the Country.
3. Develop skill to draft house plans for various income groups.

### **Unit 1: Factors influencing interior residential spaces 15**

Biological needs, ecological concerns, cultural influences, Psychological effects – privacy, personal space, territoriality, crowding, Planning a space – people, location and orientation, resources available, Planning objectives – utility, economy, beauty and character

### **Unit 2: Planning space- concept, components and methods 15**

Concept of space planning – functions of house, owning Vs. renting, Factors considered in selection of site, principles of planning, Components of building - foundation, flooring, walls, ceiling and roof, Methods of construction-load bearing and framed structure, Levels of construction, Allocation of space for various activities – Social space, work space and private space. Types of plans – source of plan, site plan, floor plan, cross sections, elevation perspective view and landscape plans

### **Unit 3: Drafting house plans 15**

Symbols; standards used in drawing house plans, Drawing house plans for various income group – low, middle and high, Reading and judging house plans

### **Unit 4: Institutions supporting housing 15**

Financial institutions - HDFC, HUDCO, Nationalised Bank and LIC, Research Institutions - NBO, CBRI, SERC, Standards Institutions – Need for standardisation, types of standards, BIS and its role

### **Unit 5: Housing situation in India 15**

Types of housing, housing scenario, housing problems-causes and remedial measures, Housing schemes in India

**Total Hours: 75**

**Course outcomes:** Upon successful completion of the Course, students will be able to:

1. Demonstrate knowledge of space designing and its principles
2. Use basic principles of spatial lay out to create well designed residential floor plans
3. Analyze and apply client's needs to create effectively well designed floor plans
4. Understand the factors that influence the buying, building or the renting of houses
5. Identify key issues in housing finance, affordability and technology systems

**Text books:**

1. **Arora.S.P and Bindra S.P**, (2005), Building Construction, Delhi: Dhanpat Rai Pulications, India.
2. **Veena Gandotra and Sarjoo Patel**,(2006), 'House for Family Living', New Delhi: Dominant Publishers, India.
3. **Bhavikatti,S.S and Chitawadgi,M.V**, (2017), 'Building and Drawing', Hubli.
4. **Maureen Mitton**, (2004), 'Interior Design Visual Presentation-A Guide to Graphics,Models and Presentation Techniques',New Jersey: John Wiley and Sons, USA.
5. **Arora,S.P and Bindra S.P**(2005), Building Cnstruction, Delhi:Dhanpat Rai Pulications, India.

**Reference books:**

1. **Jankowsky, Wanda**, (2001), 'Modern Kitchen Work Book',New Delhi:Rockport Publishers, India.
2. **Raychaudhuri Dutt, Debjani**,(2002), 'How Best to Plan and Build Your Home: A Total Guide forthe Owner',Jaipur: Pustak Mahal, India.
3. **Tolpin, Jim**,(2001), 'New Family Home Creating the Perfect Home for Today and Tomorrow', New Delhi: Taunton Press, India
4. **Usha Shrikant**,(2002), 'Designs for a Lifetime',Chennai: Honesty Publishers, India.

## Studio IV - 3Ds Max in Interior Design

Semester V  
18BIDC19

Hours of Instruction / week: 5  
No. of credits: 2

### Objectives: Enable students to

1. Navigate Autodesk 3Ds Max Design user interface.
2. Use basic Autodesk 3Ds Max Design commands for professional 3D model design and rendering.
3. Provide complete rendering and animation in building interior and exterior

