



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
Courses with revised content introduced in the year 2023- 2024

CONTENTS

S. No.	Department	Course Code	Course Name	Page No.
1	Architecture	SARA1701	Urban communities and behavior	3
2	Architecture	SARA1703	Human settlement and planning	5
3	Architecture	SAR1403 (Old)	Urban design	7
4	Architecture	SARA1704 (Revised)	Urban design	9
5	Architecture	SAR 1501 (Old)	Professional practice and ethics I	11
6	Architecture	SARA1702 (Revised)	Professional practice and ethics - I	13
7	Architecture	SARA2701	Advanced construction studio	15
8	Architecture	SARA9701	Design studio VII	16
9	Architecture	SAR4063 (Old)	Professional training	18
10	Architecture	S21APT (Revised)	Professional training	19
11	Architecture	SAR4064 (Old)	Educational tour	20
12	Architecture	SARA2801 (Revised)	Educational tour	21
13	Interior Design	SDEB1101 (Revised)	Fundamentals of Visual Arts	22
14	Interior Design	SDE1101 (Old)	Fundamentals of Visual Arts I	24
15	Interior Design	SDEB1103 (Revised)	Society, Culture and Environment	26
16	Interior Design	SDE1103 (Old)	Society, Culture and Environment	28
17	Interior Design	SDEB2105 (Revised)	Graphics	30
18	Interior Design	SDE4053 (Old)	Interior Graphics I	32

19	Interior Design	SDEB1104 (New)	Crafts & Designers	33
20	Interior Design	SDEB1105 (New)	Personality Development & Communication Skills	35
21	Interior Design	SDEB2106 (New)	Basic Design & Crafts Studio	37
22	Interior Design	SDEB1102 (New)	Elements & Principles of Design	39
23	Interior Design	SDEB1201 (Revised)	Psychology of Design	41
24	Interior Design	SDE1203 (Old)	Psychology of Interiors	43
25	Interior Design	SDEB1202 (New)	Anthropometrics & Ergonomics	44
26	Interior Design	SDEB1203 (New)	Materials & Finishes	46
27	Interior Design	SDEB1204 (New)	Communicating Design	48
28	Interior Design	SDEB1205 (New)	Introduction to Design	50
29	Interior Design	SDEB2205 (New)	Model Making Studio	52
30	Interior Design	SDEB2206 (New)	Design Process Studio	53
31	Architecture	SARA7301 (New)	Advanced Structural Systems & Maintenance and Rehabilitation of Structures	55
32	Architecture	SARA7403(New)	Lean Construction Management	57

	The content included in the revised courses introduced in the academic year 2023-2024 are highlighted in green colour
	The content deleted in the courses offered during the previous academic year are highlighted in red colour.
	New courses introduced during the Academic year 2022-2023 are highlighted in yellow colour.

SARA1701	URBAN COMMUNITIES AND BEHAVIOUR	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☑ To recommend 'psychology' as an integral prospect of Architectural study.
- ☑ To broaden the understanding about various theories illustrating the relationship between man and environment.
- ☑ To enhance thinking and examine various concepts that connect communal living and an urban environment

UNIT 1 INTRODUCTION**4 Hrs.**

Basic concepts of Urban Society - recall the definition of community its function and types. History of Urban Communities and its development - Introduction to environmental psychology, its importance in the field of architecture - Understanding the principles and roots of environmental psychology - listing out various theories and approaches in environmental psychology.

UNIT 2 UNDERSTANDING URBAN SOCIETY**10 Hrs.**

Understanding the impact of urban population growth - Dynamics of Metropolitan population growth - Development of Urban Metropolitan Society and urban areas - study of contemporary Urban location theories, Lifestyle in city and suburbs - Urban Politics - understanding the terms urban morphology, monuments and dwelling, genius loci, street and square, urban conservation, responsive environments, pedestrian spaces and plazas, social life, new urbanism, movement as motivating factor in design, landscape urbanism, sustainable urban form.

UNIT 3 RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND COMMUNAL HEALTH**6 Hrs.**

Housing Need, Different Housing types, Supply, Demand - Problem of Slums and squatter settlements - Health of Urban Population - Water Pollution, Air Pollution, Garbage and solid waste management - Concept of perception, visual perception, theories on environmental perception-environmental perception and design - Environment and human response in relation to different environmental variables.

