



Avinashilingam Institute for Home Science and Higher Education for Women
 (Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD)
 Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
 Coimbatore - 641 043, Tamil Nadu, India

Department of Resource Management
M.Sc. Interior Design and Resource Management

Programme Outcomes:

1. Apply possessed knowledge of fundamental subjects to solve different problems
2. Analyze various research and scientific problems
3. Design system reactions with appropriate consideration to safety, economy, health and environmental considerations
4. Solve complex scientific problems by conducting scientific derivations or mathematical simulations
5. Use modern tools, resources and software
6. Apply their responsibilities in social and environmental context
7. Exhibit professional ethics and norms of scientific development
8. Function individually and in teamwork
9. Communicate effectively in both verbal and written forms
10. Manage the work and finance of a research, application projects
11. Practice the use of lifelong learning

Programme Specific Outcomes:

1. Apply lateral thinking with techno fervor and act as proactive agents of change
2. Develop a competitive edge in career options and be a responsible consumer and able designer
3. Extend technological linkages for professional development

Scheme of Instruction & Examinations
 (for students admitted from 2023-2024 & onwards)

Part	Subject Code	Name of Paper / Component	Hours of instruction / week		Scheme Examination				
			T	P	Duration of exam	CIA	CE	Total	Credit
First Semester									
I	23MIRC01	Designing Life Space and Interior Decor	5	-	3	40	60	100	5
	23MIRC02	Sustainable Planning - Living Space and Resource Management	4	-	3	40	60	100	4
	23MIRC03	Advanced Landscape Designing	2	2	3	40	60	100	5
	23MIRC04	Furniture and Furnishings	3	2	3	40	60	100	4
	23MIRC05	Household Equipment-I	3	-	3	40	60	100	3
	23MIRC06	Household Equipment-II	-	3	3	40	60	100	3
	23MIRC07	Consumerism and the Green Consumer	4		3	40	60	100	3
II		CSS/Adult Education/Community Engagement and Social Responsibility	2	-	-	-	-	-	

Second Semester									
	23MIRC08	Research Methods and Statistical Applications	6	-	3	100	-	100	5
	23MIRC09	Renewable Energy	5	-	3	40	60	100	3
	23MIRC10	Creative Applied Arts		4	3	40	60	100	4
	23MIRC11	Advanced Resource Management	5	-	3	40	60	100	5
	23MIRC12	Advanced Visual Representation-I	-	3	3	40	60	100	4
I		Interdisciplinary course	2	2	3	40	60	100	4
	23MIRC13	Mini Project	1	-	-	100	-	100	2
II	23MXCSS1/ 23MXAED1/ 23MXCSR1	CSS/ Adult Education/ Community Engagement and Social Responsibility	2	-	-	100	-	100	2
II		Professional Certification Course							2
Internship during Summer Vacation (1 month)									
Third Semester									
I	23MIRC14	Trends in Architecture and Building Design	5	-	3	40	60	100	5
	23MIRC15	Resource Use in Entrepreneurship and Event Management	5	-	3	40	60	100	4
	23MIRC16	Ergonomics in Work Place Design	5	-	3	40	60	100	5
	23MIRC17	Housing and Energy - Policies and Programmes (Open Book Test)	4		3	100	-	100	3
	23MIRC18	Advanced Visual Representation-II		3	3	40	60	100	4
	23MIRC19	Environmental Sanitation (Self -Study Course)	1		3	40	60	100	4
	23MIRC20	Housekeeping and Front Office Operations	3	2	3	40	60	100	4
I		Multi-disciplinary course	2		3	100	-	100	2
II	23MIRC21	Internship	1 month			100	-	100	2
Fourth Semester									
I	23MIRC22	Research Project				100	100	200	8
Total								2600	98

MOOC courses- 2-4 Credits

Other courses offered by the department

IDC-23MIRI01 - Interior Design Perspectives

MDC - 23MIRM01 – Green Consumerism

Professional Certification Course -23MIRPC1/23MIRPC2/23MIRPC3- Interior Architecture and Design (Revit Architecture/ V Ray/ DV Pro)

Minimum Credits to earn the degree - 98+2 Credits

Designing Life Space and Interior Decor

Semester: I
23MIRC01

Hours of instruction/Week: 5
No. of credits: 5

Objectives: Enable students to:

1. Expand knowledge: Interpret the nuances of application oriented concepts of life space
2. Enhance individual skills: Design and draft houses to suit family needs
3. Develop aesthetic sense: Apply principles of Interior Design to evolve aesthetic interiors

Unit 1. Designing Interior Space

Concept, importance and classification of Life space

Concept and significance of environmental psychology in space designing

Factors determining life space in interiors, trendsetting from spacious to compact interiors; preference for multistoried buildings, refurbishment and adaptive reuse (Interior designer – Qualities & role)

10

Unit 2. Aesthetics in Interiors

Concept of design and interior design

Elements and principles of design, color theories, development of colour schemes, use and application

20

Light and lighting fixtures

Accessories: functions and role in interior design.

(Use of elements, principles and colour in interior designing; recent trends in Interior design)

Unit 3. Planning Space for Residential Interiors

Objectives, process of house planning

Selection of site, schematic diagram; Principles of house planning

Types of plans - reading house plans, application of space saving techniques

20

Evaluating and existing plan, remodeling plans (Drafting model house plans)

Unit 4. Materials and processes

Components of a building, Levels of construction, Methods of construction- load bearing and non- load bearing (framed construction) walls

Building materials and finishes for various components

15

Building services – factors to be considered.

(Drawing wiring and plumbing plans)

Unit 5. Innovative Textiles in Constructions

Technical textiles – use in construction and insulation

Glass fibres and Kevlar fibres

10

Translucent concrete – fine ground concrete with carbon and glass fibres and fabrics

(Innovative building materials: Build tech and Home tech)

Total Hours 75

Text books:

1. **Oei, I and Kegel, D. E** (2002), The Elements of design; Rediscovering Colours, Textures, Forms and Shapes, London: Thames and Hudson
2. **Piorrowski, C. M.**, (2008), Professional practice for Interior designers, New Jersey, USA: John Wiley and Sons, INC

3. **Pile, J.**, (2003), Interior Design, 3rd Ed, New Jersey, USA: Pearson

Reference Books:

1. **Piotrowski, C.**, (2004), Becoming an Interior Designer, New Jersey, USA: John Wiley & Sons
2. **Shah, M. G., Kale, C. M and Patki, S. Y** (2002), Building drawing: with an integrated approach to built environment, New Delhi: Tata McGraw Hill education; ISBN: 0074638769, 9780074638767
3. **Gifford, R.** (2014). Environmental Psychology: Principles and Practice (5th Ed.). Colville, WA: Optimal Books
4. **Graham, P.** (2003). Building Ecology: First Principles for a Sustainable Built Environment, Blackwell, Oxford, U.K
5. **Latham, D.** (2000). Creative Re-Use of Buildings, Donhead Publishing Ltd, Dorset, UK

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

1. Interpret, examine and reason out the role of various factors comprising concept of life space and their role in planning buildings
2. Practice knowledge gained on selection of site and building principles in real life situations
3. Read, understand / comprehend building plans and evaluate them
4. Examine market trends, merits and demerits of building materials and finishes
5. Appreciate principles of design and the contributing factors and refine personal aesthetic senses

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	L	-	-	H	M	H	H	L	H	L	M	M
CO 2	H	H	L	-	-	H	M	H	H	L	M	L	M	M
CO 3	H	H	L	-	-	H	M	H	H	L	L	L	M	M
CO 4	M	H	H	-	-	H	L	H	H	M	M	M	M	L
CO 5	H	H	L	-	-	M	L	H	H	M	L	-	L	

Sustainable Planning - Living Space and Resource Management

Semester I
23MIRC02

Hours of Instruction/ week: 4
No. of Credits: 4

Objectives: Enable students to:

1. Develop sensitivity to resource crunch and causative factors
2. Gain exposure to the call for conservation of natural resources at the global level
3. Learn the rudiments enabling conservation of resources in built environments

Unit 1. Impacts of consumption and production

International Resource Panel (IRP), United Nations Environment Programme (UNEP), Impacts of consumption and production; consumption related to mobility, shelter, food and energy saving products as causes for life cycle assessment, impacts of consumption (Case study) **15**

Unit 2. Life cycle approach to sustainability Concepts and context, types of sustainability, sustainable living practices, use of renewable energy, alternative technology, types of appropriate technology, (The 9R's concept) **10**

Unit 3. Water conservation
Water conservation measures in interiors, use of grey water, storm water use through rain water harvesting, sullage use through effluent treatment plants (Test water for potability from a few houses) **10**

Unit 4. Energy conservation
Energy efficiency in built environments and use of appliances, HVAC, electronics, lighting, building automation; introduction to energy star labeling and star rated products (Make an inventory of energy labeled, star rated appliances in five homes) **10**

Unit 5. Eco friendly materials
Concept of sustainable shelter, Lifecycle assessment using eco friendly materials, sustainable building materials, low VOC paints, low e- coatings, E- glass for insulation, Cradle – to – Cradle designs (Market survey) **15**

Total Hours 60

Text Books:

1. **Sharon, A.**, (2008) Depletion and Abundance: Life on the New Home Front. Canada: New Society Publishers.
2. **Douglas, F.**, (2008). *Sustainable Urbanism*. Hoboken, New Jersey: Jon Wiley & Sons.
3. **McDilda, Gow, D.**, (2007) The Everything Green Living Book: Easy Ways to Conserve Energy, Protect Your Family's Health, and Help save the Environment. Avon, MA: Adams Media.
4. **Princen, T** (2005), The Logic of Sufficiency. New York: MIT Press. ISBN-13: 9780262661904

Reference Books:

1. **Wm, C.**, (2004) A Handmade Life: In Search of Simplicity. New York: Chelsea Green, 2004.