### List of Exercises:

1. **Introduction to 3Ds Max:** Viewport Navigation, Viewport Configuration , Object Selection Methods, Units Setup
2. **Standard and Extended Primitives:** Box, Cone, Sphere, Cylinder, Tube, Torus, Pyramid, Teapot, Plane *Extended:* Hedra, Torus Knot, Chamfer Box, Chamfer Cylinder, Oil Tank, Capsule, Spindle, L-Ext, Gengon, C-Ext, Ringwave, Hose, Prism
3. **Splines :** Line, Rectangle, Circle, Circle Arc, Donut, Star, Text, Helix, Section, Blob Mesh
4. **Boolean Operations:** Connect, Loft, Mesher, Scatters, Shape Merge, Terrain
5. **Materials: Introduction to Materials,** Understanding Maps and Materials, Managing Materials , Standard Materials, Material Shaders
6. **Modifier List:** Bend, Bevel, Extrude, Cross Section, FFD 2x2x2 / 3x3x3, FFD 4x4x4, Lathe, Lattice, Melt, Mirror, Path Deform Binding, Push, Relax, Ripple, Skew, Slice & Caps Hole, Spherify, Squeeze, Stretch, Taper, Tessellate, Twist, Wav
7. **Importing a CAD Drawing**
8. **Animation for Visualization:** Animate Object, Animation and Time Controls, **Rendering and Cameras:** Render the Object
9. **Lights with mental ray :** Free spot, Lens Effect, Omni, Skylight, Target spots, Volume light and Walkthrough
10. **Project :** Creating Walls, Doors, Window, Adding Floor and Ceiling

**Total hours: 75**

**Course Outcomes:** On completion of the Course students will be able to:

1. Demonstrate 2- dimensional and 3-dimensional representation of the design ideas

2. Practice various types of rendering and visualization skills
3. Understand the fundamental concepts and techniques in 3D modeling
4. Evolve designs using learnt concepts
5. Satisfy client requirements and customize design

### **Building Services for Interiors (Self Study)**

**Semester V**  
**18BIDC20**

**Hours of Instruction / week: 1**

**No. of credits: 4**

**Objectives: Enable students to:**

1. Imbibe the knowledge on mechanical services in buildings
2. Expose selves to ideas, issues and concepts of sustainable architecture
3. Understand the implications of energy in building design

**Unit 1 Concept of building services in interiors 3**

Types of services: Safety and security, Energy, electrical / electronic systems, mechanical cum electrical systems, ICT networks

**Safety and security systems** - Fire safety and protection alarms, smoke alarms, burglar alarms, access control, CCTV, visitor information, intruder alarm, intelligent services (BMS and BAS), interface with security consultant specialty systems, fire service and police patrols

**Unit 2 Energy services 3**

Energy generation, distribution, supply, emergency power distribution, UPS, computers and communication networks, power storage, power for building operational equipment like food service, waste disposal, launderette, entertainment equipment, fuel gas piping

**Unit 3 Essential electrical/ electronic services 1**

Lighting, power distribution, heating, human sensory devices, sensor – controlled devices

**Unit 4 Essential electrical cum mechanical services 5**

Refrigeration, AC, vertical transportation systems (lifts, escalators), acoustic systems

**Essential mechanical systems** - Plumbing (water supply and drainage), waste disposal systems, sanitation systems (soak pits and septic tanks), and noise control devices

**Unit 5 ICT networking – data based systems 3**

Public address systems, paging, and external communication systems, cable TV , data networks and voice networks, auxiliary systems – telephone and telecommunication, basic and special features

**Total Hours - 15**

**Course Outcomes:** On completion of the Course, students will be able to:

1. Have a thorough knowledge on building services
2. Critically analyse various safety and security systems in buildings
3. Differentiate systems like mechanical, electric and electronic systems
4. Appraise role of communication systems in modern interiors
5. Comprehend human sensory devices used in interiors

**Text books:**

1. **Kasu**, (2005), 'Interior Design', Mumbai: Ashish Book Center, India.
2. **Leger.E**, (2003), 'Complete Building Construction', London: Wiley-dreamtech India Pvt Ltd, UK.
3. **Park, K**, (2003), 'Preventive and Social medicine', Jabalpur: M/s BanarsidasBhanot Publishers, India.

**Reference books:**

1. IS codes and NBC publications
2. BIS special publications
3. **Grondzik, Kwok, Stein and Reynolds**, (2002), 'Mechanical and electrical equipment for buildings', (11<sup>th</sup> Ed)

## **Applied Arts in Interior Decoration**

**Semester VI**

**Hours of Instruction / week: 5**

**18BIDC23**

**No. of credits : 3**

### **Course Objectives :**

1. Develop awareness and appreciation of arts and aesthetics.
2. Apply the principles in creating art objects for home decoration.
3. Understand and appreciate major work of artists.

### **Unit 1: Art in the Home**

**10**

Meaning of art, significance of art in the home

Factors governing art in the home-use, geography, community, material, individuality and appearance.

