



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited A++ Grade by NAAC | 12B Status by UGC | Approved by AICTE

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School of Building and Environment

Department of Architecture

1.2.1 New Courses Introduced in 2022- 2023

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SARA1603	SPECIFICATION AND ESTIMATION	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To introduce the importance of specification for quality control in design and construction.
- To help the students in the preparation of bill of quantities for estimation and budgeting in construction projects.
- To comprehend the rate for different items of work for costing and valuation of the construction projects.

UNIT1 INTRODUCTION TO SPECIFICATION 4Hrs.

Definition – Classification of Specification - Necessity and importance of specification. Specification writing - Principles of Specification writing. Important aspects in the design of specification – Differences between Brief and detailed Specification for 1st class, 2nd class, 3rd class building.

UNIT 2 INTRODUCTION TO QUANTITY ANALYSIS 8 Hrs.

Introduction to Quantity analysis – Basic understandings of Unit measurements for various items of work – Mix proportions – Rules adopted for taking out of quantities. Methods adopted in quantity analysis. Deriving detailed quantity for various items of work for a single-story building like earthwork excavation, brick work, PCC, RCC works, wood works, iron and steel works, plastering, painting, flooring, weathering course etc. with different methods.

UNIT3 ESTIMATION 8 Hrs.

Types & purpose of estimation - Approximate estimate of buildings - Bill of quantities - Factors to be considered - Principles of measurement and billing, contingencies, measurement of basic materials like brick, wood, concrete and unit of measurement for various items of work. Deriving detailed estimates for various items of work for a single storied building along with the specification of the materials and BOQ.

UNIT4 COSTING AND VALUATION 6 Hrs.

Introduction to rates for main items of work using current market rates for materials, labour, plants, tools and equipment, transportation, handling, storage and contractor's profit – Construction technology involved. Preparing rate analysis for P.C.C, R.C.C, brick work, stone work, plastering and finishes - Deriving construction cost as per BOQ. Introduction to Valuation of the properties - terms and values - Depreciation and its types - Types, methods and purpose of valuation.

UNIT5 CONSTRUCTIVE ASSIGNMENTS 4 Hrs.

Preparation of Bill of quantities with the specification of 1st class construction for a single storied residential building. Arriving construction cost for a single storied residential building along with detailed estimation. Detailed specification and estimation for an apartment building with Stilt + Four floors from earth work excavation till the completion of project in MS excel to be submitted as portfolio.

Max. 30 Hours

COURSE OUTCOME:

On completion of the course the student will be able to

- CO1** Acquire knowledge on the specification writing for any construction projects.
- CO2** Familiarize students on the need and importance of bill of quantities for arriving project budgeting.
- CO3** Explore different methods of estimation and preparation of detailed estimation for the Construction project
- CO4** Comparative analysis on the item rates for the different materials, hierarchy of labours, hiring equipment's etc.
- CO5** Evaluating the project cost with the detailed estimation and rate analysis.
- CO6** Skill to prepare a valuation report for a constructed building with depreciation factor.

TEXT / REFERENCE BOOKS

1. Chakraborti, M. (2006). Estimating, Costing, Specification & Valuation In Civil Engineering .
2. Dutta, B. N. (2016). Estimating and Costing in Civil Engineering (Theory & Practice). UBS Publishers' Distributors Pvt Ltd.
3. Rangawala. (2017). Estimating, Costing And Valuation [Professional Practice and quantity surveying] . Charotar Publishing House Pvt. Ltd.
4. Singh, G. S. (2013). Estimating Costing & Valuation. Standard Publishers Distributors

SDE3601	COMMERCIAL AND RETAIL INTERIORS	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To learn about the importance, techniques, and design applications for commercial and retail interiors.

UNIT 1 INTRODUCTION

4 Hrs.

Introduction to commercial interior space design- types of commercial interior spaces – factors influencing designing of commercial interior spaces – materials used in designing commercial interior spaces. Collection of materials used for designing interior space. Application of codes, accessibility guidelines, and policies and procedures. Concepts, themes, ambience and aesthetics in designing commercial and retail interiors.

UNIT2 COMMERCIAL ART

8 Hrs.

Concept of commercial art – Meaning and Definition, Development of commercial art. Art in Commercial space Designing and planning space for various commercial purposes – Restaurants and Hotels. Public utility services – Airport, Educational Institutions, Hospitals, Shopping complex, Exhibition, Schools, Malls, Universities and Trade Fairs.

UNIT 3 COMMERCIAL DISPLAYS

8 Hrs.

Commercial display and Techniques – Interior Display – general Arrangement, principles and factors, types and merchandise display, types of lighting arrangements in commercial buildings. Window display – meaning and concept, Basic principles and techniques, types of window display, window arrangement.

UNIT 4 CONTEMPORARY TRENDS

6 Hrs.

Study of user types, user behaviour concepts relevant to commercial interiors. Functional aspects related to circulation and integration of different spaces. New trends in commercial Architecture- design in commercial building. Basic concepts of commercial buildings. Features of Departmental stores and Shopping complex.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

Demonstrate comprehensive understanding through accompanying assignments, group discussions, and site visits.

Max. 30 Hours

COURSE OUTCOME:

- CO1** Analyse Commercial interior space design using different materials
- CO2** Develop art in commercial space designing and planning based on various purposes.
- CO3** Identify the role of lighting in commercial displays and techniques involved
- CO4** Understand the Concept of window display and window arrangement
- CO5** Synthesize various user behaviour concepts relevant to retail and commercial space.
- CO6** Discuss the Recent trends in commercial architecture.

TEXT / REFERENCE BOOKS

1. Gupta, C.B., Dr. Nair, Rajan (2003), Marketing Management, Sultan Chand & Sons, New Delhi.
2. Joseph, D.C., Jules, P. and Martiv, Z. (1992), Time saver standards for Interior Design and space Planning, New York.
3. Nair, R. (2002), Marketing, Sultan Chnd and Sons Publisher, New Delhi.
4. Pattanchetti, C.C. Reddy, P.N. (1995), Marketing, Rainbow publishers, Coimbatore.

SDE1801	BUSINESS MANAGEMENT & ENTREPRENEURSHIP	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To enable the students to Develop entrepreneurial skills.
- To analyze the environment related to small scale industry and business.
- To understand the process and procedures of setting up small enterprises.
- To develop management skills for entrepreneurship development.

UNIT 1 BUSINESS FOUNDATION

4 Hrs.

Introduction to business and the forms of business enterprises; scope of management process; Set up of an independent design business, Hiring processes, Project Scheduling and work delegation,

UNIT 2 RESPONSIBILITIES OF A BUSINESS

4 Hrs.

Ethical and social responsibilities of and within a business, with regards to the environment, consumers, workers, investors and business approaches; Contracts and Agreements, Conflict Resolution, Arbitration;

UNIT 3 RUNNING A DESIGN BUSINESS

8 Hrs.

Business economics; project financing and banking system trends and guidelines within the emerging markets. Intellectual Property- Registration process of Intellectual property Rights, Design Registration, and Brand/Trademark Registration; Core marketing strategies: branding, positioning, and competitive analysis. Product or service transformation to commodity quickly as competition & duplication of successful products, analysis of competition and advertising to position and brand products and services creation of successful brands

UNIT 4 ENTREPRENEURSHIP

10 Hrs.

Meaning, need, transition to self-employment and Entrepreneurship, qualities of a good entrepreneur, problems of entrepreneurs. Economic, Legal, Socioeconomic, Psychological and Environmental factors influencing entrepreneurial development. Social Entrepreneurship, Business Entrepreneurship, Trading Entrepreneurship, Corporate Entrepreneurship, and Agricultural Entrepreneurship; Timmons Model of Entrepreneurship, Investment Models, Start-up Business Models, Business Plans, Pitch presentations, Small Business models; Agencies supporting entrepreneurial Development, Institutional Finance to Entrepreneurs.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

Demonstrate comprehensive understanding through accompanying assignments, group discussions, and site visits. Visit to SIDCO, DIC and TIIC; 2. Case study of an enterprise and two entrepreneurs; 3. Preparation of a project proposal for funding.