2. **Richard, H.**, (2004) Power down: Options and Actions for a Post-Carbon World. Canada: New Society Publishers.
3. **Christopher, N.**, (1979) Urban Wilderness: a guidebook to resourceful city living. Culver, CA: Peace Press.
4. **John, S.**, (2003) The Self-Sufficient Life and How to Live It. London: DK Publishing
5. **Todd, J. and Todd, N. J.**,(1994) From Eco-Cities to Living Machines: Principles of Ecological Design. Berkeley, CA: North Atlantic Books.

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

1. Emerge as more resourceful, socially responsive citizens and practice prudence in the use of resources
2. Act as champions of change by practicing the concept of R's in daily living
3. Sensitize people on the concepts of life cycle approach to sustainability
4. Translate into action by purchasing only star rated appliances in the homes
5. Insist on reducing individual carbon foot prints by becoming socially responsible consumers

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	-	H	-	-	H	-	H	M	-	H	M	H	-
CO 2	-	-	H	-	-	H	-	H	M	-	H	M	H	-
CO 3	-	L	-	-	-	H	-	-	-	-	H	L	H	-
CO 4	M	M	H	-	H	-	-	-	-	H	-	-	-	M
CO 5	-	-	M	-	L	M	-	M	M	-	H	M	M	-

Advanced Landscape Designing

Semester I
23MIRC03

Hours of Instruction/week: 2+2
No. of credits: 4

Objectives: Enable students to:

1. Identify ethos of landscape gardening and indoor plants
2. Appreciate types and styles of gardens
3. Learn gardening skills and operations

Unit-1 Landscape Gardening

Meaning and importance, History and development of landscape, Plants: classification, Garden components – hedges of edges, borders, arches, pergolas, screens, carpet bedding, flower beds, lawn, and pathways. 10

Adornments: ponds, fountains, bird's bath, lighting and furniture.

(Visit to landscape garden and report writing).

Unit-2 Styles of garden, miniature and special types of gardens

Garden styles-Aquarium/under water garden, bog garden, important features, suitable plant species, bottle garden, cottage garden, dish garden, herb garden, home garden, hotel garden, indoor garden, industrial estate garden, institutional garden, kitchen garden, miniature garden, moon garden, office garden, paved garden, rock garden, roof garden, screen garden, sunken garden, terrarium/wardian garden, theme park, topiary garden, tubs and urns garden, vertical garden, water garden, window garden, woodland garden, xeriscaping. Types of garden: rose garden, rock garden, terrace garden, sunken garden, marsh/bog garden, water garden, roof garden and hydroponic garden, dish garden. (Developing garden plans of different types and styles). 10

Unit-3 Elements of Landscape design

Construction: surfaces, boundaries, edging, patios, ponds, rock garden, arches, pergolas, outdoor living.

Hard areas-drives, paths, steps and slopes.

Materials: natural stones, brick and blocks, tiles. 10

Laying and paving: crazy paving, gravel, mortar, concrete cobbles, bark decking, drainage.

Soft areas: lawn, garden plants, carpet bedding, furniture.

(Draw the elements of garden)

Unit-4 Garden operations

Soil characteristics, preparation and sterilization of soil, garden tools and equipments.

Care of plants :Weeding, top dressing, pricking, and transplanting, shading, pinching, reshooting, disbudding, defoliation, pruning, clipping, staking, mulching, watering, and manuring- organic manure and substrates 15

Growth promoters and growth regulators and growth retarders.

Indoor plants: selection of plants, care and maintenance, containers.

(Preparation of organic manure)

Unit-5 Landscaping Public areas and drawing the layout plans

Landscaping public places: school, industrial areas, places of worship, shopping malls, corporate buildings.

City Landscaping : country sides, highways, and railway stations and traffic islands

(Drawing of any two landscape plan for public areas)

Total Hours 15
60

Text Books:

1. Ashraf, S.M.,(2010),A Handbook of Landscape Gardening and Environment:Jodhpur
2. West,R.B.(1999), Practical Gardening in India, New Delhi: Discovery PublishingHouse.
3. Singh, A.K.,and Sisodia,A.,(2017)Text book of Floriculture and landscaping,, A Paperback Division of New India Publishing Agency.

References:

1. Cantrell, B and Michaels W., (2010) Digital Drawing for Landscape Architecture: Contemporary Techniques and Tools for Digital Representation in Site Design, New York: John Wiley Publications
2. Randhawa,G.S. and Mukhopadhyay,A (2000),Floriculture in India,Chennai: Allied Publishers Limited.
3. Salpekar A.and Sharma K., (2010) Green House Effect and Climate Change Management, New Delhi:Jnananda Prakasam (P&D).
4. The Hamlyn Gardening Book-The Essential Guide to Gardening,(1998),London: Octopus Publishing Group Limited.

Course outcomes: After completion of the Course students will be able to:

1. Identify and raise various garden components
2. Differentiate gardens of various styles
3. Draw layouts / plans for various types of gardens
4. Address issues related to care of plants and role of growth promoters
5. Establish nurseries and become entrepreneurs

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	H	-	M	H	-	H	H	-	H	M	L	M
CO 2	H	H	M	-	M	M	L	M	H	-	M	H	-	-
CO 3	H	H	M	M	H	-	M	H	H	H	H	H	H	M
CO 4	H	M	M	M	M	L	M	H	M	M	H	M	M	H
CO 5	M	M	L	M	H	M	L	L	M	M	M	M	H	M

Furniture and Furnishings

Semester I
23MIRC04

Hours of Instruction / week: 3+2
No. of Credits: 4

Objectives: - To enable students to:

1. Familiarize with the basic considerations in furniture design, aesthetics and appropriate furniture
2. Understand the role of fabric in interior decoration
3. Develop ability to design fabulous window treatments

Unit 1 Furniture Styles

Importance of furniture in relation to interiors, traditional, contemporary, modern style – salient features, types of furniture – Modular furniture, mobile furniture, office furniture, molded furniture, case goods and upholstered furniture. (Innovative materials available in the market) 10

Unit 2 Furniture Construction Techniques

Materials — hard and soft woods, cane, metal, plastic and glass
Construction details of wooden furniture- joints, finishes – coats of oil, wax, lacquer or paint
, Construction of upholstered furniture – frame, seating systems, cushions and back cushions, 20

Dimensions of furniture used in residential interiors. (Care and maintenance of furniture)

Unit 3 Furniture Selection and Arrangement

Factors considered in selecting furniture, traffic pattern and furniture layouts — room plans, arranging furniture using cut outs for different rooms (Planning furniture for selected activities
— living, sleeping, study, dining) 20

Unit 4 Soft Furnishings

Goals for home furnishing, selection criteria in relation to background in walls, floors and ceilings, floor coverings – rugs and carpets, types, selection, care and maintenance, installation of floor coverings, window treatment, types of window treatments. Curtain rods and hardware, selection of fabric and design; creating designs for window treatments. (Types of furnishings – slip covers, cushion covers. Bed linen, table linen, bath linen, kitchen linen – its care and maintenance) 15

Unit 5 Estimating the Cost of Furnishing Residential Interiors

Exploring the modern trends in furnishing the interior, planning to furnish an interior, estimating the materials required for furnishing an interior and calculating the cost. (Market Survey to find out the cost of furnishing materials) 10

Total hours 75

Text books:

1. Kasu, A. 2005, Interior design, Ashish Book Centre Mumbai
2. Veena, G., and Shukul M and Jaiswal N, (2011), Introduction to Interior Design and

Decoration, Dominant publishers and Distributors, New Delhi **Seetharaman P, Pannu P**
(2009) Interior design and Decoration, New Delhi and distributors Pvt Ltd, New Delhi

3. **Gandotra V, Shukul M and Jaiswal N**, (2011). Introduction to Interior Design and Decoration, New Delhi: Dominant publishers, India.
4. **Premavathy .S**, (2005) Interior Design and Decoration, New Delhi: CBS Publishers and Distributors, India.
5. **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.

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

1. Understand the difference between furniture and furnishings
2. Differentiate period styles in furniture
3. Appreciate role of hard and soft furnishings in an interior
4. Relate innovations in furniture construction techniques, methods and materials
5. Contemplate on furniture/ furnishings' selection based on use, comfort, cost and ergonomics

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	H	-	-	-	-	L	H	H	H	H	M	H	H
CO 2	H	M	-	-	-	-		H	H	M	M	M	H	M
CO 3	H	H	-	-	-	M	H	H	H	M	M	H	H	H
CO 4	H	H	L	-	M	M	H	H	H	H	H	H	H	H
CO 5	H	H	L	-	M	M	H	H	H	H	H	H	H	H

Household Equipment-I

Semester I
23MIRC05

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

Objectives:

1. Gain knowledge and develop skills in handling household equipment
2. Understand the working mechanism of various appliances
3. Trace trends in equipment available in the market

Unit 1 Electricity in the Home

05

Basic concepts of electricity: resistance, circuit, ampere, volt, conductors, induction, insulation, safety considerations in home wiring to suit installations and use of appliances. Basics of home wiring and electrical symbols (Minor repairs in electrical and non electrical gadgets).

Unit 2 Equipment for Family Living

10

Definition of Equipment. Classification of equipment: Major/ minor, Electrical/Non electrical, motorized / electronics, low voltage appliances, heating appliances and white and brown goods, Base materials used in household equipment. Its types, classification, merits and demerits, Finishing materials: types, process of application, merits and demerits, Insulation materials — types, usage merits and demerits, Planning different types of kitchen, placement of equipment in different areas, General maintenance of household equipment, efficient ways to use household equipment and use of energy saving methods (Trends in equipment available in the market)

Unit 3 Electrical and Non-electrical Equipment

10

Equipment used for preparation : mixer and grinder, food processor, egg beater, coffee maker, blender, Cooking: induction stove, gas stove and microwave oven, Cleaning: vacuum cleaner, electric chimney, dishwasher, Heating : Geyser, immersion water heater, iron box, Storage: Refrigerator , Comforts: Air conditioner, air cooler, Minor Equipment: toaster, roti maker, etc., Role of embedded systems in household equipment design and functional compatibility.
(Factors affecting selection and use of equipment in the home).