### **Unit 2: Natural Materials for Decoration**

**25**

Ornamentation in wood-color, texture, joints, molding, carving and turning; pieced design in wood-inlay, intarsia, marquetry, parquetry; wood finishes- opaque, transparent, penetrating, plastic impregnated, glossy, distressed, antique.

Ceramics – meaning, types – earthen ware, stone ware, china, porcelain; process in making ceramics, ornamentation in ceramics – painting or printing, carving (or) modelling, use in home.

### **Unit 3: Artificial Materials for Decoration**

**15**

Metal – characteristics; shaping metals- hammering, shaping under moulds, casting into moulds; methods of enrichment – chasing, annealing, damascening, electroplating, embossing or repousse, engraving, etching, forging, spinning; qualities of metals- aluminium, bronze, brass, silver, copper, gold, iron and steel.

Plastics- families of plastics – thermo plastics and thermosetting plastics; characteristics – flammability, biodegradability, noxious fume, form and ornamentation in plastics.

Glass – component, characteristics, forms in glass – hand blown, pressing or molding, drawn or falling, enrichment of glassware – cut glass, engraved glass, etched glass, enameled and gilded glass, leaded, stained, rivalled glass.



## **Unit 4: Sculpture and Graphics**

**15**

**Sculpture** – meaning, types – relief, free standing

Process in sculpture – subtractive, additive and replacement; sustainability of methods of different materials; use in the home.

**Graphics** – Meaning, types – hand process and mechanical process- relief, intaglio, planography

## **Unit 5: Study of Major Work of Artists**

**10**

Foreign artists – Michelangelo, Leonardo Da Vinci, Raphael Sanzio, PabloPicasso, Vincent Vangogh

Indian artists – Raja Ravivarma, R.K.Laxman, M.F.Hussain.

**Total Hours: 75**

**Course Outcomes:** On completion of the Course the students will be able to

1. Understand the significance of art and develop good taste among students.
2. Apply art in creating aesthetic interiors.
3. Know art of sculpting and bring aesthetics in interiors using sculptures.
4. Use the art of graphics resulting in creating 2D, 3D pictures for various areas.
5. Enjoy masterpieces of renowned artists for their aesthetic and functional values.

### **Textbooks:**

1. **Faulkner, R., and Faulkner, S., (1986) Inside Today's Home.**New York:Rinehart publishing Co.
2. **Malhotra, S. and Malhotra, R., (2001), Drawing Techniques, An artist's hand book on drawing and printing,** New Delhi: Sachdwa Publications.
3. **Seymour, P., (2003) The artist's hand book – A complete professional guide to materials and techniques.**London:Arctarus Publishing limited.

### **Reference books:**

1. **Malhotra, S. and Malhotra, R., (2001), Fine arts drawing,** New Delhi: Sachdwa Publications.
2. **Sudhir, A, (2002) Food and Beverage Service, Training Manual,**New Delhi: Tata McGraw Hill Publishing Company Limited.
3. **Faulkner, R., (1956) Art Today – an introduction to the fine and functional arts,**New Delhi: Rinchart and Winston.
4. **Sumner Mck, (1959) Art- through the ages,** London: G.Bell and Sons, Ltd.

## **Waste Management for Health and Wellbeing**

**Semester VI**  
**18BIDC24**

**Hours of Instruction / week: 5**  
**No. of credits: 3**

### **Course Objectives: Enable students to:**

1. Imbibe concepts on waste and waste management
2. Know the methods of waste disposal- solid, liquid and gaseous
3. Increase sensitivity to unsafe disposal methods

### **Unit 1: Concept of waste**

**15**

Definition, Waste classification, sources- household, municipal, medical, agricultural, industrial, construction /demolition, e-waste; types of waste - liquid, solid, hazardous, organic, recyclable and radioactive waste

Environmental effects of unsafe waste disposal - pollution- air, water, land (soil)

### **Unit 2: Liquid Waste Management**

**20**

Wastewater - Water resource and its significance – Water: a remarkable substance of planet earth, Water pollution: Types, sources and impacts – Surface water, ground water pollution, Wastewater: Domestic – black and grey water; industrial and agricultural wastewater  
Wastewater Treatment, Aerobic process – activated sludge system, trickling filters , Anaerobic process – CSTR, Anaerobic Filters, UASB Oxidation ponds Process design. Advanced techniques: Membrane filtration, Gas stripping, Ion exchange, Advanced Oxidation Process (AOP).