Max. 30 Hours

COURSE OUTCOME:

- CO1** Understand the foundations of a successful business practice
- CO2** Correlate the theories and concepts of business management from a regional point-of-view
- CO3** Understand the responsibilities of a business contract
- CO4** Evaluate the potential variety of roles of a professional Interior Designer, and the range of projects they may undertake.
- CO5** Examine the various entrepreneurial qualities and factors influencing development
- CO6** Formulate a business plan and project proposal based on own interests and ideas

TEXT / REFERENCE BOOKS

1. Gupta C.B, Srinivasan N.P, (2004). Entrepreneurship development in India, Sultan Chand & Sons, New Delhi.
2. Chunawalla S.A, (1991) Sales Management, Himalayan Publishing House, New Delhi.
3. Desai V., (2000). Project Management and entrepreneurship, Himalaya Publishing House, New Delhi.
4. David H. Moll, (1999) Entrepreneurship, Prentice Hall of India, New Delhi.
5. Jerkins F., (2000) Advertising, Prentice Hall of India, New India.

SARA2501	MATERIALS AND CONSTRUCTION STUDIO IV		L	T	P	Credits	Total Marks
			1	1	3	3	200
Continuous Assessment	End Semester Examination	Min Pass Marks					
150	50	Continuous Assessment	End Semester Examination				
		75	25				

COURSE OBJECTIVES:

- To comprehend the properties and the types of nonferrous materials.
- To synthesize the ways through which the nonferrous materials are used in fixed as well as movable barriers in the built form as well as the environment.
- To develop ways to adopt nonferrous materials in architectural design.

MODULE I GLASS AND PLASTICS FOR ARCHITECTURAL APPLICATIONS

35 Hrs.

Classification of glass - Composition of glass, its properties and uses - Various types of glass e.g., plate glass, figured glass, float glass (toughened glass, laminated glass), tinted glass, reflective glass, wired glass, foam glass, glass block, fiberglass, float glass, obscured glass etc. - Decorative glass, insulated glass (sound, heat) - properties and application in building industry, glazing and energy conservation measures.

Thermal Insulation- Heat transfer and heat gain by materials -vapor barriers and rigid insulation. Blanket, poured and reflective insulation - properties and uses of (spun glass, foamed glass, vegetable fibers, mineral fibers, foamed plastics, and vermiculite and glass fibers)

Plastic: Properties, types and uses as building material - Polymerization, thermoplastics, thermosetting plastics, elastomers-Plastics in construction (polythene, polypropylene, polyvinyl chloride, PVC poly-structure, Polyethylene (Low density and high density), polycarbonate, acrylic flooring, PVC tiles, roof lights, domes, and handrails, curtain wall, jali work, applications of uPVC

MODULE II ALUMINIUM FOR ARCHITECTURAL APPLICATIONS

40 Hrs.

Aluminium, windows and ventilators - Methods of construction - typical details showing fixing of framing members, glass panes, roller position (in case of sliding window), hinge arrangement (in casement window), locking arrangement and related hardware, thumb rules Cladding - Construction methods using Aluminum cladding (includes other ACP materials), shop front handrails - Structural Glazing, curtain walls.

Max. 75 Hours

Modules	Assignments	Outdoor / hands on	Construction plates	No.	Remarks
I	Collection of brochures for different types of glass	Report – student have to visit and study the applications of glass and plastics for architectural applications	Thermal insulation and expansion joints	1	Facilitates Architectural design VI
II	Collection of brochures for various aluminium sections and applications, Case studies for application of aluminum in buildings	Report – students have to visit and study aluminum installations in the interiors with respect to the thrust area and give a brief report with sketches and photographs.	Aluminium joinery	1	
			Aluminium door & windows	3	
			Partitions and false ceilings	1	
			Curtain wall and ACP	1	
	Sketches – fixing details, wall systems, doors and windows for uPVC, glass and plastics wall systems		Application of concrete in the outcome of Architectural design III / IV.	1	

COURSE OUTCOME:

On completion of the course the student will be able to

- C01** Categorize the applications of nonferrous materials in buildings.
- C02** Explain the various types of aluminium joinery in movable barriers in load bearing and non-load bearing
- C03** Develop aluminium joinery for space dividers and false ceilings in the interiors.
- C04** Explain the utilization of plastics and glass for appropriate applications in buildings.
- C05** Devise ways to incorporate nonferrous materials in architectural design studios.

TEXT / REFERENCE BOOKS

1. Rangwala S.C. (1982). Engineering Materials, Anand Charotar Publishing House
2. Ahuja T. D and Birdie G.S., Fundamentals of Building Construction, Dhanpat Rai Publishing Company Pvt. Ltd., New Delhi, 1999
3. Punmia B.C, A Text book of Building Construction, Laxmi Publications Pvt. Ltd., New Delhi, 2004.
4. Boyne, Architects working details, Volumes I, II, III, IV, & V, The Architectural Press, London, 1959

SARA9501	DESIGN STUDIO V		L	T	P	Credits	Total Marks
			0	1	12	7	400
Continuous Assessment	End Semester Examination	Min Pass Marks					
		Continuous Assessment	End Semester Examination		Total		
250	150	125	75		200		

COURSE OBJECTIVES

- To expose the students on facilities to be provided to urban communities and train them to deal with the challenges posed in the design of multi-functional public buildings in an urban setting.
- To build upon the foundational design skills with more complex constraints and context. It integrates aspects of Architectural theory, Modern building technology, and Computation into the design process
- To understand and resolve the structural design and use of appropriate materials

METHODOLOGY PROPOSED

STAGE I

Studying the design aspects and parameters involved in medium rise buildings with focus on context, user analysis, bye laws and regulations. Analysis of various approaches and strategies to design problem solving using creative thinking techniques, theories related to human behavior and environmental design, climate responsive and barrier free environment principles.

STAGE II

Phase I

Conceptualize and develop novel solutions to built-environment by evolving innovative forms for the perceived Architectural program by using three-dimensional approach through study models, 3d sketches, digital models and exploration of computer aided drawings and presentation.

Phase II (Iteration and Ideation)

Resolving the given design program by experimentation and multiple iterations leading to three-dimensional composition by understanding the layers of space making.

Phase III

Communicate the final outcome through high standard graphical representations (legible Architectural drawings) along with integration of structures and materials

DESIGN INTEGRATION

Application of the knowledge gained from core courses like theories of thinking, climatic design in developing architectural solutions. Computational and presentation skills previously acquired may be incorporated.

TUTORIAL	PERSONAL BRANDING	6 Hrs.
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Choosing factors to align based on Vision and mission- Social presence and development- Creativity, Critical thinking, Problem solving; Motivation, Persuasion, Negotiation.

Max. 195 Hours

SUGGESTED TYPOLOGIES:

The focus is on creating complex-built form, connecting multiple spaces and users in a mid-rise built environment like Nursing Homes / Club house/ Museums/ Memorial Complex / Cultural Centre, etc.,

COURSE OUTCOME

On completion of the course the student will be able to

- CO1** Examine and infer from suitable literature and live case studies appropriate to the design typology.
- CO2** Proposition of precise understanding of the important local bye laws and Standards applicable to the specific typology.
- CO3** Developing an appropriate design intent based on notions, ideas with the three-dimensional perception as part of the design process.
- CO4** Apply the different techniques of creative thinking in design problem solving.

- C05** Curate a deeper understanding of the need for climate responsive design and universal design.
- C06** Integrate structural grid, parking, services and landscape in architectural design.

TEXT / REFERENCE BOOKS

1. De Chiara, J., & Crosbie, M. (2017). *Time-saver standards for building types* (4th ed.). McGraw-Hill Education.
2. Neufert, E. (2019). *Architects' data* (5th ed.). Wiley Blackwell.
3. Gauzin-Muller, D. (2002). *Sustainable architecture and urbanism*. Birkhauser Verlag AG.
4. Krishnan, A., Baker, N., Yannas, S., & Szokolay, S. (2017). *Climate responsive architecture: A Design Handbook for Energy Efficient Buildings* (1st ed.). McGraw Hill Education.
5. Degenhart, C., Heiss, O., Ebe, J., & Fran Ford. (2010). *Barrier-free Design: Principles, Planning, Examples*. Birkhauser.
6. Bassler, B. (2008). *Architectural graphic standards*. Hoboken, N.J.: John Wiley & Sons.
7. Ching, F. (2011). *Visual dictionary of architecture* (2nd ed.). John Wiley & Sons.