UNIT 4 PHYSICAL ENVIRONMENT AND HUMAN BEHAVIOUR**6 Hrs.**

Concept of personal space, 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.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS**4 Hrs.**

Application of the knowledge - contemporary case studies - articles, book reviews, observation and recording human behaviour in an urban space, neighbourhood, etc. Identifying and documenting small issues in neighborhoods.

Max. 30 Hours

COURSE OUTCOME:**On completion of the course the student will be able to**

- CO1** Remember and recite the basics description of psychology, man and environment.
- CO2** Understand various terminologies related to society, urban planning, urban politics and urbanism.
- CO3** Explain and interpret various theoretical aspects of community, communal living, and relate their interconnections, particularly in social and environmental context.
- CO4** Differentiate various concepts of personal space, territory, and neighbourhood.
- CO5** Check and justify various concepts of physical spaces and its association with human behaviour.
- CO6** Carry out a task to plan and design a small community space/ neighbourhood with recommended theories and concepts studied and analysed.

TEXT / REFERENCE BOOKS

1. Clifford T. Morgan, Introduction to Psychology, 7th edition, Tata McGraw Hill Publications, New Delhi, 2001
2. Robert G., Environmental Psychology: Principles and Practice, Optimal books, 2002
3. Alan S. Berger, The City: Urban Communities and their problem, Brown Company Publishers, 1978
4. Jake Miller, Edited by Joanne Randolph, Who's who in an Urban Community, Rosen Publishing, 2005
5. Zubir S.S. and Brebbia C.A., Sustainable City VIII, WIT Press, 2014
6. David Rudlin and Nicholas Falk, Sustainable Urban Neighbourhood, Architectural Press, 2009
7. Amos Rapoport, Human aspects of urban form: Towards a Man - Environment approach to urban form and design, Oxford Pergamon press, 1997

 New Course

SARA1703	HUMAN SETTLEMENT AND PLANNING	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☑ To familiarize students with various theories and concepts of planning.
- ☑ To create an understanding of the elements, classification and typology of human settlements.
- ☑ To explore the holistic understanding of planning processes and framework in Indian context.
- ☑ To create an overall understanding of the contemporary urban planning issues in today's context and to develop solutions at basic levels.

UNIT 1 INTRODUCTION TO HUMAN SETTLEMENTS**8 Hrs.**

Introduction to planning as a discipline – Elements of human settlements, Evolution of human settlements- man, environment and built structure. Factors affecting growth of settlements, Community and settlement patterns- -Linear, non- linear combinations with case studies, characteristics of settlements. Classification of human settlements-based on location, function and population, size and occupational structure.

UNIT 2 THEORIES AND CONCEPTS OF PLANNING**6 Hrs.**

Theories - Central Place theory, Rank Size theory, Evolution of planning concepts- Garden City Movement, Ebenezer Howard, City Beautiful Movement - Burnham, Neighborhood Concept - Clarence Perry, Clarence Stein, Patrick Geddes. Growth and Decay of settlements - Regional Plan - Patrick Abercrombie, Louis Mumford. Planning concepts of Le Corbusier and FL Wright

UNIT 3 PLANNING FRAMEWORK AND PROCESS FOR VARIOUS DEVELOPMENT PLANS**6 Hrs.**

Types and purpose of Plans – Regional Plan, Perspective Plan, Structure Plan, Master plan, Comprehensive Plan, Detailed Development Plan, Zonal Plans, National Housing Policy, UDPFI Guidelines, Standards and Regulations.

UNIT 4 CHALLENGES AND TRENDS IN CONTEMPORARY URBAN PLANNING**6 Hrs.**

Globalization and its impact on cities, Urban Transformation - demographic changes, Rural Migration and Urbanization, Contemporary problems of settlements - Environmental Impact of unplanned growth, sprawl, slums and squatter settlements, Housing Demand - Housing Schemes in India, Participatory and Inclusive Planning, sustainable planning, smart cities.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS**4 Hrs.**

Case studies - Concept of Master plan. Case studies of planned cities - world. Emerging Indian thoughts on Urban Development- Charles Correa-Navi Mumbai, Belapur Housing, B.V. Doshi - Aranya Housing. Transect future of cities and cities of Future- Case studies - sustainable, intelligent, livable, inclusive and resilient cities

Max. 30 Hours

COURSE OUTCOME:**On completion of the course the student will be able to**

- CO1** Comprehend the relationship between the evolution, growth and development pattern of urban areas.
- CO2** Understand the concepts and theories of the urban planners and visionaries and relate it to context.
- CO3** Understand and evaluate the planning structure and processes in India.
- CO4** Evaluate regulations and byelaws related to planning.
- CO5** Critically analyze the current issues and trends in urban development.
- CO6** Conceptualize contemporary and futuristic cities based on the current needs.