Unit 4 Development of Design

10

Ergonomic principles used in designing household equipment to achieve satisfactory performance. Consideration for safe and convenient working surfaces.

Unit 5 Performance Standards, Research and Evaluation of Equipment

10

Organizations contributing to developing standards — ISI, (BIS) and BEE, types of standards already developed , Standards needed, Criteria and tools of evaluation ,
(Research applicable to equipment - Areas in which research is needed)

Total Hours 45

Text Books

1. Ehtrenkranz, F. and Inman, I. 1973. Equipment in the Home. New York, Harper and Row.
2. Pect, L.J., Pickett, M.S. and Arnold, M.G. 1979, Household Equipment, New York, John Wiley and sons.
3. Van Zante, H.J. 1970. Household Equipment Principles, New York. Prentice Hall Inc.

References

1. Agarwal, D.K. 2006. Kitchen Equipment & Design. Aman Publications, New Delhi.
2. Wanda, J. (2001, Modern Kitchen Work Book- A Design Guide for Planning a Modern Kitchen, Rockport Publishers Inc., USA.
3. Robert, L. and Smith (2002), Electrical Wiring Industrial: Based on the 2002 National Electrical Code, Delmar / Thomson Learning Publisher.
4. Prasad V 2011, Modernization of home appliance an analytic study, Sonali publications New Delhi.
5. Sharma N, 2006 Home Management, Murari Lall and sons, New Delhi.

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

1. Relate concepts of electricity to operation of equipments
2. Compare various materials used in fabrication of appliances
3. Adapt with the working principle of major and minor electrical appliances
4. Understand the role of ergonomics in designing household appliances
5. Appreciate support of organizations in developing and maintaining quality standards

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	L	M	-	-	-	L	-	-	-	-	L	-	-
CO 2	H	M	M	-	-	M	L	-	-	-	-	M	M	L
CO 3	H	-	M	-	-	L	L	-	-	-	-	L	L	-
CO 4	H	M	H	-	-	M	M	-	-	-	-	L	L	-
CO 5	M	-	L	-	-	-	M	M	-	-	-	-	M	M

**Household Equipment -II
(Practical)**

Semester I
23MIRC06

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

Objectives: Enable students to:

1. Understand the principles underlying the operation, use and care of household equipment
2. Learn wiring plan for a modern kitchen
3. Become aware of safety considerations in use of electrical/ electronic appliances

Unit 1 Market survey on the availability of equipment	05
Availability of modern equipment in the market, its brand, cost, guarantee and after sales services. Exploring and comparing availability of modular kitchen of various brands.	
Unit 2 Operation and maintenance of major and minor equipment	10
Operation and maintenance of major and minor equipment used in the households. Training given on minor repairs of household equipment – handle repairs, safety value changes for cookers, fixing the handles for pans, tawa, cookers, etc...	
Unit 3 Listing, planning and learning the impact of kitchen equipment	10
Listing the equipment and tools required for different families. Impact of modern kitchen equipment on management of resources. Draw a wiring plan for modular kitchen	
Unit 4 Cleaning, organizing and safety of equipment in kitchen	10
Methods of cleaning for various base materials. Planning equipment in the kitchen at their respective places.	
Unit 5 Assessing the design of major and minor equipment for its performance	10
Evaluating the efficiency of any five selected equipment introduced in the market.	
Total Hours	45

Text Books:

1. Ehtrenkranz, F. and Inman, I. 1973. Equipment in the Home. New York, Harper and Row.
2. Peet, L.J., Pickett, M.S. and Arnold, M.G. 1979, Household Equipment, New York, John Wiley and sons.
3. Van Zante, H.J. 1970. Household Equipment Principles, New York. Prentice Hall Inc.

References:

1. Agarwal, D.K. 2006. Kitchen Equipment & Design. Aman Publications, New Delhi.
2. Wanda, J. (2001, Modern Kitchen Work Book- A Design Guide for Planning a Modern Kitchen, Rockport Publishers Inc., USA.
3. Robert, L. and Smith (2002), Electrical Wiring Industrial: Based on the 2002 National Electrical Code, Delmar / Thomson Learning Publisher.
4. Prasad V 2011, Modernization of home appliance an analytic study, Sonali publications New Delhi.
5. Sharma N, 2006 Home Management, Murari Lall and sons, New Delhi.

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

1. Recognize the brands, cost and services available for various equipment
2. Become aware of operation and maintenance of major and minor equipment
3. Determine minimum equipment required for establishing a family and evaluate them for quality standards
4. Plan a layout for modular kitchen
5. Repair minor complications/ problems faced while using electrical equipment

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	H	M	-	M	H	L	M	H	L	H	H	H	M
CO 2	H	H	M	M	M	M	L	M	H	-	H	H	M	M
CO 3	H	H	M	-	-	M	L	M	H	-	H	M	M	M
CO 4	H	H	M	L	H	H	L	H	M	M	H	H	H	H
CO 5	H	H	L	-	-	M	L	L	H	-	M	M	L	M

Consumerism and the Green Consumer

Semester I
23MIRC07

Hours of Instruction/week: 4
No. of Credits: 3

Objectives: - Enable students to:

1. Familiarize with the changing trends in consumerism
2. Enrich their knowledge on market systems and be informed consumers
3. Accept and adopt an attitudinal change to emerge as green consumers

Unit 1 Concept of Consumerism and Consumer Behaviour

Meaning and definition of Consumer, Classification of Consumer goods, Consumer Behaviour, rights and responsibilities, Factors influencing Consumer behavior (Role of wise consumer, protection of the interests of consumers). **10**

Unit 2 Consumer Economics

Market – meaning and definition, concept and nature, types and function
Digital Marketing – meaning, importance, types, career on opportunities.
Demand and Supply - meaning and types, factors affecting
Price-types and concepts, pricing
(Measures to control inflation, Consumer Co-operatives - objectives and functions) **10**

Unit 3 Concern for the Consumer

Consumer Education: Meaning and definition; need and scope, objectives, aspects, methods, contents and resources, problems
Consumer Protection: Meaning, Scope of consumer protection act, consumer ethics, and legislation. **10**

Consumer aids: classification – Labels, Trademarks, Brand Names, Patents, Warranty, Guarantee, Quality Control and After Sales Service, Government and Voluntary Agencies,
(Product evaluation; Redressal Forum at different levels and functions)

Unit 4 Quality control and environmental issues

Quality Control: Meaning and definition Role of Institutions, Standards Institutions – BIS, Agmark, ISO – procedure **15**

Green Consumerism- Meaning and importance with respect to consumerism, need, consideration in daily consumption and significance, ethos of adopting sustainable/eco-friendly lifestyle as green consumers
(Functions of standards institutions; survey of homemakers on practice of green consumerism on specific aspects)

Unit 5 Aspects in aid to transform consumers to green consumers

Sustainable purchase behavior: meaning and benefits, reduction in production/ use of packaging/plastic bags,

Eco-label certifications - green label/eco-label, green seal, star rating, Eco Logo, EPA design for the environment, 3R Concept - reduce, reuse and recycle,
Green marketing - biodegradable, environmentally friendly and safe. **15**
(Inventory on products with green/ co label, Star rated products etc)

Total Hours 60

Textbooks:

1. *Wagner, S.* (2003), *Understanding Green Consumer Behaviour : A Qualitative Cognitive Approach* (Routledge Studies in Consumer Research)
2. *Deshpande, J. Gangawane, L. V and Khilare, V. C.* (2007), *Sustainable Environmental Management*, Daya Books.
3. *Vinod, A* (2006), *Marketing management, Feroke Chungam: Calicut University, Central Co-operative Stores Ltd, No.4347.*
4. *Khanna, S.R et al*(2007), *Consumer Affairs, Hyderabad: Universities press*
5. *Schiffman, G and Kanuk, L.L.*(2017), *Consumer Behaviour* Prentice-Hall of India Ltd, New Delhi,
6. *Smita V Yas* (2012), *Consumer Production*, Sree Niwas Publications, Jaipur(India)

References:

1. *Verma, B.P.* (2003), *Civil Engineering Drawing*, Drawing and House Planning; Khanna Publishers, New Delhi
2. *Gupta, C.B. and Nair, R.N.* (2004), *Marketing Management*, Sultan Chand and Sons, New Delhi
3. *Nair Rajan, Nair Sanjith, R.* (2003), *Marketing*, New Delhi: Sultan Chand and Sons
4. *Pattanchetti, C.C. and Reddy* (2002), *Principles of Marketing*, Rainbow Publishers, Coimbatore
5. *Nair, S* (2002), *Consumer Behaviour*, New Delhi: Sultan Chand and Sons
6. *Kathiresan, S. and Radha, V* (2004), *Marketing*, Chennai: Prasanna Publishers

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

1. Practice knowledge gained on consumer rights and protection for personal good
2. Involve in research areas related to green practices
3. Encourage the neighborhood to adopt 3R's concept of Reduce, Reuse and Recycle
4. Promote purchase of energy efficient and star rated products which consume less energy
5. Contribute to global cause as green consumer activists

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	-	M	-	-	H	-	H	H	-	H	M	H	-
CO 2	H	M	M	-	-	H	-	H	H	-	H	M	M	-
CO 3	H	-	H	-	-	H	-	M	H	-	H	M	M	-
CO 4	-	M	M	-	-	M	-	-	H	-	M	L	M	-
CO 5	M	-	L	-	-	H	-	M	H	-	M	M	M	-

Research Methods and Statistical Applications

Semester II
23MIRC08

Hours of Instruction/week: 6
No. of Credits: 5

Objectives:

1. Understand the fundamental principles, components and techniques of methodology concerning research.
2. To use effective tools and techniques to collect research data, organize them appropriately for facilitating further analysis.
3. Apply statistical procedure to analyze numerical data and interpreting data meaningfully.