SARA2601	MATERIALS AND CONSTRUCTION STUDIO V		L	T	P	Credits	Total Marks
			1	1	3	3	200
Continuous Assessment	End Semester Examination	Min Pass Marks					
		Continuous Assessment	End Semester Examination				
150	50	75	25				

COURSE OBJECTIVES:

- To identify the various directions through which steel is effectively used in the built forms and environment.
- To understand the basic components of steel movable barriers in the external walls.
- To discuss the principles of utilizing steel in truss and space frames.

MODULE I

STEEL IN CONSTRUCTION

40 Hrs.

Iron: brief study on manufacture, composition, properties and uses of cast iron, wrought iron, pig iron - Steel: Composition, Properties, anticorrosive measures, mechanical and heat treatment of steel - Market forms of steel: Steel for Reinforcement - Hot rolled bars, CTD Bars, TMT bars, Welded wire fabrics; Steel for Pre stressed concrete; Structural steel; Stainless steel, steel alloys, current developments.

Different types of doors and windows (open able, sliding etc., methods of construction using steel)- Design and detailing of steel rolling shutter. Design and detailing of steel roof trusses (north-light, tubular, butterfly truss etc.,) including construction methods for roof covering using steel, FRP, polycarbonate, cement fiber sheets etc.

MODULE II

LONG SPAN STRUCTURES

35 Hrs.

Long span roofs using different types and materials (stadium and auditoriums). Methods of construction using cable Structure-principle of cable stayed bridges -space frame structures. Methods of construction using Shell structures and folded plates - various forms and classification of shells and types of folded plates, thumb rules

Max. 75 Hours

Modules	Assignments	Outdoor / hands on	Construction plates	No	Remarks
I	Container architecture	Report – students have to visit and study steel construction techniques give a brief report with sketches and photographs. Wire Model Fabric	Steel sections and foundation and column layout	1	Facilitates Architectural design VII
			Steel windows	1	
			Steel doors and rolling shutters	1	
			Steel truss and space frames	1	
II	International case studies with different roof forms and detail the steel joineries		Architectural detailing in public spaces	1	
			Application of concrete in the outcome of Architectural design V.	1	

COURSE OUTCOME:

On completion of the course the student will be able to

- C01** Categorize the ways through which steel is used in conventional as well as large span structures.
- C02** Explain the various components of steel doors and rolling shutters and the thumb rules
- C03** Integrate the steel members for structural and non-structural purposes in design.
- C04** Devise and detail the applications of steel in public realms
- C05** Combine steel with other materials for architectural applications

TEXT / REFERENCE BOOKS

1. Punmia B C, Jain.A.K. Jain,A.K. (1998). Comprehensive design of steel structures, Laxmi Publications Pvt. Ltd.
2. Boyne (1959). Architects working details, Vol. I, II, III, IV, & V, The Architectural Press, London
3. Ramaswamy G.S. (1984). Design and Construction of Concrete shell roofs, Krieger
4. Ahmad.M.H., Haji,M.T&Rasdi.M, (2000). Design Principles of Atrium Buildings for the Tropics, University Technology Malaysia.

SARA9601	DESIGN STUDIO VI		L	T	P	Credits	Total Marks
			0	0	13	7	400
Continuous Assessment	End Semester Examination	Min Pass Marks					
		Continuous Assessment	End Semester Examination				
250	150	125	75				

COURSE OBJECTIVES:

- To explore the challenges posed in designing group of buildings in large sites.
- To practice the knowledge on structural resolve and building service integration in Architectural creations.

METHODOLOGY PROPOSED

STAGE I

Study through Participatory workshops/seminars/Special lectures on the various energy efficient planning and infra-structure aspects of designing large sites. Research on the various aspects of multi-functional, multi storied, Service intensive complex-built environments with horizontal and vertical circulation and understanding the dynamics of large span structures and integrating appropriate structural systems. Explore latest trends in construction technology and materials.

STAGE II

Phase I

Conceptualize and integrate complex issues of the given program, the site, and the vertical and horizontal layering of functional requirements and services with a special focus on energy efficient solutions for both the building and the environment. The design solution should accomplish a strong resolve towards building structures and services systems.

Iteration and Ideation (Phase II)

Resolving the given design program by experimentation and multiple iterations to understand the interrelationship of spaces, the space in between buildings, the structural and services integration.

Phase II

Communicate the final outcome through high standard graphical representations (legible Architectural drawings) with details of structural systems, various services and energy efficient techniques incorporated in the design solution.

DESIGN INTEGRATION

Application of the knowledge gained by the students from core courses like energy efficient architecture, building structures and building services in developing the design.

Max. 195 Hours

SUGGESTED TYPOLOGIES:

Mixed use or single use high rise buildings in a typical urban context like Large commercial complexes /multiplex/ hospital/ hotels/ serviced apartments, etc.,

COURSE OUTCOME

On completion of the course the student will be able to

- CO1** Analyze a multi-functional, multi storied, multi-use-built environments and render the needed spatial qualities
- CO2** Develop a knowledge repository to understand the importance of spatial proximities and connections
- CO3** Solve complex building structural systems in an efficient way and explore various combinations in structural systems
- CO4** Analyze and apply integration of specialized building services in multilevel planning of buildings.
- CO5** Evolve design focusing on Integrating sustainable energy concepts and techniques.
- CO6** Create an innovative built environment using various new age materials and advanced construction technology.

TEXT / REFERENCE BOOKS

1. De Chiara, J., & Crosbie, M. (2017). *Time-saver standards for building types* (4th ed.). McGraw-Hill Education.
2. Neufert, E. (2019). *Architects' data* (5th ed.). Wiley Blackwell.
3. Bureau of Indian Standards. (2016). *National building code of India 2016*.

4. Gauzin-Muller, D. (2002). *Sustainable architecture and urbanism: Concepts, Technologies, Examples*. BirkhauserVerlag AG.
5. Parker, D. And Wood, A. (2013). *The Tall Buildings Reference Book*. New York: Routledge.
6. Kloft, E. and Johann, E. (2003). *High-rise Manual: Typology and Design, Construction and Technology*, 1st Ed. Basel: BirkhauserVerlag AG.
7. Giedion, S. (2009). *Space, Time and Architecture*, rev. Ed. Cambridge: Harvard University Press.
8. Lawson, F. (2007). *Congress, convention and exhibition facilities*. Oxford u.a.: Architectural Press.
8. Osamu, A. W., Linde, R. M. and Bakhoun, N. R. (2011). *The professional practice of architectural working drawings*. 4th Ed. Hoboken: John Wiley & Sons.

SARA3504	ENVIRONMENT AND PSYCHOLOGY	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To expose the relationship between man and his larger environment, with special emphasis on aspects that are likely to affect intervention in or creation of the built environment.
- To familiarize the students with basic concepts/ theories of psychology as relevant to architecture.
- To analyse the human dimension of environmental sustainability from psychological perspectives

UNIT 1 INTRODUCTION

8 Hrs.

Introduction to the discipline environmental psychology, its importance in the field of architecture, understanding the principles of psychology, the roots and Edges of environmental psychology- Theories and approaches in Environmental Psychology. Emotional Relationships to Place: Attachment & Identity.

UNIT 2 BASIC ATTENTION PROCESSES AND MEMORY

7 Hrs.

Models of Attention - Automization and Attention. The Use of Knowledge - Memory and built environment- theories on different types of memories - Retrieval from Long-Term Memory - Models of Semantic Memory - Basics of Visual Memory - Object Transformation in Visual Memory

UNIT 3 PERCEPTION

8 Hrs.

Sensory Mechanisms and Concept of perception, Role of Culture in Perception - visual perception, theories on environmental perception- Gestalt Principles - environmental perception and design. Concepts of cognition. Environmental cognition and design. Environment and human response in relation to different environmental variables. Classical Theory of Decision Making and Prospect Theory of Decision Making

UNIT 4 SPACE AND HUMAN BEHAVIOR

7 Hrs.

The Density/Crowding Distinction - Crowding and Density Human Experimental Studies –Physiological reactions – Task performance, Social-affective responses - Crowding in everyday settings – The residence - Recreational areas - Hospitals - Prisons. Concept of personal spaces, personal space and human behavior. Personal space and environmental design. Concept of territoriality, territoriality and human behavior & territoriality and environmental design. Residential environment- Concept of Home. Neighborhood concept & Neighborhood satisfaction. Place attachment theory, Workplace environment and behavior. Application of the knowledge in design of a residence, community neighborhood and other built environments.