TEXT / REFERENCE BOOKS

1. Doxiadis, C. A. (1968). Ekistics; an introduction to the science of human settlements.
2. Golahit, S.B. (2010). 'Rural Development Programs in India', Neha Publishers & Distributors.
3. Thomas, A.D. (1986). 'Housing and Urban Renewal, Harper Collins.
4. United Nations Centre for Human Settlements (Habitat) - Cities in a globalizing world global report on human settlements - Earthscan, London, and Sterling 2001.
5. Master Plan for Madras Metropolitan Area; Madras Metropolitan Development Authority, Second Master Plan, 2007.
6. Sustainable Human Settlements by R. S. Sandhu; Asian Experience, Rawat publications, 2001.
7. URDPFI Guidelines II A-II B-2014(<http://moud.gov.in/URDPFI>)
8. Housing and Urban Renewal by Andrew D. Thomas, George Allen and Unwin; Sydney, 1986.
9. Ministry of Urban Affairs and Employment, Government of India, New Delhi - Urban Development Plans: Formulation and Implementation Guidelines - 1996.
10. 'CMDA Second Master Plan for Chennai Metropolitan Area 2026: Vision, Strategies and Action
11. Misra R.P., Sundaram, Regional Planning in India, Allied Publishers, 2010

SAR1403 (Old)	URBAN DESIGN	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES

- To introduce the determinants of urban form and study how the urban form of cities have changed over the years.
- To familiarize the students about the various urban design theories and their significance in present day context.
- To expose the students to the application of various urban design principals and initiatives through case studies.
- To introduce the students to the various stakeholders and their role in urban design initiatives.

UNIT 1 INTRODUCTION AND HISTORY OF URBAN FORM

8Hrs.

Relationship between Architecture, Urban Design and City planning, Evolution of cities- prehistoric, classical, medieval, renaissance, industrial, modern, colonial & postcolonial and post-world war II urban projects, zoned city and its critics, inclusive urbanism, contemporary urban form, Comparative analysis of public spaces, their organization, location, distribution in towns

UNIT 2 URBAN DESIGN THEORY

7Hrs.

The city, urban morphology, movement as motivating factor in design, Urban Design theories - monuments and dwelling, genius loci, street and square, urban conservation, collage city, responsive environments, checklist for pedestrian spaces and plazas, social life of small urban spaces, new urbanism, landscape urbanism, sustainable urban form and transit oriented development.

UNIT 3 PRACTICE THEORY

7Hrs.

Urban Design as public policy, Case studies of contemporary cities, new towns, new urbanist settlements, transit villages, urban infill projects, public place making projects, eco and sustainable projects, brownfield and adaptive re use developments.

UNIT 4 URBAN DESIGN POLICY

8Hrs.

Urban renewal policy, scope and challenges-Role of planning agencies, Government and quasi government agencies, urban project finance corporations and their role- existing legal framework for urban growth in residential, commercial, recreational and mixed use sectors, opportunities and limitations- urban design charettes - public participation in urban design - Emerging global policy practices for sustainable, equitable urbanism.

Max. 30 Hours

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: To perceive or understand the relationship between various aspects of Architecture, Urban Design, Town Planning and the Environment.

CO2: To understand evolution of urban form over the years with relevant theories and case studies.

CO3: Compare different urban design theories and concepts and understand its application in real world scenarios in development of urban spaces.

CO4: To comprehend the role of different stakeholders including planning and government agencies in framing urban policy and its impact on development pattern.