Unit 1 Research Basics

Definition, Meaning, Objectives and Characteristics of Research 20
Significance and types of Research, Research process
Research problem: Identification, selection, necessity and defining
Types of Research - Basic, applied, action, evaluation and experimental
Surveys- Descriptive, diagnostic and exploratory
Basic principles and components of research design
Sampling design- Probability and non-probability sampling methods
Scaling techniques

Unit 2 Data and Tools of Data Collection

Primary and secondary data and data sources 10
Interview schedules and questionnaires – Guidelines for construction
Interviews and type of Interviews
Pre-testing and pilot study, Editing and coding of data

Unit 3 Organization and Representation of Data

Report writing ,Classification- qualitative, Quantitative- frequency distribution, discrete and continuous 10
Tabulation of data- parts of a table, preparation of blank tables
Diagrammatic – One dimensional diagrams, two dimensional diagrams, pictogram and cartographs
Graphical- Frequency graphs - line, polygon, curve, histogram
Cumulative frequency graphs - ogives
Components or layout of a thesis (SS)

Unit 4 Descriptive Measures

Mean, median, mode and their applications 20
Measures of dispersion - Standard deviation, Coefficient of variation, Percentiles and Percentile ranks
Correlation coefficient and its interpretation, Rank correlation
Regression equations and predictions. Association of attributes , Contingency table

Unit 5 Probability and Tests of Significance

Rules of probability and its applications 20
Normal, binomial, their properties, importance of these distributions in research studies
Large and small sample tests - 't', F and chi square tests ANOVA and applications

Related Experience

10

1. Identifying the research problems under each type
2. Formulation of questionnaires and schedules
3. Consolidating data and forming tables
4. Drawing graphs and diagrams appropriately
5. Working out numerical sums and interpret
6. Numerical applications and drawing inferences, demonstration of SPSS

Total Hours 90**Text Books**

1. **Devadas.R.P.** A Handbook on methodology of Research, Sri Ramakrishna Vidyalaya, Coimbatore, 2000
2. **Gupta.S.P.** Statistical Methods, Sultan Chand & Sons, New Delhi, 2002
3. **Kothari.C.R.** Research Methodology, Methods and Techniques, Wiley Eastern Limited, New Delhi, 2004

References:

1. **Kulbir Singh Sidhu**, Methodology of Research in Education Sterling Publishers Pvt. Ltd., New Delhi, 2006
2. **Srivastava.A.B.L and Sharma. K.K.**, Elementary Statistics in Psychology and Education, Sterling Publishers Pvt.Ltd, 2000
3. **Gosh.B.N.** Scientific Methods and Social Research Sterling Publishers Pvt.Ltd. New Delhi.

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

1. Design the tools for collection; identify the samples, interpretation of data with the use of tables and pictorial representations.
2. Assess the numerical data for providing statistical evidences to support the research results.
3. Become a qualified researcher
4. Apply statistical tools to ensure reliability and validity of data
5. Present research data in a scientific manner

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M		M	H		M	H	H	H		L	M	L
CO 2	M	M		M	H		M	H	H	H		L		
CO 3	M	L		M	M		M	M	H	M		L		L
CO 4	M	L		M	H		M	M	H	H		L		
CO 5	L	L		M	M		L	M	L	H		L		

Renewable Energy

Semester II
23MIRC09

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

Objectives: To help the students to:

- Become aware of the different sources of energy
- Understand the methods of utilizing energy
- Acquire skills in handling the devices for harnessing energy

Unit 1 Energy scenario

Concept and definition of Energy, Classification of energy sources: based on forms, method of conversion, sources-primary and secondary, commercial and non-commercial renewable and non-renewable energy, Energy needs of India, Energy consumption pattern, Energy efficiency, Energy security, Energy and its environmental impact
(Energy Scenario in India)

15

Unit 2 Solar Energy

Principles of solar energy collection, devices used for measurement of solar radiation and sunshine, Solar thermal collectors : Flat plate, liquid flat plate collectors and concentrated collectors,

15

Solar applications: Fundamentals of photo voltaic conversion, solar cells, PV systems-stand alone or off grid system and PV applications

Solar applications- solar cooker, solar water heater, solar drier, solar pump, solar distillator, solar air conditioner and room heater, solar green house- (principles of operation of other solar devices)

Unit 3 Wind, OTEC, Tidal and Geothermal energy

Principles of wind energy conversion, components of wind power system, types of wind turbine, advantages and disadvantages of wind energy, safety and environmental aspects, modes of wind power generation- stand alone mode, back up mode, grid connected mode, application of wind energy.

15

Energy from OTEC tides and waves – working principles of tidal plants, power from geothermal energy – concept, benefits and challenges, types of geothermal resources, working principle, geothermal energy and environment (Explore prospects for Wind, Tidal and Geothermal energy use)

Unit 4 Bio-Energy

An introduction to biomass, advantages and disadvantages, biofuels - solid, liquid and gaseous state, biomass resources, conversion of biomass energy- thermal, chemical and bio chemical,

15

Biogas – source, composition, various types – design principles of biogas plants, operational factors, applications, energy from wastes, utilization of industrial and municipal wastes, energy from agricultural wastes (Identifying the challenges and opportunities for biomass use)

Unit 5 Agencies and Organisations promoting Renewable Energy

International Renewable Energy Agency (IRENA), Indian Renewable Energy Development Agency Limited (IREDA), International Sustainable Energy Organization: (ISEO) National Institute of Solar Energy (NISE), National Institute of

15

Wind Energy(NIWE),Solar Energy Corporation of India(SECI). (Planning residences by incorporating simple renewable energy devices and estimating its cost)

Total Hours 75

Text Books:-

1. Thiagarajan , V.(2013).Renewable energy sources , Lakshmi Publications , Chennai
2. Khan, B.H.(2006).Non-Conventional Energy Resources, Tata McGraw-Hill Publishing Company Limited, New Delhi
3. KoteswaraRao, M.V.R,(2004),Energy Resources Conventional and Non-Conventional (Second edition),BS Publications Hyderabad
4. Rai,G.D (2006). Non-Conventional Energy Sources,FourthEdition,Delhi:APH Publishers.
5. Agarwal,S.k (2005),Non-conventional Energy Systems.NewDelhi:APH Publishing Corporation.

References:-

1. Khan,B.H (2006). Non-coventional Energy Resources. Bombay:Tata McGraw-Hill Publishing Company Ltd.
2. Vandana,S.(2003),Alternate energy,APH Publishing corporation New Delhi

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

1. Appraise the significance and use of energy in different forms
2. Use various renewable energy devices and conserve fossil fuels
3. Live as good responsible citizens contributing to global energy conservation endeavors
4. Enjoy the benefits of using renewable energy sources
5. Formulate projects and approach funding agencies in future

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	-	H	-	-	H	-	-	H	-	H	-	H	-
CO 2	H	-	M	-	-	H	-	-	H	-	H	-	H	-
CO 3	M	-	H	-	-	H	-	-	H	-	H	-	H	-
CO 4	H	-	-	-	-	H	-	-	H	-	H	-	H	-
CO 5	-	H	-	-	-	-	M	-	-	H	-	-	-	H

**Creative Applied Arts
(Practical)**

**Semester II
23MIRC10**

**Hours of Instruction/week: 4
No. of Credits: 4**

Objectives: Enable students to:

1. Appreciate aesthetics in arts and crafts
2. Grasp nuances of creative arts
3. Inculcate skills on hands on experience in applied arts

Unit 1 Drafting and Model making

Template and model making: for houses/ buildings, furniture and calligraphy writing 15

Unit 2 Expressing Individuality through Art

Drawing using different methods and techniques: developing designs for greeting cards, posters, wall hangers, jewellery, warli work in fabric making paper bags, lamp shades, wealth from waste 10

Unit 3 Novelty and Creativity of Applied Arts

Painting, collage, stencil work, crochet, jewellery making, pot painting, decoupage, macramé, quilling and appliqué work 10

Unit 4 Table arrangements and floor/ wall decorations

Table setting, vegetable carving, flower arrangement, kolam, alpana, flowercarpets and warli work . 10

Unit 5 Imaginative Experience and Presenting the Idea

Portfolio preparation, mock up space and area arrangement 15

Total Hours 60

Text Books

1. Oei, L and Kegel, D. E (2002), The Elements Of Design: Rediscovering Colors, Textures, Forms, and Shapes, London:Thames and Hudson
2. Pile, J., (2003), Interior Design, 3rd Ed, New Jersey, USA: Pearson
3. Piotrowski, C, (2004), Becoming an Interior Designer, New Jersey, USA: John Wiley & Sons

References

1. Geoffroy, A and Migdal, M (2011) World Famous Caricatures Collection & Drawing Techniques, Mad Artist Publishing
2. Zeegan, L and Crush (2006) The Fundamentals of Illustration, Fairchild Books AVA
3. Oei, L and Kegel, D. E (2002), The Elements Of Design: Rediscovering Colors, Textures, Forms, And Shapes, Thames and Hudson
4. Krause, J (2004) Design Basics Index; HOW Books
5. Antonelli, P (2005), Humble Masterpieces: Everyday Marvels of Design; Harper Design
6. Margaret Shepherd (2001), Learn Calligraphy – The Complete Book of Lettering and Design , Broadway Books, New York