UNIT 5 COMPREHENSIVE LEARNING

Documentation of Human Preferences in public spaces through various survey techniques.

Max.30 Hours

COURSE OUTCOME:

On completion of the course the student will be able to

- CO1 Explore and understand various perspectives on human-environment interrelationships
- CO2 Relate the impact of space on human behaviour
- CO3 Develop clear knowledge on memory and attention
- CO4 Evaluate the role of perception and cognition in shaping human responses
- CO5 Build a systematic evaluation of the built environment in relationship to the act of socialising
- CO6 Apply the acquired knowledge through case evaluations.

TEXT / REFERENCE BOOKS

1. Morgan, T., & Clifford, Introduction to Psychology, Tata McGraw-Hill Publications, New York, 2001
2. Robert, G. (2002). Environmental Psychology: Principles and Practice, Optimal books, 2002.
3. Devlin, A. S. (2018). Environmental Psychology and Human Well-being: Effects of Built and Natural Settings. Academic Press.
4. Bell, P. A., Greene, T. C., Fisher, J. D., & Baum, A. (1996). *Environmental psychology*. Harcourt.
5. Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. the MIT Press.

SARA1502	BUILDING SERVICES-III	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To develop the understanding of the advanced building services such as Air conditioning, Electromechanical conveyance system, fire and safety.
- To comprehend the services through service core in the design of multi-storey buildings.
- To integrate the learning in the architectural design

UNIT 1 PRINCIPLES OF AIR CONDITIONING SYSTEMS

6 Hrs.

Basic principles, laws and terminologies related to AC - refrigeration systems, components of refrigeration system: compressor, condenser, control devices, evaporator, filters, and cooling tower. Vapor compression cycle, Concepts of cooling load, calculation of cooling load-conductivity, transmission heat load, internal heat gain, concepts of zoning, room air distribution-types of outlets.

UNIT 2 AIR CONDITIONING SYSTEMS

8 Hrs.

Window air conditioners, Package units, direct expansion air conditioning systems - Split units, centralized plants and chilled water plants, Comparison of various systems - Space requirements for A/c units, AHU's & a/c plant, ducting, testing and maintenance on ducts and pipes- Energy saving through design, operation and maintenance - Emerging technologies - VAV, VRV/VRF, Heat Recovery systems, etc., Protection of Ozone Layer-ecofriendly refrigerants. Selection criteria, design / structural considerations and energy requirements for above-mentioned air-conditioning systems - ECBC requirements.

UNIT 3 ELECTROMECHANICAL CONVEYANCE SYSTEMS

4 Hrs.

Types of conveying systems: Elevators, Escalators, Travelators – Elevators: Types, Components, Design criteria, Traffic analysis, roundtrip time, Estimation of no. of lifts required for different building, typologies as prescribed by NBC – Escalators: Types, components, Design standards and specification from NBC – Travelators: Types, components, Range – Minimum and maximum distance to be covered, Design standards and specification as per NBC.

UNIT 4 FIRE SAFETY AND SERVICE CORE

8 Hrs.

Introduction, fire triangle, Fire Hazards, Classification of fire, methods of firefighting, fireload, Fire resistance grading, Grading for buildings, fire safety decision tree, Protection for structural components-Firefighting equipment - alarms, detectors, suppression systems, fire point, hydrant & hoses –Firefighting services-Site planning, Fire protection concepts in buildings, design of fire escape routes, design of egress, Requirements for fighting fire in high rise buildings, NBC planning consideration, staircase enclosure, lifts & lifts enclosures, fire lift, basements, air conditioning. Service cores - Definition, design approach, functions of service core, service core types and placements-Service cores-toilets, elevator, electrical, air conditioning, staircases, exits & life safety considerations.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

Case studies/ Field visits and their critical appraisal through plates Discussion on various manufactures of Elevators & Escalators on their product categories and specification - Determining air conditioning load, identifying appropriate system developing layout, for their current design exercise - Coordination with other services, architectural and structural designs. Case studies and their critical appraisal - Application of fire and safety norms and regulations in their current design exercise. Space planning for air conditioning systems, conveyance systems, firefighting and service core.

Max. 30 Hours

COURSE OUTCOME:

On completion of the course the student will be able to

- CO1** Understand the fundamental principles of air conditioning systems and its operation in buildings.
- CO2** Develop comprehensive knowledge on various types of Air conditioning systems and expertise on selection of appropriate system for a specific building typology
- CO3** Develop comprehensive knowledge of architectural space planning for air conditioning systems.
- CO4** Understand design strategies involved in planning and sizing of electromechanical conveyance systems.
- CO5** Develop comprehensive knowledge on fire behavior, principles of firefighting, fire detection system, its integration with building and its importance in space planning.
- CO6** Develop comprehensive knowledge on service core design in multistoried buildings.

TEXT / REFERENCE BOOKS

1. Thomas D.Eastop and William Edward Watson, Mechanical services for buildings, Longman scientific and technical publisher, 1992
2. Paul Lang, Principles of Air Conditioning, Delmar publisher, 1995
3. Arora C.P, Refrigeration and Air Conditioning, Tata McGraw Hill, 2000
4. M.H.Lulla, Airconditioning for Architects, Chennai
5. Jain V.K., Fire safety in buildings, New Age International Pvt. Ltd. Publishers, 2010
6. Subramaniam K., Lift Technology- An Insight on Design Basics and its Evolution, EVB, 2010
7. William H.Severns and Julian R Fellows - Air conditioning and Refrigeration - JohnWiley and Sons, London - 1988
Andrew H Buchanan - Design for fire safety - John Wiley and Sons Ltd., New York.
8. Bureau of Indian standards - National building Code of India.
9. Energy Conservation Building Code user guide – ECBC, Bureau of Energy Efficiency, New Delhi, India.

SARA1602	BUILDING SERVICES-IV	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To understand the basic principles of physics of sound and enable them to apply the knowledge in various buildings.
- To make students realize the importance of acoustics and equip them with the knowledge for designing acoustically sound performing spaces.
- To make the students understand the design strategies and process in selecting the appropriate vertical transportation devices
- To explore the necessity of integrating the services and centralised control management

UNIT 1 INTRODUCTION TO SOUND

4 Hrs.

Characteristics of sound – reflection, diffusion, transmission, diffraction, absorption - Human ear and hearing – Basic terminology: frequency, pitch, tone, timbre, sound pressure, sound intensity, decibel scale, loudness, threshold of audibility and pain, sound masking, inverse square law – frequency range of audible sounds Types of noises, transmission of noises, acoustical comfort, Concept of Geometric acoustics

UNIT 2 ACOUSTICS

8 Hrs.

Planning & Design against outdoor noise – for air traffic, road traffic and rail traffic – air borne noise & structure borne noise / impact noise – sound isolation – sound transmission class - Acoustic defects – reverberation time - Absorption coefficients of materials. Sound absorbing materials: porous materials, panels, membrane absorbers, space/functional absorbers & cavity / Helmholtz resonators- ECBC requirements

UNIT 3 DESIGN OF PERFORMING SPACES

8 Hrs.

Basic principles in design of auditorium, concert halls, open air theatre, Recording and Broadcasting studio. Sound systems – introduction – types – equipment's such as mics, speaker's etc. – standards – basic principles of sound system design. Exposure to acoustic design and simulation software.

UNIT 4 SECURITY SYSTEMS AND SERVICES INTEGRATION

6 Hrs.

Safety and security systems, PAS - access control system - firefighter telephone system - CCTV surveillance system - Control of Computerized HVAC Systems -Integration of services - Water pump monitoring & control, Electrical - power monitoring - fire alarm system, firefighting system and monitoring - IBMS system and its components –ECBC requirements.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

Assignments on solving acoustic problems – Sabine's formula. Case study and observation / analysis of Acoustical Spaces – Concert halls, recording studio, etc. - Discussion on acoustic materials available in market with catalogue and samples. Assignment-Working out individual service layout and arriving coordinated layout for IBMS - Case study on IBMS and critical analysis of the service integration - Applying the knowledge in their current design exercise.