### **Unit 3: Solid waste management**

**15**

Solid waste treatments: Landfills - Classification - Types and methods. Biological process – Composting-production of bio fertilizers and biogas. Thermal process – Incineration, gasification, wet oxidation, pyrolysis, pelletisation and energy production  
Waste management through Reduce, Recycle and Reuse, Kitchen waste management  
Current issues in Solid Waste Management

### **Unit 4: Hazardous Waste Management**

**15**

Introduction - Definition and classification of hazardous waste- Need for hazardous waste management – Sources of hazardous wastes

Effects on community – terminology and classification – Storage and collection of hazardous wastes

Problems in developing countries, Protection of public health and environment.

Nuclear Wastes and e-waste – characteristics. Types – Nuclear waste – Uranium mining and processing, Health and environmental effects.

Biomedical and Chemical Wastes - Biomedical wastes – Types

Management and handling – control of biomedical wastes

Chemical wastes – Sources – Domestic and Industrial

Inorganic pollutants – Environmental effects – Need for control – Treatment and disposal techniques – Physical, chemical and biological processes – Health and environmental effects.

### **Unit 5: Effective waste management**

**10**

Waste management - meaning and concept, Principles of waste management

Waste hierarchy, life cycle of a product.

Economic effects-municipal well being, recycling revenue

9R's concept, waste reduction and waste minimization, environmental considerations.

Financial and marketing aspects; policy and regulations; education and training

Planning and implementation.

**Total Hours: 75**

### **Course Outcomes: On completion of the course students will be able to:**

1. Identify the sources and classify wastes
2. Manage solid and liquid waste in resourceful manner
3. Advocate safe waste disposal methods
4. Improve their civic responsibilities
5. Address issues related to waste management and find solutions

### **Text books:**

1. **Salahuddin.M,** (2011), 'Waste Management in an Urban Area', New Delhi: B.R. Publishing Corporation, India.
2. **Glynn, H. J., and Gary, W. H,** (2004), 'Environmental Science and Engineering', New Jersey: Prentice Hall, US.
3. **Hosetti B.B,**(2016), 'Prospects and Perspectives in Solid Waste Management',New Delhi: New Age Publishers, India

### **Reference books:**

1. **Singh, H. M,** (2011), 'Solid Waste Management', New Delhi: Alfa Publications, India.
2. **Anand,S.,**(2010), 'Solid Waste Management',New Delhi: Mittal Publications, India.

3. **Aarve, V. P., William, A. W. and Debra, R. R,** (2002), 'Solid waste engineering', Cengage reading, USA.
4. **George, T. and Frank, K,** (2002), 'Handbook of solid waste management', Second Edition, New York: McGraw Hills, USA
5. **Tammemagi, H. Y,**(2000), 'The Waste Crisis: Landfills, Incinerators, and the Search for a Sustainable Future', New York: Oxford University press, USA.

### **Kitchen Equipment**

**Semester VI**  
**18 BIDC25**

**Hours of Instruction/ week: 5**  
**No of credits: 3**

**Objectives: Enable students to:**

7. Understand the principles underlying the operation, use, care and storage of household equipment
8. Gain knowledge on planning a kitchen
9. Imbibe the principles underlying selection of equipment

**Unit 1 Introduction to Kitchen Equipment 10**

Meaning and importance of kitchen equipment, classification of equipment- portable/ non portable, electrical/ non electrical, motor driven/ hand operated, equipment related to preparation, cooking, cleaning, servicing, brown and white goods

**Unit 2 Electrical considerations 15**

Wiring system, types of circuits – general, appliance and special purpose. Measurement of electricity, meaning of volt, watt and units

**Unit 3 Kitchen planning and electrical consideration 15**

Types and shapes of kitchen, modular kitchen, planning, work centres, work triangle, plumbing and electrical outlets, materials used- counter shelves, work tops, washing areas.