Web reference

<https://www.goodreads.com/shelf/show/applied-arts>

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

1. Adopt aesthetics as a human value and a way of life
2. Understand the resourcefulness of wasted materials
3. Learn from doing and gain expertise in simple measures of decoration
4. Enjoy and benefit from interactive one- to - one learning
5. Find indigenous methods of designing interiors using locally available materials

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	H	-	M	H	M	M	H	-	H	H	H	M
CO 2	H	M	H	-	M	H	H	M	H	-	M	M	M	M
CO 3	H	M	M	-	M	M	M	H	H	-	H	H	H	M
CO 4	H	M	H	-	H	H	M	M	H	-	H	H	H	M
CO 5	H	M	H	-	H	M	M	H	H	-	H	H	H	M

Advanced Resource Management

Semester II
23MIRC11

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

Objectives: Enable students to:

1. Understand the interplay of the concepts of management, managerial abilities, philosophy, values and goals in life
2. Comprehend issues of stress, violence, family crisis and problems of elderly
3. Develop skills to supervise Undergraduate students during the residence stay training programme

Unit 1 Family and Management as a System

Family system – Concepts, functions, micro and macro environment. 15
Management as a system – systems approach – meaning and components; process of management – planning, implementation, evaluation, constraints in family management – Family life cycle – Stages of family life cycle. Family Relationships – Relationship between parents, grandparents, children, siblings. Factors influencing sibling relationships. (An enquiry into managerial practices of selected families under different stages of family life cycle)

Unit 2 Resources, Values and Demands

Resources - meaning, classification, characteristics, role of resources in management. 25
Values - nature, characteristics, types of values, factors contributing towards value changes. Parker, Rotch and Gandhian values. Goals as demand - goal attributes, types, motivation and setting goals, obstacles to goal achievement. Events as demands-external events, internal events.
(Factors affecting the use of resources, enhancing and conserving resources, locating resources available to rural and urban families, and assessment of value changes among the youth)

Unit 3 Decision Making and Communication

Decision making - Definition, types, decision making process, decision tree. 10
Conflicts - methods to resolve conflicts, a study of problem situations and decision making practices of homemakers. Communication - meaning, significance, key elements in communication, means of effective communication, barriers/noise in communication (Utility of media for communication effectiveness).

Unit 4 Family Crisis

Types of stress, violence, separation, divorce, Problems of elderly, single parent families. Impact of crisis on family management 10
(General measures to overcome crisis situation, Preparing News album on family crisis).

Unit 5 Residence Course

Practical Experience for Application of Home Management Principles. 15
History of Home Management House, Functions and duties in the residence, Supervisor's role. One week stay in the residence - Organizing Under graduate students for house experience and submission of report
(Minimum equipment needed for organizing residence stay)

Total Hours 75

Text Books

1. Deacon, R.E. and Firebaugh, F.M. 1988, Family Resource Management, Principles and Application, Allyn and Bacon, Boston, USA.
2. Goldsmith, E. 1996, Resource Management for individuals and Families, West Publishing Company, New York.
3. Nickel, P. and Dorsey, J.M. 1970, Management in Family Living, Sterling Publishers. New Delhi.
4. Gross, IH., Crandall, E.W., Knoll, M.M. 1973. Management for Modern Families. Prentice Hall, New Jersey.

References:-

1. Seetharaman, P., Bata, S., Mehra, P, (2005), An Introduction to Family Resource Management, CBS Publishers & Distributors, New Delhi.
2. Singal S and Gandotra V., (2014) Family Resource Management Historical and Contemporary Development, Dominant publishers and distributors Pvt Ltd., New Delhi 2006 .
3. Shukul and Gandotra, (2006), Home Management and Family Finance, Dominant publishers and Distribution New Delhi.

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

1. Apply managerial abilities, philosophy and values in daily living and exhibit effective management skills
2. Plan and manage family resources efficiently
3. Practice the conservation of resources
4. Cope up successfully with stress and unexpected family crisis
5. Preach and practice efficient management skills at home and work place

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	-	-	-	M	H	H	H	M	H	M	M	H
CO 2	H	H	M	-	M	M	M	H	H	L	H	H	H	H
CO 3	H	H	H	M	M	M	H	H	H	M	H	M	H	M
CO 4	M	M	M	M	M	-	M	H	H	L	H	H	M	M
CO 5	H	H	H	M	M	M	M	H	H	L	L	-	-	

**Advanced Visual Representation-I
(Practical)**

**Semester II
23MIRC12**

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

Objective:

1. Introduce and equip students to fundamental techniques of manual drafting and architectural representation
2. Enhance skills in developing a graphical language of architecture
3. Familiarize to the concepts, practices, standards, and drafting methods needed for architectural designing

Unit I Introduction to Manual drafting

05

Orientation to the basic equipment and tools necessary for architectural drafting and proper usage of drafting tools

Sketching, Lettering, and Text -Architectural styles of lettering

Dimensioning Systems -Style, Coordinate, Tabular, Ordinate Dimensioning, **Scale**-actual, reduction and enlarged.

Unit 2 Multi view Drawings

10

Drafting Procedures, Projection of Point, Line and solids. Orthographic Projection - The Projection Technique, Projecting Element, Purpose of Elevations

Isometric Drawing- Scale, projections,

Perspective Drawings- Terminology, Perspective Drawings: One-Point Perspective Drawings, Two-Point Perspective Drawings, Drawing Perspective Views of Objects, Use of Vanishing point and Visual Ray method, Perspective of interiors and exteriors, sectional perspectives

Axonometric views of geometrical forms, building components and furniture

Unit 3 Introduction to Exterior Elevations

10

Factors to consider when drawing elevations, Steps in projecting elevations, Creating Elevation Views, Viewports & UCS's, Roof Plans, Roof Shapes & Terminology, Roof Exercise, Exterior Building Materials,

Introduction to Foundations- Plan view of foundation information shown in Wall Section, Review of basic residential foundation types

Types of Architectural Drawings- Site Plans and Plot Plans • Foundation Plans and Basement Plans • Floor Plans • Elevation

Unit 4 Study of different housing designs

10

Plan symbols, Types of house plans, Different types of Kitchen Arrangement

CAD Applications:

Coordinate Systems, Drawing Commands- Line, Double Line, Point, Circle, Arc, Spline, Ellipse, Rectangle, Polygon, Text, Hatch. Editing and Inquiry Commands- Erase, Undo, Move, Copy, Mirror, Rotate, Scale, Fillet, Chamfer, Trim, Extend, Array

Unit 5 CAD Applications

10

Demonstrate drawing elevations with CADD, layout of all openings of an elevation including doors, windows, exterior elevations, drawing different housing plans in software

Total Hours 45

Text Books:

1. Ching, F. D. K. (2011). *A Visual Dictionary of Architecture*. 2nd Ed. John Wiley & Sons.
2. Zell, Mo. (2008). *The Architectural Drawing Course*. 1st Ed. Thames and Hudson
3. Bhatt, N. D. (2003). *Engineering Drawing*. Anand : Charotar Publishing House.
4. Ching, F. D. K. (2009). *Architectural Graphics*. 5th Ed. Hoboken : John Wiley & Sons.
5. Ching, F. D. K. (2011). *A Visual Dictionary of Architecture*. 2nd Ed. Hoboken:John Wiley & Sons.

References:

1. Robert, W. G. (2006). *Perspective: From Basic to Creative*. 1st Ed. London : Thames and Hudson AutoCAD 2007 – Design News
2. Malhotra and Malhotra, 2001, Drawing techniques, Blue Bird Books, New Delhi
3. Verma, B.F., 2003, Civil Engineering Drawing and House planning, Khanna Publishers, NewDelhi.

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

1. Create models of basic shapes and 3D designs manually
2. Analyze, select and apply tools appropriate for creating a product using AutoCAD.
3. Create and edit 3D models using AutoCAD
4. Apply finishes for created models
5. Visualize and explain the created model

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	-	H	-	H	L	M	L	-	-	-	M	H	H
CO 2	H	-	M	-	H	L	M	L	-	-	-	M	H	H
CO 3	H	-	M	-	H	-	M	L	-	-	-	M	M	M
CO 4	H	-	M	-	H	-	L	L	-	-	-	M	H	-
CO 5	H	L	L	-	H	-	L	L	-	-	-	M	M	M

Trends in Architecture and Building Design

Semester III
23MIRC14

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

Course Objectives: On completion of the Course students will be able to:

1. Recall history and understand the scope and development of architecture
2. Identify transformations in architectural thoughts
3. Comprehend nuances of modern architecture

Unit I Nuances of permanent architecture

15

General influences on architecture, Elementary forms of construction, architectural elements – free forms, toroids, domes, coves, vaults, space frames

Classification of permanent architecture: based on structure - in antis and prostyle; based on use – domestic, religious and secular with examples

Supporting elements: classical orders, pillars, piers, cofferdams, cantilever, pendentives and squinches

Supported elements: architrave, entablature, roofing types, ceilings, domes, vaults, truss

Innovativeness or functional forms of structural systems: flying buttress, scaffolding and centering, lintels, pyramids, aqueducts, vaults and domes

(Design philosophies and influential architects in India and Abroad)

Unit II Overview of historic architecture

10

Precedents in architecture, their historic contributions and salient features – an overview of masterpieces in Egypt, Greek, Roman, Gothic, Indian, Buddhist and Islamic.