Max. 30 Hours

COURSE OUTCOME:

On completion of the course the student will be able to

- CO1** Understand the fundamental principles of acoustics and its importance in architectural design.
- CO2** Describe the different types of noise, their transmission and the measures to isolate / control them
- CO3** Analyze the various behavior of sound in indoor and outdoor space.
- CO4** Solve the acoustical design problems in a space by acoustic treatments.
- CO5** Design architectural spaces with respect to acoustic principles
- CO6** Understand the need of service integration and automated control

TEXT / REFERENCE BOOKS:

1. Siraskar K.A. (1972). Acoustics in Building Design, Orient Longman Ltd., 1972
2. Kandaswamy S., (2005), Architectural Acoustics and Noise Control, Allied publishers Pvt. Ltd., 2005
3. Egan, D. (2007). Architectural Acoustics, Rose publishing classics,
4. Marshall Long, Architectural Acoustics, Elsevier academic press New York, 2006
5. Cavanaugh, W.J., Tocci, G.C., Wilkes, (2009). J.A Architectural Acoustics: Principles and practice, 2nd edition, John Wiley & sons,

6. Sinopoli, J. (2010), Smart Buildings for Architects, Owners and Builders, Elsevier Inc.
7. Energy Conservation Building Code user guide – ECBC, Bureau of Energy Efficiency, New Delhi, India

SARA8204	LIFE CYCLE ASSESSMENT OF BUILDINGS	L	T	P	Credits	Total Marks
		3	1	0	3	100

COURSE OBJECTIVES:

- To understand the importance Life Cycle Assessment
- To devise the applicability of LCA process and impact categories
- To comprehend the tools for LCA

UNIT 1 INTRODUCTION AND TERMINOLOGY

7 Hrs.

History of LCA, Aspects of LCA, variants of LCA, Life cycle stages, end of life, Functional unit, System boundary, Life Cycle Inventory (LCI) data base, Life Cycle Management (LCM), Life Cycle Energy Analysis (LCEA), Carbon Accounting.

UNIT 2 LIFE CYCLE ASSESSMENT IN BUILDING INDUSTRY

12 Hrs.

Material level, Product Level, Building level, Industry level, LCA and Design process, Pre-design, Schematic Design and Design Development Stage. CA process and impact categories: Inventory Analysis, Impact assessment, interpretation, Different impact categories like Global Warming Potential (GWP), Acidification Potential (AP), Eutrophication Potential (EP), Smog Formation Potential, Fossil fuel and Ozone Depletion Potential.

UNIT 3 DIFFERENT TOOLS FOR LCA

10 Hrs.

Configuration of a tool, Classification of tools, Impact estimator and eco-calculator, Building for Economic and Environmental Sustainability (BEES), International LCA Tools, Related tools, Green footsteps & eco-friendly applications. Guidelines to integrate: LCA with design and evaluation, Different Scenarios of use of LCA, Sustainability targets, Selection of a LCA tools, LCIA.

UNIT 4 LIFE CYCLE COSTING (LCC) TOOL

10 Hrs.

Component characteristics of an element group, input for energy Calculation, LCC calculations conduct of LCI and LCC calculations, Selective Assessment, Normalization and Weighing Factors LCA and LCC for different materials. Case studies- Two and Three variants of a house, office building, retrofitting buildings.

UNIT 5 COMPREHENSIVE LEARNING

6 Hrs.

Calculating LCA for a particular building using One Click, calculating the LCI and LCC calculations for any identified building.

Max. 45 Hours

COURSE OUTCOME:

- CO1 Understand the aspects of Life Cycle Analysis
- CO2 Understand the life cycle assessment in building industry
- CO3 Analyse the available use of LCA
- CO4 Categorise the various parameters in Life Cycle Assessment
- CO5 Acquire knowledge about tools for LCA tools
- CO6 Integrate the aspects learnt in the tools for LCA calculations

TEXT / REFERENCE BOOKS

1. A. Kanpur and T.E. Graedel: Industrial Ecology. Encyclopaedia of Energy, Volume 3, 2004
2. Environmental life cycle analysis by David Camborne, CRC-Press 1997
3. Life-cycle analysis of energy systems from methodology to applications, by Bent Sorensen, Published by Royal Society of Chemistry, June 2011
4. Lifecycle Assessment: Principles and Practice Chapter 1
5. R. A. Frisch and N. E. Gallipolis: Strategies for Manufacturing, Scientific American 261 (3), 144-152 1989

SARA8206	DYNAMICS OF ORGANISATIONAL BEHAVIOUR	L	T	P	Credits	Total Marks
		4	0	0	4	100

COURSE OBJECTIVES

- To understand the behaviour of human beings as individuals and groups
- To interpret individual and group dimensions in organizational behaviour
- To comprehend the dynamics of complex work situations.

UNIT 1 CONCEPT OF ORGANIZATIONAL BEHAVIOUR

9 Hrs.

Definition-Nature-Characteristics-importance of organizational behaviour- models, -Cognitive Framework-Behaviouristic Framework and Social Cognitive Framework of organizational behavior.

UNIT 2 INDIVIDUAL BEHAVIOUR

7 Hrs.

Perception- Concept- Nature- Process- Importance-Management and Behavioural Applications of Perception- Attitude- Concept- Process and Importance- Attitude Measurement - Attitudes and Workforce Diversity- Personality- Concept, Nature, Types and Theories of Personality Shaping-Personality Attitude and Job Satisfaction-Learning- Concept and Theories of Learning.

UNIT 3 GROUP BEHAVIOUR

8 Hrs.

Motivation - Theories of Motivation- Early and Contemporary views- Motivating a Diverse Workforce- Leadership- Styles - Traits -Theories of Leadership -Interpersonal Relationship- Group Dynamics - Stages of Group Development-Group Cohesiveness-Formal and Informal Groups- Group Processes and Decision Making-Dysfunctional Groups.

UNIT 4 ORGANISATIONAL DYNAMICS

12 Hrs.

Organisational Power and Politics -Concept - Sources of Power- Distinction between Power-Authority and Influence- Approaches to Power, Political Implications of Power-Dysfunctional Uses of Power - Knowledge Management - Emotional Intelligence in Contemporary Business Organisation-Conflict-Sources-Types-Functionality and Dysfunctionality of Conflict- Resolution of Conflict. Change-Concept-Nature- Resistance to change- Managing resistance to change- Implementing Change- Kurt Lewin Theory of Change-Grievance -Types -Process of Grievance Handling-Stress-Consequences-Causes of Stress- Managing Stress- Organisational Culture-Characteristics-Elements-Implications of Organisation culture, Process -Job Satisfaction- Components - Significance - Influencing Factors.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

9 Hrs.

Case study presentation on topics revolving around organization behavior, dynamics need to be worked out..

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 Understand the basic elements of human behaviour.
- CO2 Discuss individual and group behaviour
- CO3 Examine important aspects of group/team processes.
- CO4 Demonstrate ability to manage, lead and work with other people in the organization.
- CO5 Analyze the significance of conflict, politics and change in organizations
- CO6 Design effective organizational dynamics.

TEXT / REFERENCE BOOKS

1. Newstrom John W. Organizational Behaviour: Human Behaviour at Work, Tata McGraw Hill, 12th Edition, 2017.
2. Luthans Fred, Organizational Behaviour, Tata McGraw Hill, 12th Edition, 2017.
3. Sundar & Srinivasan, Elements of Organisational Behaviour, Vijay Nicole Imprints Pvt. Ltd., 2009.
4. Luthans Fred, Organizational Behavior, McGraw Hill Publishers Co. Ltd., New Delhi, 2006.
5. Aswathappa K., Organizational behavior, HPH, Bombay, 2006.
6. S.S. Khanka, Organizational Behavior, S. Chand & Co.,

SARA8205	THERMAL COMFORT AND PASSIVE DESIGN	L	T	P	Credits	Total Marks
		3	1	0	3	100

COURSE OBJECTIVES:

- To understand the importance Thermal comfort
- To devise the applicability of passive design in built environment
- To comprehend the parameters for Thermal comfort.

UNIT I HUMAN BEHAVIOUR

9 Hrs

Atmospheric and thermal comfort, building performance, and occupant health, safety, and productivity. Factors responsible, energy systems for human comfort, PPD & PMV analysis

UNIT II NATURAL INFLUENCES

9 Hrs

Micro and Macro thermal comfort scales — Interpreting Material data through Bio climatic charts Sun path, Passive strategies, Solar heat gain, Solar radiation, Stack effect, etc.