TEXT / REFERENCE BOOKS

1. Morris A. E. J., History of Urban form: Before the Industrial revolutions, Rutledge , 1994
2. Spreiregen Paul D., Urban Design-The Architecture of Towns and Cities, Mc Graw Hill Book Company, Newyork, 1965.
3. Gordon Cullen, The Concise Townscape, Van Nostrand Reinhold, New York, 1961
4. Jan Gehl, Life between buildings: Using Public space, Island Press, 2011
5. Michael S. Bernickand Robert B. Cervero, Transit Villages in the 21st century, Mc Graw Hill Companies, Newyork, 1996
6. Edmund N. Bacon, Design of Cities Thames and Hudson, London, 1967

 Deleted Content

SARA1704 (Revised)	URBAN DESIGN	L	T	P	Credits	Total Marks
		2	1	0	3	100

COURSE OBJECTIVES:

- ☑ To introduce the determinants of urban form and study how the urban form of cities have changed over the years.
- ☑ To familiarize the students about the various urban design theories and their significance in present day context.
- ☑ To expose the students to the application of various urban design principles and contemporary initiatives through case studies.
- ☑ To expose the students to various tools and techniques, methods and surveys used in urban design for analysis of urban form.

UNIT 1 URBAN DESIGN THEORY**8 Hrs.**

Study of Urban design theories in the past through books of Gordon Cullen and Kevin Lynch, Genius Loci and Schulz, the works of Jane Jacobs, Historic City and Rossi, William Whyte and Jan Gehl, Collage City and Colin Rowe. Current theories in Urban design

UNIT 2 INTRODUCTION AND HISTORY OF URBAN SPACES**12 Hrs.**

Relationship between Architecture, Urban Design and City planning, Elements of urban design. Definition of Urban Form, Urban Fabric, Mass and Scale. Understanding of Urban form and spaces at various spatial scales through examples in river valley civilizations, pre-industrial European cities- Greek and Roman cities, medieval European towns and Renaissance history

UNIT 3 CONTEMPORARY TRENDS AND STRATEGIES IN URBAN DEVELOPMENT**12 Hrs.**

Urban Design as public policy, Factors for Identifying Area of Intervention – Strategies – Urban Renewal and Urban Sprawl, Urban redevelopment and Urban Conservation. Approaches to Urban Development – Concepts of Transit Oriented Development, Water Front Development, Heritage city development, New Urbanism, Landscape Urbanism, Sustainable Urban Form, Ecologically Sustainable Communities and Smart City concepts. Role of Public Participation in Urban Design.

UNIT 4 TOOLS & TECHNIQUES IN URBAN DESIGN**8 Hrs.**

Extensive Study of existing or published reports of Urban Design studies in Indian Cities with special focus on components/aspects and tools /methods. Various methods of conducting a visual survey. Types of surveys, data and map analytical techniques. Tools and methods to include different types of maps/mapping, drawings, sketches, photo documentations, reading, data collection, analysis. Special focus on streets-Expressive quality of built forms, spaces in public domain.

UNIT 5 COMPREHENSIVE LEARNING**5 Hrs.**

Case studies of contemporary cities - Morphology of Indian modernist cities of Chandigarh, Bhubaneswar and Gandhi nagar. Temple Towns of Tamil Nadu. Case studies of heritage city/towns. Sabarmati Waterfront development, Amaravathi etc. Incorporating the various concepts and theories in current semester urban design studio. Students are expected to implement various tools & methods of mapping and surveys in the analysis of urban form in their design studio.

Max. 45 Hours**COURSE OUTCOME:**

On completion of the course the student will be able to

- CO 1** Understanding the evolution of urban form over the years with relevant theories and case studies
- CO 2** Understanding the relationship between various aspects of Architecture, Urban Design, Town Planning and the Environment
- CO 3** Resolving and understanding complex urban issues and map the dimensions of urban space
- CO 4** Compare and contrast different urban design theories and concepts and understand its application in real world scenarios in development of urban spaces
- CO 5** Develop an understanding of factors effecting built and open spaces at urban scale and methods to perceive, record and analyze them
- CO 6** Apprehend the various concept of urban form, community spaces and development, the role of public participation in building the urban environment.

TEXT / REFERENCE BOOKS

1. Morris A. E. J. (1984). History of Urban form: Before the Industrial revolutions, Routledge.
2. Spreiregen, P. D. (1965). Urban design, The architecture of towns and cities. Krieger Publishing Company.
3. Cullen, G. (1961). The Concise Townscape, Van Nostrand Reinhold, New York,
4. Gehl, J. (2011). Life between buildings: Using Public space, Island Press,
5. Bernick, M., &Cervero, R. (1997). Transit villages in the 21st century. McGraw Hill Companies
6. Edmund, N. (1967). Bacon, Design of Cities. London: Tames and Hudson, 15.
7. Barnett, J. (1982). An Introduction to Urban design, Harper and Row, New York,
8. Gosling, G. (1994). Concepts of Urban Design, Academy Editions, St. Martin's Press, New York
9. Alexander R.C. (2003). Designing Cities - Critical readings in Urban design, Blackwell Publishers Ltd

 Added Content

SAR 1501 (Old)	PROFESSIONAL PRACTICE AND ETHICS I	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES

- To expose of the important legal aspects and legislations practice and profession.
- To enable the students to understand the important laws and acts relevant to architecture.
- To construct knowledge on emerging trends in the practice of sustainable architecture, role of foreign architects.