(Contemporary modern architecture, symbolism and symbolic structures, Art Nouveau, Bahai influences, Lotus temple)

Unit III Automation in interiors

15

Kinetic character of spaces: Integration of motion into the built environment: Escalators, lifts or elevators, pulley operated devices, kinetic walk ways, rotating doorways, sensor controlled doorways, movable partitions, sliding doors, conveyer belts – large scale industries and airports, hydraulic parking, turnstiles, dumbwaiters etc. hydraulic urinals,

Human sensitive devices: Doorways – automatic, swipe card, biometric, iris, body temperature

Concept of Building Automation and Intelligent services – fire / burglar alarm, automatic lighting/AC system

Interactive installations and performative environments - liquid flow, 4d pixels, Comment wall, pulse room, blinken lights, D tower, digital bus stops etc, Site sensitive relations – Zaragosa digital mile,

(“Architectural art” – tangible and intangible aspects of architecture)

Unit IV Modern architecture – innovative trends

15

Interactive architecture: concept, meaning, and examples

Responsive architecture: concept, meaning, and examples: Blur building

Kinetic architecture: concept, meaning, and examples: Millennium stadium, Burke Brise soleil, Revolving house, sliding house, Arup’s bridge, Pamban bridge, Tower bridge

Dynamic architecture

Organic architecture: contributions of Frank Lloyd Wright

(Geodesic domes, Homographies)

Unit V Modernism and Transformation in Designing space

20

Influence of corporate culture and multi nationalism – malls, new ways of entertainment
 Designing reconfigurable living spaces, public institutions within corporate premises, art
 museums as public relations outpost, innovative emergency shelters, temporary structures
 and buildings – exhibition installations, ephemeral or portable installations – pandal,
 caravans, mobile units

Future trends in architecture – influence of technology, materials (eco friendly and
 technical textiles), methods, personal environments, creating tangible and virtual
 products, 3D printing

(Building automation – trends / acceptance, Eclecticism, Vastu shastra and Feng Shui)

Total Hours: 75

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

1. Follow the gradual transition from static to kinetic and dynamic structures
2. Locate the influence of man's desire for comfort and convenience over and above functionality
3. Understand trends created in capitalizing the advancements in science and technology in use of materials and methods used for construction
4. Visualize futuristic concepts in the field of architecture and building construction
5. Envisage challenges for modern day architects and civil engineers

References

1. Asher, F.M. (2003), Art in India – Prehistory to the Present, Encyclopaedia Britannica, Inc.
2. Crouch, Christopher. (2000). Modernism in Art Design and Architecture, New York: St. Martins Press
3. Curl, James Stevens (2006). A Dictionary of Architecture and Landscape Architecture (Paperback) (Second Ed), Oxford University Press, ISBN 0-19-860678-8
4. Mehrabian, A. and Russell, J.A., An Approach to Environmental Psychology, Cambridge, MA, MIT Press
5. Michell, G. (2000), Architecture and Art of Southern India. In: The New Cambridge History of India, Replika Press Pvt. Ltd., Delhi.
6. Parikh, A., Robertson, D., Lane, T., Hilliard, E. and Paine, M. (2000), The Ultimate Home Design Source book, Conran Octopus Ltd., London.
7. Sharma, G. and Khanna, G, Advance Interior Designing incorporating Vastu and Feng-shui, India Publishers, Delhi.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	M	L	-	L	H	-	L	L	M	M	H	L	H	M
CO 2	M	H	L	M	H	M	M	M	-	H	M	L	M	M
CO 3	H	M	L	H	H	L	M	M	L	M	H	M	H	H
CO 4	-	L	M	-	L	M	M	L	M	L	L	M	H	M
CO 5	M	L	M	-	M	M	M	M	M	L	M	M	M	M

Resource Use in Entrepreneurship and Event Management

Semester: III
23MIRC15

Hours of Instruction/week: 5
No. of credits: 4

Objectives: To enable the students to:

1. Understand the nature of entrepreneurial activities
2. Learn the art of enterprising
3. Comprehend the role of events and convention managers in promoting entrepreneurship.

Unit-I Entrepreneurship and its Development

Entrepreneurship-meaning, elements, determinants of entrepreneurship, barriers, dimensions of entrepreneurship, Factors influencing entrepreneurship growth- psychological, social, economic and environmental, EDP Programmes in India. Entrepreneur- definition, characteristics, classification, functions, qualities, role of entrepreneur in economic development **16**

Unit-II Business Ideation: Sources of ideas- Types of ideas-Technology based, lifestyle based, existing skill based etc. Govt. Linkages **20**

Project Planning and Formulation: Project identification: classification, characteristics, constraints and objectives.

Project Planning elements: feasibility analysis, techno-economic, project design and network analysis, input analysis, financial analysis and cost benefit. Interplay of resources.

Unit-III Women Entrepreneurs and Marshalling Resources

Successful Women Entrepreneurs in India, Limitations for women entrepreneurs. Suggestions to overcome. **15**

Marshalling Resources: Registration of companies, Document maintenance, Mobilizing resources (raw materials, finance etc.) Specific Business Institutions - MSME, DIC, CODISSIA, NABARD, LEAD Banks, NSIC, SIDBI, SEWA, WOBEDA etc.

Unit-IV Event management as an enterprise

Planning and arrangement of various functions-award ceremonies, Product launch, theme parties, wedding and institutional events, Identifying resources for conduct of events and their proper use, estimating resource requirements. **12**

Event at commercial centres-trade fairs, exhibitions expositions and festivals

Unit-V Mice

Infrastructure and support services. Significance of tourism entrepreneurship and steps for success of event and post evaluation. Convention centres, Convention management, Convention planners and speciality contractors. **12**

Total Hours : 75

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

1. Appraise concepts related to entrepreneurship
2. Appreciate the significance of project planning/ formulation in implementing an enterprise

3. Take up 'entrepreneurship' as a lucrative profession
4. Focus on event management as an enterprise
5. Relate role of tourism and convention planning in effective event management

Text Books:

1. Desai.V.(1996).,Entrepreneurial Development-principles, Programmes and Policies (Vol.1)Formulation, Appraisal and Financing (Vol.II) and Programmes.
2. Desai.V,(1997), Dynamics of Entrepreneurial Development and Management, Mumbai: Himalaya Publishing House.
3. Kathiresan &Radha,(2004),Marketing, Chennai: Prasanna Publisher.
4. Gupta.C.B.and Srinivasan. N.P, (2014). Entrepreneurial Development, Sultan Chand & Sons, New Delhi.

References:

1. Ghadially ,R.(1998),Women in Indian Society, Bombay: Saga Publishers.
2. Gupta,G.L.(1988),Indian Women-Problems, New Delhi: Plights and Programmes ,Inter India Publications.
3. Rathor.B.S (2001) Advertising Management, Mumbai: Himalaya Publishing House.
4. Sherlekar, S.A. (1997), Marketing Management, Bombay: Himalaya Publishing House.
5. Desai and Nayak, (2018), Entrepreneurship, Himalaya Publishing Pvt.Ltd, Mumbai

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	M	-	-	M	M	-	L	-	H	H	M	M
CO 2	H	M	L	H	L	M	H	H	M	H	H	M	H	M
CO 3	H	M	M	M	L	M	M	H	L	H	M	M	H	H
CO 4	L	L	-	L	-	L	-	M	M	H	H	M	H	M
CO 5	L	-	L	-	-	L	M	H	M	-	-	M	H	H

Ergonomics in Work Place Design

Semester III
23MIRC16

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

Objectives: - Enable students to:

1. Understand ergonomic concepts applicable in work place.
2. Analyze role of work, worker and work place in management of human resources
3. Learn work simplification principles and techniques

Unit I Work Physiology: The worker

10

Introduction to basic morphological anatomy of muscle, bone and cardio respiratory system. Physiology of cardio respiratory system- mechanism of respiration- Tidal volume, inspiratory and expiratory reserve volumes, residual volume, vital capacity, functional residual capacity, maximum breathing capacity, Partial pressures and percentage of respiratory gases in inspired, expired, alveolar air and in blood, Lung function tests Basic properties of cardiac muscle-rhythmicity, refractory period, all or none law, and stair case phenomenon, Electrocardiography- Origin and significance of different components of normal ECG and EMG

(Blood pressure: Definition, normal values –systolic, diastolic, mean arterial and pulse pressure and factors regulating it).

Unit II Ergonomics and Anthropometry in work place design

20

Meaning and Importance- Types of work-light, moderate and heavy, Human body- structure and function

Posture and job relation: Common postures at work –standing, sitting, reaching, moving, Factors that influence working posture – user characteristics, task requirements and design of the workspace, Effect of wrong postures on cardiovascular and muscular skeletal system, Suggestive techniques of / guidelines for safe body postures at work, Assessment of work postures using Rapid Upper Limb Assessment(RULA) tool and Rapid Entire Body Assessment (REBA) tool, Work-related MSDs – definition, causes, types and their prevention. Postures adopted for different activities

Anthropometric measurement: Definition of anthropometry and anthropometric variables /measurements, Types of anthropometric data used in ergonomics – Structural, Functional and Newtonian, Anthropometric database, Techniques for measuring body dimensions – Direct method and indirect method, Standing measurements and sitting measurements, Applications of anthropometry, Working heights and surfaces in different planes-normal, maximum and minimum reaches, movement traits, Mendel's classes of change, Correct techniques of lifting and carrying weight, work load and postures.

Energy expenditure for different activities and energy balance, Muscular strength-endurance and energy consumption, Efficiency, work load and physiological fatigue, Heart rate (Pulse rate) as measure of body stress, for classification based on physical parameters, time motion studies – principles of motion economy.

Occupational safety and stress at workplace, errors, discomforts and unsafe activities

(Fatigue: types and causes, Methods of alleviating fatigue; Safety measures in residential space design).