UNIT III DESIGN ELEMENTS

9 Hrs

Modifications of Architectural & Landscape Elements — Fenestration, roof, walls, flooring, trees and landscape. Climatic zones and architectural features -Courtyard, Cross ventilation Daylight factor, Walls, Trombe wall, Buried pipe system, Wind, Velocity, Wind tower etc.

UNIT IV BUILDING MATERIALS

9 Hrs

Properties of building materials related to Climatic zones -Properties of Heat transfer and energy flow, U-value, Appropriate materials. Mass materials/components selection strategy - Photovoltaic-Recycled Materials-Utilization of building water conserving installation- Evaporative coolers.

UNIT V COMPREHENSIVE LEARNING

9 Hrs

Designing for optimum Day Lighting-Ventilation and Thermal Comfort Standards for the identified built environment

Max. 45 Hours

COURSE OUTCOME:

- CO1 Understand the parameters for thermal comfort
- CO2 Understand the passive design strategies in built environment
- CO3 Acquire knowledge about building materials to specific Climatic zones
- CO4 Understand human thermal comfort and the means to achieving the same
- CO5 Acquire knowledge about Renewable energy
- CO6 Integrate the parameters learnt in thermal comfort

TEXT / REFERENCE BOOKS

1. Arvind Krishna, Simos Yanas, Nick Baker, S.V. Szokolay, Climate Responsive Architecture, Tata McGraw Hill Pub. Co, 2001
2. Daniel D. Chiras, The Solar House: Passive Heating and Cooling, Chelsea Green Publishing, 2002
3. David Lloyd Jones, Architecture and the Environment: Contemporary Green Buildings, Overlook Hardcover, 1998.
4. Givoni, Climate Considerations in Building and Urban Design, Wiley; 1st edition, 1998.
5. Hawkes Dean and Foster Wayne, Energy Efficient Buildings: Architecture, Engineering, and Environment. W. W. Norton & Company; First American Edition, 2002.
6. O.H Koenisberger, Manual of Tropical housing and climate, Longman Group United Kingdom, 2012.

SARA3501	BIOMIMICRY	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To explore, understand and recognize the relation between nature and human.
- To comprehend and appreciate the natural construction by the organisms in nature.
- To generate similar approaches from nature in the built forms.

UNIT1 INTRODUCTION

6 Hrs.

Introduction- what is biomimicry - bionics - biomimetics - origins of biomimicry - Biomimicry vs biophilic -nature's laws, strategies, and principles - Nature as a model, measure and mentor, changing metaphor and approach organic architecture - animal architecture - complexity of natural organisms and systems - Relationship between nature and architecture.

UNIT2 BIOMIMICRY CONCEPTS

8 Hrs.

Nostos Erda: Returning Home to Earth - Natural materials manufacture principles - Inorganic materials - crystallized version of Earth derived materials - Natural construction - adaptation for human use (mud-dauber wasp compass termites, Eastern tent caterpillars, female bauble spiders and the extraordinary Namibian fog-basking beetle, beaver dam construction).

UNIT3 BIOMIMICRY IN ARCHITECTURE

6Hrs.

Biomimicry in architecture - overlap between biology and architecture - living building - biomimetics concepts - emerging biomimetics- technologies - nanotechnology in architecture - biomimetics products.

UNIT4 BIOMIMICRY AND SUSTAINABILITY

6Hrs.

Examples of Buildings - works of Douglas Cardinal, Imre Makovecz, Daniel Liebermann, Eugene Tsui, Jacques Gillet, Petra Gruber - Biomimetic Cities-Biomimetic future Approach- Levels of Biomimicry (organisms level, behaviour level, ecosystem level) - Nature model - New applications of biological life into Architecture.

UNIT5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

Assignment on the concepts of biomimicry by reviewing journal papers. Documenting the influence of Biomimicry in Architecture. Analysis of case studies of various architects- Ar. Michael Pawlyn, Ar. Mick Pearce, Ar. Santiago Calatrava.

Max. 30 Hours

COURSE OUTCOME:

On completion of the course the student will be able to

- CO1** Understanding the origin and principles of biomimicry and able to distinguish its application in architecture
- CO2** Understanding the origin and principles of biomimicry and able to distinguish its application in architecture.
- CO3** Exploration and critical analysis of the principles, design approaches of biomimicry adopted in architecture.
- CO4** Ability to outline the technologies and design strategies by adopted by pioneers in the built form.
- CO5** Skill to interpret philosophies in a sustainable approach adopted by architects in different contexts.
- CO6** Constructing knowledge on the role of nature as a model, measure and mentor in architecture.

TEXT / REFERENCE BOOKS

1. Benyus, J. M. (2002). Biomimicry: Innovation Inspired by Nature. William Morrow.
2. Gruber, P. (2011). Biomimetics in Architecture: Architecture of Life and Buildings. Springer.
3. Hansell, M. (2005). Animal Architecture (Oxford Animal Biology Series). OUP Oxford.
4. Mazzoleni, I. (2013). Architecture Follows Nature-Biomimetic Principles for Innovative Design (Biomimetics). CRC Press.
5. Pawlyn, M. (2011). Biomimicry in Architecture. RIBA Publishing.

SARA3702	ARCHITECTURAL PHOTOGRAPHY AND JOURNALISM	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- To make students aware about Architectural Journalism
- To encourage them to pursue Architectural Critiquing, Writing, Documentation and Research.
- To familiarize students in preparation of Book Reviews and Articles, with Photographs to support their work.

UNIT 1 INTRODUCTION TO ARCHITECTURAL JOURNALISM

4 Hrs.

Key concepts and objectives of Journalism; Theories of journalism, techniques and processes. Skills for contemporary architectural reportage: documentation, research, reporting, writing, editing, photography, columnists, interviewing, networking, public relationships, critiquing & criticism, media & publishing. Regional, National and International discussion forums, Discussions on topics needed in an architectural journal and current issues; Types of journals, works of key architectural journalists.

UNIT 2 ARCHITECTURAL WRITING AND CRITICISM

10 Hrs.

Introduction to various types of writing- News stories, critical essays on particular buildings, social issues, etc. Interviewing techniques, Argument and debate; critical thinking, evidence, proof, refutation, persuasion; Editing for print and web - Text preparation, formatting, page composition, Mode of presentation, Standards and Guidelines for documentation, Code of ethics, Basic knowledge on Press laws, Press Council of India, Multimedia/online journalism and digital developments. Introduction importance of Criticism. Relationship between Architecture and Criticism, Criticism and social commentary. Failures of Architectural Criticism. Analysis of various critical themes and their comparison, criticizing the built environment in various aspects and writing about criticism. Seminars on Indian architectural writers, journalists and critics.

UNIT 3 PHOTOGRAPHIC TECHNIQUES

8 Hrs.

Introduction to architectural photography: concepts of colour, lighting, distance, visual angle and perspective, Framing and composition: Visual weight, Rule of thirds, Leading lines, Symmetry, Abstraction; Context, Subject, Background and foreground relationships. Technical definitions and settings; Types of cameras and lenses, properties and priorities; Shooting parameters, Exposure, Aperture, Shutter Speed, ISO; Use of various post processing tools and controls; printing techniques.

UNIT 4 PHOTO JOURNALISM

6Hrs.

Analysis of subject and content, Photo-documentation techniques for buildings highlighting quality of architectural spaces. Supporting the write-ups about the built environment with photographs, Understanding pictorial, verbal and visual relationship of architecture journalism. Expression and Imagery, Time and space in Image

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

2 Hrs.

Writing Case studies, book reviews, literature reviews- Analysis of newspaper, magazine, or website articles and students will have to respond with their own piece of writing- Evaluation of historical and contemporary examples of written and journalistic criticism of architecture, analysis of major critical themes - Presentations, discussions and debates on works of Indian and international writers and critics - Looking at and explaining a building in today's scenario and what is happening now and what should be the future, reflecting on and criticizing architectural projects - Writing about the new technologies and construction techniques in today's architecture - Students will be assessed by the quality of their writing, the level of understanding they bring to the readings and topics, and the quality of their in-class presentations and participation.