**Unit 4 Operation, use, care and storage of household equipment 20**

Kitchen tools and equipment  
Hand operated and electrical equipment  
Equipment related to cleaning – Dishwasher, Vacuum cleaner, electric chimney, food preparation – mixer, grinder, blender, food processor and cooking – cooking range, rice cooker.  
Electronic Equipments - microwave oven and induction stove  
Handling minor problems and repairs

## **Unit 5 Consumer's role in purchase of equipment**

**15**

Factors affecting requirement and selection of major appliances

Purchase of efficient, safe and quality appliances, guarantee and warranty, trends in availability of equipment in the market

**Total Hours: 75**

### **Course Outcome: On completion of the Course, the students will be able to**

1. Understand and classify kitchen equipment's under different categories
2. Plan kitchens; calculate the electrical consumption for various equipments.
3. Explain wiring system
4. Select, use, operate and maintain major electrical and non – electrical equipment.
5. Practise wise consumerism

### **Text Books:**

1. **Ehrenkranz F and Inman.I**, (1973), 'Equipment in the Home', New York-Harper and Row publications, USA.
2. **Peet.L.J, Pickett.M.S, and Arnold. M.G**, (1979), 'Household Equipment', New York - John Wiley Publication, USA.
3. **Van Zante, H.J**, (1970), 'Household Equipment Principles', New York-Prentice Hall Publication, USA.

### **Reference Books:**

1. **Agarwal .D.K**, (2006), 'Kitchen Equipment and Design', New Delhi - Aman Publications, India.
2. **Robert. L, and Smith**, (2002), 'Electrical Wiring Industrial: Based on the 2002 National Electrical Code', Delmar / Thomson Learning Publisher.
3. **Wanda.J**,(2001), 'Modern Kitchen Work Book – A Design Guide for Planning a Modern Kitchen', Rockport Publishers, USA

## Basics in Architecture

Semester VI  
18BIDC26

Hours of Instruction / week: 5  
No. of credits: 3

**Objectives:** Enable students to:

1. Understand the scope and development of architecture
2. Identify masterpieces and architectural features of period styles
3. Gain knowledge on influential factors in architecture

### **Unit 1 : Development of Architecture (Prehistoric)**

**15**

Definition and conceptual meaning; general influences on architecture Prehistoric-Mesolithic, Neolithic through Mesopotamia and Egypt- an overview  
Regional, secular, religious and domestic architecture

### **Unit 2: Elements of Architecture**

**20**

Elementary forms of construction - post and lintel – arches – cantilever Classical orders of architecture - Doric order, Ionic order, Corinthian order; Roofing techniques using arches, truss, vaults, domes, squinches and spherical Pendentive and corbelling

### **Unit 3 : Classical Period**

**15**

Pioneers in architecture- Greek, Roman and Gothic

Specific masterpieces - **Greek**- Acropolis, Propylaea, Parthenon, Agora and Erechtheum

**Roman**-Forum of Trajan, Colosseum, Baths of Trajan, Pantheon, Aqueducts and Apartment houses

**Gothic**-Chartres Cathedral

### **Unit 4: Indian Architecture**

**15**

Indus valley civilization-Harappa and Mohenjodaro;

Religious architecture - first rock cut and stone built temples

Buddhist architecture

Pallava's contribution-Mahabalipuram - five rathas, stone temple, Caves of Ellora, Kailasanatha temple

Medieval temples; Brahadiswara temple-Tanjavur;

The towers of Bhuvaneshwar - Lingaraja temple, Sun temple at Konark, Khajuraho-Kandariya, Mahadeva Temple; new architecture

Use of sandstone by Hoysalas, Temples of Deccan - Belur and Halebid; Vijayanagara period, Srirangam, Madurai; understanding the importance of Kudu, Kutas, Salas and Bodigaye

Secular architecture - Bahai temples, Lotus temple, domestic architecture - Islamic contributions in India - Master pieces-tombs, mosque, domestic buildings, Tajmahal.