Unit III Environmental factors influencing human performance

20

Indoor and outdoor climate: Temperature – Body temperature regulation and acclimatization, Subjective assessments –thermal comfort and discomfort, Pressure and

relative humidity, Effect of hot and cold environments on work performance. Control of exposure to / protection against heat and cold, Facilitators in task performance, Factors responsible for exchange of heat between body and surrounding environment, Heat stress .
Colour and light: Visual acuity and colour vision, Lighting levels, contrast and glare, Reflections and flicker fusion, Effect of colour on work performance. Illumination, Effect of light on work performance.

Noise and vibration – impacts on human physiology and performance, Effect of noise on work performance Methods to reduce noise, Effect of furniture on work performance. Methods of measurement and tools, (Factors affecting work efficiency, concept of comfort zone)

Unit IV Work Space Design

Basic ergonomic principles for workstation design, Ergonomic principles basic to hand tool design, Design considerations for kitchen and office, Universal Design Considerations – Wheelchairs, Crutches, canes and walkers, Knobs, handles and controls, Access ramps and stairs, Physical space arrangements, Hazards of ill designed work station.
Kitchen layouts: work triangle or ergonomic triangle, inclusive units
Principles of storage in the kitchen, factors contributing to work efficiency
(Types of kitchen)

15

Risks to health: Musculoskeletal problems, Visual fatigue, Mental stress, Requirements for eye tests

Unit V Ergonomics for Physically Challenged

10

Problems of physically challenged in using regular designs and in performing work
Humanizing design: concept of designing for human compatibility, comfort and adaptability aspects, Ergonomic consideration for the physically challenged
Ergonomic concepts in furniture design, chair characteristics, furniture supports
(Developing designs for physically challenged homemakers for various activities).

Total hours: 75

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

1. Identify oneself as a worker and analyze personal work patterns
2. Understand the trilogy of work, worker and work environment and their mutual impact
3. Relate influence of environmental factors on occupational safety and security
4. Draw/ design ergonomic kitchen models
5. Appreciate 'humanizing design' concepts in buildings and furniture

Reference:

1. Agarwala, S.C. (1999), **Interior Decoration**, Dhanpat Rai & Co. P.Ltd, Delhi.
2. Phillips, C.A. (2000), **Human Factors Engineering**, John Wiley and Sons, Inc., New York.
3. Nickell.P and Dorsey,J.M.(2002), **Management in Family Living**, CBS Publishers, New Delhi
4. Khan,M.I(2010), **Industrial Ergonomics**, New Delhi: PHI Learning Pvt Ltd.
5. ILO,(2001), **Introduction to work study**, Oxford & IBH publishing Co. Ltd., New Delhi.
6. Bridger, RS (2003), **Introduction to Ergonomics**, 2nd Edition, Taylor &Francis,
7. Singh, S (Edt), (2007), **Ergonomics Interventions for Health and Productivity**, Himanshu Publications, Udaipur, New Delhi.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	M	M	-	-	M	M	-	L	-	H	H	M	M
CO 2	H	M	L	H	L	M	H	H	M	H	H	M	H	M
CO 3	H	M	M	M	L	M	M	H	L	H	M	M	H	H
CO 4	L	L	-	L	-	L	-	M	M	H	H	M	H	M
CO 5	L	-	L	-	-	L	M	H	M	-	-	M	H	H

Housing and Energy – Policies and Programmes
(Open Book Test)

Semester III
23MIRC17

Hours of Instruction/week: 4
No. of Credits: 3

Objectives: -

1. Browse through different literature sources-the concepts related to the subject
2. Understand housing conditions and energy requirements in India from a different perspective
3. Comprehend Government Policies/ programmes on housing and energy sectors

Unit I Housing and Energy

Housing – status, problems, shortage, causes for shortage

10

Energy – Types, shortage, crisis, impacts.

(Energy efficiency in India)

Unit II Housing Policies and action plans; Housing Schemes & Programmes

Housing policies and action plans – NHPHP(1988), NHP (1994), NUHHP (2007), MS AHP (2015), NURHP (2015)

Housing Schemes: JNNURM, AHP, Rajiv Awas Yojana (RAY), Housing for All 2022, Pradhan Mantri Awas Yojana, Pradhan Mantri Grameen Awas Yojana

10

Housing Programmes: details on all 19 programmes

(Housing finance agencies: HUDCO, NHB, HDFC, SHB, LIC, GIC, Commercial / private banks)

Unit III Energy Policies, Schemes and Programmes

Energy Policy Framework- Key Energy Policies: IEP, NAPCC – their features, role, goals, eight missions to achieve NAPCC principles

Policy objectives: energy access, energy security and climate change

10

Five Ministries : MOP, MOC, MNRE, MOPNG, DAE

Schemes & programmes: Energy Conservation Act (2001), BEE (2002), JNNSM, NMEEE, NMST

(Policy concepts: self – sufficiency, non – interference, inclusive development)

Unit IV Research Institutions and Agencies

Housing: CBRI, NBO, SERC, BIS, Advanced Materials and Processes Research Institute

Energy: MNRE, IREDA, IREP, NBMMP, SEC, C – WET, TEDA, SESI

15

(Housing cooperatives, Commission for Additional Sources of Energy -CASE)

Unit V Climate change and Green building – concept and issues on sustainability

Climate change and issues: global warming, ozone depletion, greenhouse gas (GHG)

effects, Green technology, Cargotecture, Zero carbon building, Green technology in

energy retention. Carbon footprints: meaning, measuring methods, steps to reduce

Pioneering efforts: Role of: LEED (Leadership in Energy and Environmental Design) 15

Certificate; IGBC (Indian Green Building Council); Energy Conservation Building Code 2007; GRIHA (Green Rating for Integrated Habitat Assessment)

(Eco – friendly building materials for construction, finishing, insulation; Examples of LEED certified buildings in India)

Total hours: 60

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

1. Decipher current housing and energy sector scenario in India as well as in the global set up
2. Approach crisis in housing and energy sector with a matured vision

3. Self motivate to be proactive partners in tackling energy crisis
4. Join hands with global players in enrolling people to change their attitude and to fight for a noble cause
5. Preach and practice sustainability concepts as a life style

References

1. PL. Sanjeeva Reddy and Satishchandra (eds) "Rural Housing in India problems and prospects' Ministry of Rural Development, Government of India. New Delhi, 2000
2. P. Tiwari and J. Parikh. (2012) Global Housing Challenge: A Case Study of CO₂ Emissions in India. School of Planning and Architecture, Bhopal, Spandrel
3. Heinberg, Richard. (2004) Powerdown: Options and Actions for a Post-Carbon World. Canada: New Society Publishers
4. Jeffery, Yvonne, Michael Grosvenor, and Liz Barclay (2008) Green Living for Dummies, Indianapolis, IN: Wiley Pub
5. Adams, W. M. and Jeanrenaud, S. J. (2008), Transition to sustainability: Towards a Humane and Diverse World. Gland, Switzerland: IUCN. 108 pp., ISBN 978-2-8317-1072-3
6. Devid .V, Chadderton (2013) Building Services Engineerings Sixth editon
Routledge Taylor and Francis group, Newyork
7. Veena Gandotra and Sarjoopatel (2017) Housing for family living Dominant Publishing and Distributors Pvt Ltd, New Delhi

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	L	-	-	M	L	-	M	M	H	M	-	L	-
CO 2	H	H	M	-	M	H	H	M	L	-	-	L	-	L
CO 3	M	M	L	-	H	M	-	L	-	-	-	M	-	-
CO 4	H	M	-	-	M	H	M	H	M	L	M	M	-	-
CO 5	H	H	M	L	M	H	-	-	L	-	M	M	-	-

**Advanced Visual Representation-II
(Practical)**

**Semester III
23MIRC18**

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

Objectives: Enable students to:

1. Draw 3D objects with soft ware
2. Learn animation and its application
3. Understand methods of creating and presenting 3D drawing to clients

Unit I	Introduction to SketchUp: Getting Started with Sketch Up, Understanding the Templates, GUI: Understanding Sketch Up, Interface, Understanding Various Menus, Understanding the Status Bar, Understanding the Default Tray, Understanding the Toolbars customization and managing Trays, Mouse Control & Sketch Up Preferences, Creating, Saving and Opening a Model, Importing, Different Types of Files into SketchUp Axes: Understanding the Axes in SketchUp & Reorienting the Axes, Inference: Concept of Inference, Understanding the various inference types and locking the inference. Drawing Tools: Understanding the line tool, constructing a surface, dividing a face and joining faces and understanding the various input methods. Understanding the rectangle tool and various dimensions inputs, drawing a Rotated rectangle Entity. Understanding the creation of circle entity and its various parameters, drawing an ellipse from circle. Understanding the creation of polygon entity and its various parameters, Drawing an Arc using various Arc tools: Arc, 2point Arc, 3 point Arc, Pie Tool.	6
Unit II	Modeling of Entities Drawing Freehand Shapes: Selection of an object: Understanding the select tool, selecting multiple entities, Adding and subtracting from a selection set. Modifying Tools: Editing Shapes, Using Entity Info Option, Pushing and Pulling Shapes into 3D, Cutting a 3D shape out of a model, understanding the move tool, Stretching Geometry using Move tool, Resizing Surface Entities, Creating copies using Move Tool and Rotate Tool; Creating Multiple copies using Move tool and Rotate Tool, Offsetting line from an existing geometry, Undo Recent Task & Eraser Tool, Understanding the Dividing, Splitting and Exploding Entities, Understanding the Flipping, Mirroring and Rotating, Scaling a model using Scale tool, Tape Measure tool and Stretching a Model using Scale tool, Understanding the Follow me tool, Automatic and Manual Extrusion with Follow Me Tool and modeling Revolved shape, Soften /Smooth Edges of Geometry & Hiding Geometry	9
Unit III	Tape Measure Tool & Protractor Tool : Measuring Distance / Create guides, Measuring an Angle, Editing Guidelines, Annotating Model: Understanding the Annotation Tools, Adding Text, Text as a Model Entity, Dimension Tool, Matching a photo to a Model: Match Photo's Color-coded tools, Creating a 3D Model from a Photo, Deleting a Matched Photo Components & Groups Getting Started with Components: Understanding the components, Creating a Component, Editing a Component, Editing all instances of a Component, Making Dynamic Component: Adding Attributes, Defining Attribute Values and testing, Inserting, Replacing and Interacting with dynamic Component, Searching for Component, Adjusting a component's insertion point, Editing	9

Unit IV Component
Grouping Geometry: Working with Hierarchies in the outliners: Renaming groups and components, Finding groups and components, identifying a group / component's status, restructuring a model's hierarchy, Controlling visibility with layers **10**

Presenting the Model

Viewing a Model: Camera, Changing the view or focal length

Sections: To place a Section Plane, Filling Voids in section cuts, Creating new geometry from a section, showing / hiding section planes, Exporting Section cut effects,

Scenes: Adding a Scene, Managing properties saved with a scene, animating scenes

Styles: Choosing a Style, Editing styles, Style Editing options, Managing in-model styles and collections, Sharing styles, adding fog effect to model

Applying Materials & Textures: Adding Colors and Textures with materials, Applying Materials, Replacing one material with another, Editing Materials-Editing options, calculating Material Area, Managing and organizing materials, creating new material, Applying Textures, Adding Geographic location from Google Map, Applying Real-time Shadows.