UNIT 1 INTRODUCTION

8 Hrs

Importance of Architectural Profession - Role of Architects in Society - Career options open for Architects-Prerequisites for Private Practice - Types of practices (Partnership/ Proprietary Concern /Associate - Architect's office and its management - Location, Infrastructure requirement - organizational structure, Basic accounts - Legal requirements, Registration of Firm, Tax Liabilities, Relationship with clients, contractors, Associate consultants and product Manufacturers.

UNIT 2 CODE OF CONDUCT AND ETHICS

8 Hrs

Role of Professional Body (The Indian Institute of Architects) History, Objectives, its relevance - Architects Act 1972 (Background, intent, objectives)- Council of Architecture (role and function with regard to Architectural practice) - Registration of Architects - Importance of Ethics - guidelines prescribed for professional code of conduct -punitive action for professional misconduct.

UNIT 3 STATUTORY PROVISIONS GOVERNING ARCHITECTURAL PROVISIONS

8 Hrs

Important Acts and Regulations governing the design of buildings- (Town & Country Planning Act, Consumer Protection Act, Copy Right Act, Persons with Disabilities Act, Coastal Regulation Zone Act, Heritage Act, Land Acquisition Act, Factories Act, Cinema Act)-Master Plan Provisions and Development regulations with reference to CMDA - Planning norms and Building Rules-Role of Planning Authority and local body - Building Approval process.

UNIT 4 EMERGING TRENDS

6 Hrs

Meaning of GATS - Globalisation and its impact on architectural profession - Entry of Foreign Architects and their impact in Indian Architectural practice - Information Technology and its impact -specialisation in the field of architecture -Green Buildings and the governing laws.

Max. 30 Hours

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Understand the role of architects in society.

CO2: Holistic understanding of legal requirements for managing an office and type of practices.

CO3: Acquire knowledge on various acts, development regulations, planning norms and building rules.

CO4: Comprehend the building approval process.

CO5: Figure out the role of foreign architects working in collaboration with local architects.

CO6: Enable the young minds to adopt green building strategies in design

TEXT / REFERENCE BOOKS

1. Handbook of Professional Practice, IIA Publications, India
2. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984
3. Apte V.S., Architectural Practice and Procedure, Mrs. PadmajaBhide, 2008
4. CMDA, Second Master Plan, 2026, CMDA Publications, 2008
5. Architects Act 1972, Council of Architecture, 2011
6. Krishnamurthy K.G. and Rvindra S.V., Professional Practice, PHI Learning Pvt Ltd, Delhi, 2014
7. Handbook of professional Documents, Council of Architecture, 2011

SARA1702 (Revised)	PROFESSIONAL PRACTICE AND ETHICS - I	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☑ To expose of the important legal aspects and legislations practice and profession.
- ☑ To enable the students to understand the important laws and acts relevant to architecture.
- ☑ To construct knowledge on emerging trends in the practice of sustainable architecture, role of foreign architects.

UNIT 1 INTRODUCTION**6 Hrs.**

Importance of Architectural Profession - Role of Architects in Society - Career options open for Architects-Prerequisites for Private Practice - Types of practices (Partnership/ Proprietary Concern /Associate) - Architect's office and its management – organisation structure, responsibility towards employees, terms & conditions of engagement, letter of appointment. Location, Infrastructure requirement - Basic accounts - Legal requirements, Registration of Firm, Tax Liabilities, Relationship with clients, contractors, Associate consultants and product Manufacturers. Salaried appointment in public and private sector jobs, Scale of charges, applicable building bylaws, municipal approval, development controls, zoning regulations, National Building Code, Master plan, Zonal Plans.