MAX. 30 HOURS

COURSE OUTCOME:

On completion of the course the student will be able to

CO1 Understand importance of analysing architecture and its interpretation through journalism.

CO2 Structure architectural journals, write descriptive and analytical reports, edit write ups, book reviews, pagecompositions and printing processes.

- CO3** Analyse recent historical and contemporary examples of written and journalistic criticism of architecture, including selected writings by Indian and overseas critics
- CO4** Distinguish major critical themes and thematic categories in historical and contemporary architectural writing.
- CO5** Apply elements and principles of architectural photographic work that effectively communicates ideas.
- CO6** Post-process digital images to create various outcomes.

TEXT / REFERENCE BOOKS

1. Bender, T. (1988). Architecture and the Journalism of Ideas. *Design Book Review*, (15), 47-49
2. Waugh, P., & Fuller, D. (Eds.). (1999). The arts and sciences of criticism. Oxford University Press
3. Al-Asad, M., Musa, M., & Aga Khan Trust for Culture. (2006). Architectural criticism and journalism: global perspectives: proceedings of an international seminar organised by the Aga Khan Award for Architecture in association with the Kuwait Society of Engineers, 6-7 December 2005, Kuwait. Aga Khan Trust for Culture.
4. Fisher, T. (2011). The death and life of great architecture criticism. *Places Journal*.
5. Wiseman, C. (2014). *Writing Architecture: A Practical Guide to Clear Communication about the Built Environment*. Trinity University Press.
6. Heinrich, M. (2017). *Basics Architectural Photography*. Birkhäuser.
7. Harris, M. G. (2002). *Professional architectural photography*. Taylor & Francis.
8. Nieman Reports: Architectural Criticism: Dead or Alive by Blair Kamin.

SARA8307	TALL BUILDINGS	L	T	P	Credits	Total Marks
		3	0	0	3 100	100

COURSE OBJECTIVES:

- To acquire knowledge of advanced structural systems and analysis techniques for tall buildings.
To study the behavior and failure modes associated with different structural forms.
- To be familiar with construction techniques and materials used in building assemblies.

UNIT 1 DESIGN PRINCIPLES

9 Hrs.

Design philosophy, Reliability Based design, introduction to working stress design, limit state design, plastic design. loading, sequential loading, Gravity loading, dead load, live load, Construction load, Combined loading, Wind Loading - Static and dynamic approach – an insight into Analytical and wind tunnel experimental method. Earth quake loading

UNIT2 VARIOUS STRUCTURAL SYSTEMS

9 Hrs.

Factors affecting growth, Height and structural form - types- braced forms - infilled frames, shear walls, coupled shear walls, wall frames, tubular, cores, outrigger - braced and hybrid mega systems.

UNIT3 ANALYSIS AND DESIGN

9 Hrs.

Modeling for approximate analysis, Accurate analysis and reduction techniques, Analysis of a building as total structural system considering overall integrity and major sub system interaction,

UNIT 4 SITE INVESTIGATION

9 Hrs.

Assembly of buildings, Safety Policy, Stages of Site investigation, On site tests, Foundation, Basement construction and Water proofing, Materials, Selection & handling, Wall & Floor construction, Roof Construction.

UNIT 5 CONSTRUCTIVE ASSIGNMENT

9 Hrs.

Case study presentation of tall buildings around the world.

Max.45 Hrs.

COURSE OUTCOME

On the end of the course, student will be able to

- C01** Demonstrate a comprehensive understanding of the principles and considerations underlying different design approaches
- C02** Comprehend the various types of forms safety of high-rise structures.
- C03** An insight into modeling techniques that can be used for approximate and accurate analysis of building structures
- C04** Oversees the assembly process, ensuring adherence to safety regulations, and maintaining the structural integrity and quality of the building.
- C05** Adopt modern materials and methods for constructing tall buildings.

TEXT / REFERENCE BOOKS

1. Taranath. B. S. "Structural Analysis in tall buildings", McGraw Hill, 1988.
2. Bryan Stafford Smith, Alexcoull. "Tall building structures", Analysis and Design, John Willey and Sons inc., 1991.
3. Beedle. L.S. "Advances in Tall Buildings" , CBS Publishers & Distributors, Delhi, 1986.
4. Lin T.Y., States Burry D., "Structural Concepts and systems for Architects and Engineers",1981.
5. Chew Yit Lin, Micheal, "Construction Technology for Tall Buildings", Singapore University Press, 2nd Edition, 2006.

SAR1603	FILM SET AND TEMPORARY STRUCTURES DESIGN	L	T	P	Credits	Total Marks
		2	0	0	2	100

Course objectives:

- To explore and synthesize the various elements involved in a set.
- To give an insight to approached to art direction.
- To understand the process of designing and creating a set.

UNIT 1 ELEMENTS OF A SET

6 Hrs.

Elements of Image Making - stage craft, Accessories, Props, Design of Space - elements of Form, Colour, Light, Sound, Time, Graphic, Location, themes and materials, graphics design, reuse and set design.

UNIT 2 THEORY OF ART DIRECTION

8 Hrs

Drawing and Design, Theory for Art Direction, Relations between Scene vs Characters, Scene vs Painting, Scene vs Script, Scene vs Drama, translation from 2D to 3D.

UNIT 3 PROCESS OF DESIGNING AND CREATING A SET

8 Hrs

Analyze scripts to determine theme, concept, mood, location, style, period, special needs, Character, setting of the drama/ movie, initial sketches of the design, materials and construction of the set and execution.

UNIT 4 CASE STUDIES

8 Hrs.

Diverse concepts, philosophies and set designs of known art directors, movie reviews, case studies of different film cities in different contexts.

Max. 30 Hours

Course Outcomes:

On completion of the course the student will be able to

- CO1:** Exploring the various elements to be included while designing sets.
- CO2:** Comprehending the relationship between the various aspects involved in art direction.
- CO3:** Ability to understand and sequence the processes involved in the designing and creation of sets.
- CO4:** Constructing knowledge to review the sets created in movies.
- CO5:** Critically analyze the philosophies of know art directors in documenting cities, buildings etc.

TEXT / REFERENCE BOOKS

1. Neumann D., Film Architecture: Set Designs from "Metropolis" to "Blade Runner", Prestel, 1997
2. Fear B., Architecture + Film II, Architectural Design, Wiley Academy, 2000
3. Lamster M., Architecture and Film, Princeton Architectural Press, 2013
4. Nystorm H., Creativity and Innovation, John Wiley & Sons, 1979

S102APRO1	CAPSTONE PROJECT	L	T	P	Credits	Total Marks
		0	0	28	18	800

COURSE OBJECTIVES:

To evaluate the students to demonstrate the comprehensive understanding and knowledge gained through various semesters in an Architectural project. Students shall be permitted to undertake any live/ competition/ Government projects, which was approved as the pre thesis topic in the previous semester.

FOCUS

To deal the design problem in a real life like situation.

METHODOLOGY PROPOSED

Students will be encouraged to approach the design problem identified by him/her in a systematic way with guidance from a Supervisor on a one-to-one basis. There shall be five continuous assessments during the semester by the review committee comprising of The Internal thesis coordinator, internal guide and External guide.

The stages are:

- Concept and Site Zoning along with the previous semester Pre-Thesis report and study sheets to be presented.
- Conceptual sketches, models, plans, sections, elevations.
- Scheme I of the Design Drawings
- Scheme II of the Design Drawings
- Pre- Final stage
- Final University Viva Voce

The review marks obtained in the five assessments shall be taken into account for the internal marks. A jury comprising of internal and external examiners shall conduct the final Viva-Voce examination of the Thesis/Project in the institution at the end of the Eight semester as a final Viva Voice. The total marks scored shall be the sum of marks secured in the continuous assessments and the final university viva-voce examination.

The development of thesis is to enable the students to handle all the phases of building/interior design. It is a subject for scholastic study through analysis and should reflect the knowledge gained from all the courses undertaken by the student in all the previous semesters. It is a development of design and detailing with integration of all the technical aspects. The thesis project shall be submitted in the form of drawings, project report and material charts. Each student is required to submit two hard copies of the report along with a soft copy of the report and sheets. The report shall be based on the literature review, Case Study analysis and inferences, Standards, Site Analysis, Requirements and area statements along with the concepts, design processes and the final design.