Unit V **3D Model To 2D Documentation** **11**

SketchUp Lay Out: Introduction, Template selection, Understanding the GUI, Creating Documents in Layout, Presenting Layout Documents: Scale, Changing Views, Changing Model Style, Changing Dimension Style, Inserting Texts & Changing Text Styles, Exporting / Printing Layout Document

Drawing of Products related to Interiors- Furniture, Built in ward robes, Garden and interior accessories, Plans, Room Layouts

Total hours: 45

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

1. Explain the concept of using sketch up
2. Analyze, select and apply tools appropriate for creating a product using the software and walk through.
3. Create and edit 3D models using software
4. Complete and give realistic output to created models
5. Visualize and explain the created model

References:

1. Alex Schreyer, (2015), Architectural Design with SketchUp: 3D Modeling, Extensions, BIM, Rendering, Making, and Scripting, Wiley; 2nd Edition
2. Adriana Granados & et al, (2012), Designing Kitchens with SketchUp, Create Space Independent Publishing Platform
3. Bonnie Roskes and Annie Elliott, (2014), Modeling with SketchUp for Interior Design, 3DVinci; 2nd edition
4. Michael Brightman (2018), The SketchUp Workflow for Architecture: Modeling Buildings, Visualizing Design and Creating Construction Documents with SketchUp Pro and Layout, John Wiley & Sons; 2nd edition
5. Matt Donley, (2015), SketchUp to Lay Out: The essential guide to creating construction documents with SketchUp Pro & Lay Out

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	-	H	-	H	-	-	M	-	-	-	M	H	L
CO 2	H	L	H	-	H	-	-	M	-	-	-	L	M	H
CO 3	M	-	H	-	H	-	-	L	-	-	-	M	M	H
CO 4	M	-	M	-	H	-	-	L	-	-	-	M	L	M
CO 5	L	H	L	-	H	-	-	-	-	-	-	M	L	L

Environmental Sanitation
(Self-study Course)

Semester III
23MIRC19

Hours of Instruction /week: 1
No. of Credits: 4

Objectives: - Help students to:

1. Understand importance of sanitation in everyday life
2. Know about importance of environmental sustainability in providing health
3. Know about days of significance related to “environment and its resources”

Unit I Introduction to Environmental Sanitation	2
Concept and meaning of Environmental Sanitation, concept of well-being, components of good sanitation and environment	
Health: definition, dimensions and determinants of health, health planning, health and development, health policies and systems in India	
Unit II Safe Home Environment	4
Social and safety goals of housing, housing standards, role of housing in maintaining good health	
Air: Composition of the air in occupied room, indices of thermal comfort, comfort zones	
Air pollution: Indoor air pollution, sources, effects, prevention and control of air pollution.	
Ventilation: standards, types and provisions to be made	
Lighting: lighting standards, requirement of good lighting, measurement of light/ daylight, lighting needed for different type of jobs	
Noise: properties, effects of noise exposures, control of noise, presbyopia, presbycusis	
Radiation: sources, types, effects of radiation, preventive measures	
Unit III Water and Sanitation	3
Sources of water supply, water quality – criteria and standards, variables – acceptability aspects, microbiological aspects, chemical aspects, radiological aspects	
Water distribution, water pollution - causes, water related diseases	
Purification of water: large scale and small scale	
Unit IV Waste Management	4
Waste – meaning and concept, classification of household waste	
Solid wastes – sources, storage, collection, methods of disposal – dumping, sanitary landfill, incineration, composting, and manure pits and burial	
Technologies adopted to convert waste to wealth	
Sewage disposal – composition of sewage, modern sewage treatment methods, septic tank	
Sullage – disposal of domestic waste water, soak pit.	
Unit V Environmental Policies and Programmes in India	2
Role of Government in preserving the environment – preventive and social measures, various acts, schemes and programmes; Days of significance observed: World water day, World environment day, World forest day, World health day, International mother earth day, World greenery day	

Total hours:60

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

1. Differentiate conceptual meaning of the terms like health, wellbeing and disease
2. Comprehend factors contributing to safety and security in the home environment

3. Recognize health issues of indiscrete/ irresponsible waste disposal systems in practice
4. Practice methods to convert/ transform waste to wealth
5. Decipher the role of Government in preserving the environment

References

1. **Park,K.** (2006), Text Book of Preventive and Social Medecine, Jabalpur:M/s. Banaridas Bhanot Publishers, 1167, Prem nagar, Jabalpur.
2. **Power and Daginawala** (2003), General Microbiology, Vol. II. Himalaya Publishing House, Bombay.
3. **Sorensen,B** (2000),Renewable Energy-Physics, Engineering, use, Environmental Impacts, Economy and Planning aspects, London: Academic Press Publication

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO 1	L	-	-	-	-	L	-	M	M	-	-	-	-	-
CO 2	-	-	L	-	-	L	-	-	M	-	-	-	-	-
CO 3	M	H	-	-	L	M	-	M	L	L	L	L	M	-
CO 4	M	M	H	L	M	H	M	H	L	-	L	-	L	L
CO 5	M	H	L	-	L	L	L	M	H	-	-	-	-	-

Housekeeping and Front Office Operations

Semester III
23MIRC20

Hours of Instruction/Week: 3+2
No. of Credit: 4

Objectives: Enable students to

1. Gain Knowledge on the functioning of housekeeping department
2. Equip with skills required for front office operations in various functional units
3. Acquire basic skills on the housekeeping and front office operation concepts

Unit I Housekeeping

10

Housekeeping Department- Organization, Job Description, Job specification, Relationship of housekeeping department with other departments

Valet services, Guest rooms- types, layout, plans, and rates.

(Visit to housekeeping departments in hotels, hospitals, institutions, offices to understand the concepts, Report writing)

Unit II Linen room Inventory

15

Linen room and Uniform - Layout, Calculation of linen requirements, Types of linen, Types of uniform and Dress code. Laundering- Launderettes, Laundry methods, Dry Cleaning, and storage.

(Study of valet services and room services)

Unit III General Maintenance of Housekeeping Department

15

Cleaning methods- Types- mechanical, chemical. Cleaning equipment- Types, maintenance of cleaning equipment. Cleaning agents and their uses for different materials- floors, walls and bathrooms. Cleaning procedures- guest rooms and public areas.

(Make an exhaustive list of standard room supplies including bathrooms in hotels and hospitals)

Unit IV Environmental Management and Housekeeping Department

15

Housekeeping department- safety, security, pest control and waste disposal.

(Inventory on services provided and service providers in five hotels, five hospitals and five corporate offices).

Unit V Front Office Layout and Operations.

20

Front office layout - Hotels, Hospitals, Corporate offices, Institutions

Front office department - Organization, Qualities, Role of front office staff, Hierarchy pattern, Modes of communication in the front desk, Coordination with other departments, Digital services, Operator room, Communication services and Etiquettes. Trends in accommodation (Comparative study of layout in various hotels, hospitals, corporate offices, institutions, drafting user friendly front office layout for all the Institutions).

Total Hours: 75

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

1. Appraise the collective and collaborative role of various departments involved in Housekeeping
2. Understand the functioning of exclusive human resource departments
3. Draft an inventory of basic requirements in different departments
4. Draw office layout and components in public buildings meant for different purposes
5. Commission essential service maintenance personnel when needed

Text Books:

1. Subban, T.R (2008), Front Office Management, New Delhi: Cyber Tech Publications
2. Andrews, S (2008), Hotel Housekeeping Management and Operations, New Delhi: Tata McGraw Hill

Reference Books:

1. George, J.B (2008), Housekeeping Operations, Design and Management, Mumbai: Jaico Publications.
2. Tippal, B.S (2016), Hotel Management and Accounting New Delhi, Wisdom Press.
3. Casado. A.Matt (2000), Housekeeping Management, Canada, John Wiley and sons.
4. Branson, J. C and Lennox, M (1971), Hotel, Hostel and Hospital Housekeeping, Bennett Books Ltd.

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO 1	H	H	M	-	H	H	M	M	-	-	L	-	M	M
CO 2	M	H	M	-	H	H	H	M	-	-	L	L	M	M
CO 3	M	M	H	-	L	H	M	L	-	-	-	H	M	L
CO 4	H	L	H	-	H	L	L	-	L	-	-	H	M	M
CO 5	L	H	-	L	-	-	L	M	-	-	-	M	L	L