UNIT 2 CODE OF CONDUCT AND ETHICS**8 Hrs.**

Role of Professional Body (The Indian Institute of Architects) History, Objectives, its relevance - Architects Act 1972 (Background, intent, objectives)- Council of Architecture (role and function with regard to Architectural practice) – Functions, constitutions, rules and regulations ,guidelines prescribed for professional code of conduct; Registration of Architects - Importance of Ethics - punitive action for professional misconduct, social responsibility and publications; Ways of getting works: types of works; works partly executed by other architects; precautions before taking up the works; conditions of engagement between architect & client.

UNIT 3 ARCHITECTURAL PROVISIONS**8 Hrs.**

Important Acts and Regulations governing the design of buildings - (Town & Country Planning Act, Copy Right Act, Persons with Disabilities Act, Coastal Regulation Zone Act, Heritage Act, Land Acquisition Act, Factories Act, Cinema Act-Master Plan Provisions and Development regulations with reference to CMDA / DTCP/NBC - Planning norms and Building Rules-Role of Planning Authority and local body - Building Approval process.

UNIT 4 EMERGING TRENDS**4 Hrs.**

Meaning of GATS - Globalisation and its impact on architectural profession - Entry of Foreign Architects and their impact in Indian Architectural practice - Information Technology and its impact -specialisation in the field of architecture -Green Buildings and the governing laws.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS**4 Hrs.**

Exercise to identify the planning parameter for different type of buildings; compare the parameters with NBC / DTCP / CMDA regulations. Prepare architectural proposal for small / medium / big scale project.

Max. 30 Hours

COURSE OUTCOME:**On completion of the course the student will be able to**

- CO1** Understand the role of architects in society.
- CO2** Holistic understanding of legal requirements for managing an office and type of practices.
- CO3** Acquire knowledge on various acts, development regulations, planning norms and building rules.
- CO4** Comprehend the building approval process.
- CO5** Figure out the role of foreign architects working in collaboration with local architects.
- CO6** Enable the young minds to adopt green building strategies in design.

TEXT / REFERENCE BOOKS

1. Handbook of Professional Practice, IIA Publications, India
2. Namavati, R. (1984). Professional practice, Lakhani Book Depot, Mumbai.
3. Apte V.S. (2008). Architectural Practice and Procedure, Mrs. PadmajaBhide
4. CMDA, Second Master Plan, 2026, CMDA Publications, 2008
5. Architects Act 1972, Council of Architecture, 2011
6. Krishnamurthy K.G. & Ravindra S.V. (2014). Professional Practice, PHI Learning Pvt Ltd, Delhi,
7. Handbook of professional Documents, Council of Architecture, 2011

 Added Content

SARA2701	ADVANCED CONSTRUCTION STUDIO		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 synthesize the knowledge gained in all the materials and construction studios to develop drawings for an architectural design suitable for construction purpose.
- ☑ To detail the architectural elements and components to suitable scales.

Content	Plates	No	Remarks
Preparation of working drawings (plans, elevations, sections and other detailed drawings) to suitable scales.	Site marking and foundation layout	1	Bearing on Architectural design V
	Column layout plan	1	
	Floor plans with internal finishes (ground floor, first floor, typical floor)	3	
	Terrace and roof plan	1	
	Two elevations	1	
	Three sections (one through staircase and toilet, one showing the skin one in 1:50)	2	
	Basic electrical and plumbing drawing	2	
	Toilet detail (1:20)	1	

Max. 75 Hours**COURSE OUTCOME:****On completion of the course the student will be able to**

CO1	Generate drawings like foundation layout, floor plans with internal finishes incorporating basic electrical and plumbing details, terrace and roof plan suitable for construction purpose.
CO2	Develop elevations and sections evolved during the ideation phase to suitable scale so as to be used in the construction phase.
CO3	Construct the details of the architectural elements and components.

 New Course

SARA9701	DESIGN STUDIO VII	L	T	P	Credits	Total Marks
		0	0	14	7	400
Continuous Assessment	End Semester Examination	Min Pass Marks				
		Continuous Assessment		End Semester Examination		
250	150	125		75		

COURSE OBJECTIVES

- ☑ To understand and evaluate the dynamics of the urban settlements and the parameters which constitute the built environment in the urban areas.
- ☑ To identify the issues and challenges related to the urban areas and their relationship with the built environment.
- ☑ To explore urban design and architectural design solutions in context to the urban environment.

METHODOLOGY PROPOSED

STAGE I

Perlustration and Social Audit (Phase I)

The exploration of the character of an identified urban settlement through observation, documentation and graphical presentation of the same to understand the context in a holistic manner. Evaluate urban design through primary/ secondary research, theoretical pursuits and delineate a study area.