**Unit 5: Modern influences on architecture**

**10**

Architectural features of modern secular, religious, political, commercial and domestic buildings  
Modern influences on architecture - methods, materials, finishes and techniques of construction  
Prefabrication and modular coordination -The new school of thought  
Influence of 'Vasthu Shastra' and Feng-shui' in architectural designs

**Total Hours :75**

**Course outcomes:** On completion of the Course, students will be able to:

1. Identify rudiments of architecture and influential factors
2. Compare characteristic features of period style architecture
3. Appreciate influence of materials and methods in development of architecture
4. Adore architectural masterpieces for their uniqueness
5. Identify and appraise modern constructions adopting period styles for their similarities

**Text Books:**

1. Crouch, Christopher,(2000), 'Modernism in Art Design and Architecture', New York: St. Martins Press, USA.
2. **Curl, James Stevens**, (2006), 'A Dictionary of Architecture and landscape architecture' (Paperback), II Ed., London: Oxford University Press; ISBN: 0-19-860678-8, UK.
3. **Giachetti, R.E.**, (2010), 'Design of Enterprise Systems, Theory, Architecture, and Methods', Boca Raton, FL: CRC Press

**Reference books:**

1. **Asher, F.M.**,(2003), 'Art in India – Prehistory to the Present', Encyclopaedia Britannica, Inc..
2. **Michell, G**, (2000), 'Architecture and Art of Southern India In: The new Cambridge History of India', Replika Press Pvt. Ltd., Delhi.
3. **Parikh, A., Robertson, D., Lane, T., Hilliard, E. and Paine, M.**, (2000). The Ultimate Home Design Source Book, London: Conran Octopus Ltd., UK.

## **Studio V - CAD Application in Building Design**

**Semester VI**  
**18BIDC27**

**Hours of Instruction / week: 5**  
**No. of credits: 2**

**Course Objectives:** Enable students to:

1. Develop skills in creating building and interior designs using AutoCAD and 3Ds Max
2. Be able to create details from a given drawing
3. Use softwares to give effective and realistic outputs and presentation

**List of Exercises:**

1. Review 2D, 3D drawings using Auto CAD, 3Ds max and introduction to Photoshop
2. Develop a double storeyed Residential building plan using Auto CAD
3. Develop Front Elevation and cross section of ground floor plan using AutoCAD
4. Detailed drawing of interiors - top, front and side view of cupboard, chair, sofa and a table
5. Isometric drawing of a cupboard and show case
6. Import drawing from AutoCAD and develop 3D elevation using 3Ds Max.
7. Create a kitchen design using 3Ds Max
8. Material application, lighting, camera & Rendering in 3 Ds Max.
9. Edit the rendered image using Photoshop.
10. Report / Record Submission.

**Total Hours: 75**

**Course Outcomes:** After completion of the Course, students will be able to

1. Draw ground floor, first floor plan, elevation and cross section using AutoCAD.
2. Create and explain detailed drawings of interiors in 2D
3. Develop interior drawings using 3Ds Max.
4. Visualise building interiors and exteriors using 3Ds Max.
5. Edit and present the image using Photoshop

**Software used:** AutoCAD, 3Ds Max, Photoshop



## Studio-VI Model Making Workshop

Semester IV  
18BIDC 28

Hours of Instruction / week: 3  
No. of credits: 2

### Objectives:

1. Have an introduction to varied practices of Model making
2. Have insight into the different aspects of commercial Model making and demonstrate the techniques used in key areas
3. Do single model, enabling skill development which can enhance their career prospects

### List of Experiments:

1. Introduction to concept of model making and various materials and tools used for model making
2. Preparation of base for models using wood or boards: Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.
3. Scaled models of furniture
4. Developing building models - showing details on exterior components – Windows/Glazing, Doors, Sunshades, Wall Panel, Roof
5. Making detailed model which includes the representation of various building elements like Walls, Columns, Steps, and Handrails using materials like Mount board, Snow-white board, and acrylic sheets.
6. Creating models showing interior of house with furniture and interior components.
7. Representing various surface finishes like brick/stone representation, stucco finish etc.
8. Various site elements – Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.
9. Making models of the various interior spaces such as Residences ,Offices ,Retail Spaces, Recreational Spaces
10. Presentation of developed models with colour, lighting and landscape design model.

**Total Hours: 45**

### Course Outcomes:

1. Comprehend the techniques of model making
2. Enjoy making prototypes of different buildings

3. Determine scale model requirements
4. Benefit from the hands-on experience gained for future career prospects
5. Appraise/ compare feasibility of different materials for making models