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

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School of Building and Environment

Department of Architecture

The Board of Studies meeting was held at the Department of Architecture on 13th May 2022 with the following agenda:

- 1) Welcome address and opening remarks on the proposal to introduce the new electives along with the content during the odd semester June 2022 to November 2022 for all the programmes offered at the Department of Architecture.
- 2) Discussion on the designs that need to be introduced in the odd semester during the academic year 2022-2023.

Minutes of the Meeting

- 1) Dr.Devyani Gangopadhyay presented the welcome address and briefed the agenda of the meeting.
- 2) Dr.Ebin Harrison presented the list of new electives that were identified for all the undergraduate programmes - Architecture, Design and the post graduate programmes - Master in Architecture (Building Management and Sustainable Architecture) along with the content to the members.
- 3) Dr.Ebin Harrison briefed the design problems that were framed for both B.Arch and B.Des courses.
- 4) Ar.Saritha Varikkara suggested to focus the elective courses on skill development and sustainable practices. She was keen on looking into the content of the new elective titled 'biomimicry'.
- 5) With respect to M.Arch (BM), Ar.Ramesh Kumar presented the content of the elective courses such as 'Dynamics of organization behaviour', 'Strategic management' to the members.
- 6) Ar. Sarath C Kanth commented that the content of the title 'Dynamics of organization behaviour' is an appropriate course that can be included as a new elective during the odd semester.
- 7) Ar. Catherine presented the list of courses that have been identified as electives 'Alternative materials and techniques' and 'Life cycle analysis' that can be offered during the forthcoming semester for students pursuing M.Arch (SA).
- 8) Ar.Anupama pointed out that as 'sustainable building materials and techniques' is offered in the semester I, the course titled 'Life cycle analysis' has the scope to be a new elective course.
- 9) Ar.Deepalakshmi presented the content and she gave a suggestion on incorporating sustainable issues in the interiors as well as how ideas can be driven from nature for indoor spaces.



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Dr. Devyani Gangopadhyay

Dr. Ebin Harrison

Dr. Arulmalar R.

Ar. Shankar. V

Ar. Ramesh Kumar

Ar. Ramkumar

Ar. Deepalakshmi

Ar. Surya Rajkumar

Ar. Catherine. S

Ar. Kavitha. S

ideas during the intermediate as well as final reviews.

- 19) Ar. Meghal Arya suggested all the design faculty needs to explore how the knowledge constructed in various core as well as elective courses can be incorporated in design studio.

Prof. Devyani Gangopadhy concluded the meeting with acceptance that all the recommendations of the external members will be incorporated in the design studios that will be offered in the odd semester during the academic year 2022-2023. Ar. Shankar delivered the vote of thanks and felicitated the

External members:

Ar. PRAMOD BALAKRISHNAN,
Chief Architect, Edifice, Chennai

Dr. MEGHAL ARYA,
Associate Professor,
Faculty of Architecture,
CEPT University, Ahmedabad

AR. SARITHA VARIKKARA,
Partner, Sarks Consultants, Chennai

AR. SHANTANU BHOWMICK,
Founder, Partner, Sybarite Studio,
Kolkata

AR. SARATH C KANTH,
Design Tech Architects, Chennai

AR. ANUPAMA MOHANRAM,
Co-Founder & Head - Architecture -
Green Evolution, Chennai.

also pointed out that the design complexity and the comprehension

such as the literature case study, three dimensionally with a thrust on the skeleton models as well

rious design tasks in Basic design tasks were planned sequentially and in thinking.

Hejduk puzzle to evolve ideas and building typology 'Museum' that

planned in memory of an incident etc.

orial museum' and visit to such symbolism'.

the need to document the design which can help them to present their



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

School of Building and Environment

Department of Architecture

Minutes of the Board of Studies meeting conducted on 15th December 2022

The Board of Studies meeting was held at the Department of Architecture on 15th December 2022 with the following agenda:

- 1) Welcome address and opening remarks on the proposal to introduce the new electives along with the content during the even semester January 2023 to May 2023 for all the programmes offered at the Department of Architecture.
- 2) Discussion on the designs that need to be introduced in the even semester during the academic year 2022-2023.

Minutes of the Meeting

- 1) Dr. Devyani Gangopadhyay presented the welcome address and briefed the agenda of the meeting.
- 2) Dr. Ebin Horrison presented the list of new electives that were identified for all the under graduate programmes - Architecture, Design and the post graduate programmes - Master in Architecture (Building Management and Sustainable Architecture) along with the content to the board members.
- 3) Dr. Devyani Gangopadhyay briefed the design problems that were framed for both B.Arch and B.Des courses.
- 4) Ar. Ramesh Kumar presented the content of the elective courses such as 'Design of tall buildings', 'Prefabricated Structures' were presented to the members for M.Arch (BM).
- 5) Ar. Sarath C.Kanth pointed out 'Design of tall buildings can be offered as an elective in M.Arch (BM) during the even semester.
- 6) Ar. Kavitha presented the list of courses that have been identified as electives 'Solar passive architecture' and 'Thermal comfort and passive design' that can be offered during the forthcoming even semester for students pursuing M.Arch (SA).
- 7) Ar. Anupama posited out that 'Thermal comfort and passive design' has the scope to be a new elective course that can be offered during the even semester in the academic year 2022-2023.
- 8) Ar. Deepalakshmi presented the content for the elective courses 'Architectural photography and journalism' and 'Parametric in interiors'
- 9) Ar.Saritha Varaikkara gave a suggestion that 'Parametric in interiors' is interesting but she was questioning about the abilities of the students to comprehend the content.



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- 11) Ar. Shantanu pointed out the need to nurture 'design process' and innovative tools like story boards, mood boards, storytelling, Characterization of personas etc in the studios.
- 12) Ar. Pramod Balakrishnan suggested the need to focus on the need to facilitate innovative 'design process' in each studio so that the novices can explore their own thinking process.
- 13) Dr. Devyani Gangopadhyay elaborated on the various stages such as the literature case study, site analysis, program, user analysis, concept development, evolving ideas three dimensionally, ways to think to design elevations and sections with a thrust on the context, elevations and sections will be developed based on the skeleton models as well as the structural understanding.
- 14) Dr.Arulmalar discussed the logical sequence in framing the various design tasks in analysis of personal spaces and kiosks with a thrust on site planning, forma and interiors for both the programmes , B.Arch and B.Des programmes respectively.
- 15) Dr.Ebin Horrison also elaborated the design process incorporating anthropometric study in semester II. He also discussed the design brief 'public realm' for the students pursuing sixth semester.
- 16) Ar.Meghal Arya pointed out that the design can be 'convention centre' and visit to such typology can be planned so that the students can understand 'large span structures'.
- 17) Ar.Sarath C Kanth and Ar.Pramod Balakrishnan insisted the need to document the design process unraveled by each student critically in the design studio which can help them to present their ideas during the intermediate as well as final reviews.
- 18) Ar.Meghal Arya suggested all the design faculty needs to integrate the theory courses in design studios.

Prof.Devyani Gangopadhy concluded the meeting with acceptance that all the recommendations of the external members will be incorporated in the design studios that will be offered in the even semester during the academic year 2022-2023. Ar.Shankar delivered the vote of thanks and felicitated the external members.

The Board of Studies approved the proposed elective courses and the building typologies identified by the faculty members for the design studios offered during the even semester in the academic year 2022-2023.

External members:

Ar. PRAMOD BALAKRISHNAN,
Chief Architect, Edifice, Chennai

Dr. MEGHAL ARYA,
Associate Professor,
Faculty of Architecture,
CEPT University, Ahmedabad

AR. SARITHA VARIKKARA,
Partner, Sarks Consultants, Chennai

AR. SHANTANU BHOWMICK,
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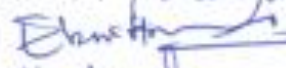


Internal members:

Dr. Devyani Gangopadhyay



Dr. Ebin Horrison



Dr. Arulmalar R



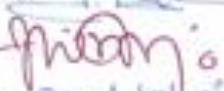
Ar. Shankar. V



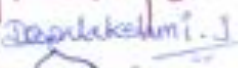
Ar. Ramesh Kumar



Ar. Ramkumar



Ar. Deepalakshmi



Ar. Surya Rajkumar



Ar. Catherine. S



Ar. Kavitha. S