Inquisition and Mapping (Phase II)

Mapping of the delineated area and analyze the available data to understand the physical, social, visual and Architectonic pattern.

STAGE II

Urban Design Proposal: To propose logical solutions for the perceived issues in the urban settlement and built environment. with high degree of sensitivity to the documented information as a strategic plan. **Individual/ small group projects:** To propose an architectural proposal of a built form as part of the strategic plan for the identified urban space supporting socio, economic and environmental factors.

Max. 210 Hours

DESIGN INTEGRATION

All Urban planning principles shall be integrated with any selected urban context for renewal. All services for architectural built form along with the structure shall be integrated with the design.

SUGGESTED TYPOLOGIES

Urban/Sub Urban demarcated area which has scope for understanding present or futuristic urban intervention for a strategic plan supported by detailed design of architectural projects.

Note: May conduct a joint studio with institutions willing to partner/ Special lectures from Urban Designers/ Planners, Practitioners / Construction Technology Experts to enhance the outcome.

COURSE OUTCOMES.

On completion of the course the student will be able to

- CO1** Comprehend the evolution and morphological development of urban settlements
- CO2** Understand and apply the concepts of urban design and methodological approaches
- CO3** Integrate multiple computation techniques and applications for analysis, conceptualization, representation and communication of Urban Design schemes.
- CO4** Assess the complexity of urban phenomena & decode, analyze and interpret the related issues and challenges
- CO5** Develop and formulate strategies for desirable development plan of an urban area.
- CO6** Identify and propose architectural design solutions addressing the requirements and needs of an urban area.

TEXT / REFERENCE BOOKS

1. Watson, D., Plattus, A. J., Shibley, R. G., & Watson, D. (2003). Time-saver standards for urban design. New York: McGraw-Hill.
2. Morris, E. S. (1997). British town planning and urban design. Harlow, UK: Longman.
3. Friedmann, J. (2012). Varieties of Planning Experience: Toward a Globalized Planning Culture? In the Oxford Handbook of Urban Planning.
4. De Chiara, J., & Hancock, J. (1980). Time Saver Standard for Building Types, McGraw Hill, 2nd Edition.
5. Watson, D. (2004). Time-saver standards for architectural design.
6. De Chiara, J. (2009). Time-saver Standards for Housing and Residential Development: Time Saver Standards.
7. Gehl, J. (2013). Cities for people. Island press.
8. Gehl, J. (2011). Life between buildings: using public space. Island press.
9. American Planning Association. (2006). Planning and urban design standards. John Wiley & Sons.

SAR4063 (Old)	PROFESSIONAL TRAINING	L	T	P	Credits	Total Marks
		0	0	0	12	600

COURSE OBJECTIVES

- To give the student supervised opportunities to experience the essential practical aspects emphasized in an architect's office
- To provide opportunities to apply their acquired skills and knowledge in working life.

FOCUS

As per the norms laid by the Council of Architecture, India, a candidate has to undergo Professional Training for one semester in an approved architectural firm established not less than five years with a registered architect. A student is to undergo this Professional Training during the seventh semester. The evaluation of the performance of the students in Professional Training shall be as per the assessment procedure laid out in clause 12c (vi) in the regulations.

METHODOLOGY PROPOSED

- Procedure for practical training and evaluation mechanism has been evolved in consultation with practicing architects and the feed backs received.
- Monthly report & Final training report - 50% marks University Viva Voce - 50% marks

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Analyzing the strength and the field of interest while choosing the office for doing internship

CO2: Understand the challenges to be faced in the professional life.

CO3: Comprehend the interaction between theory and practice

CO4: Enabling the students to deal with clients, contractors, masons, etc.

CO5: Developing Leadership skills, team work, co-ordination abilities

S21APT (Revised)	PROFESSIONAL TRAINING		L	T	P	Credits	Total Marks
			0	0	0	10	600
Continuous Assessment	End Semester Examination	Min Pass Marks					
		Continuous Assessment	End Semester Examination				
200	400	100	200				

COURSE OBJECTIVES

- ☑ To apply the knowledge gained in the classroom learning in the creation of real time Architectural projects and thematically understand the various stages involved in the successful execution.
- ☑ To master the craft of handling Architectural projects and learn the office work flow structure and develop the qualities of an entrepreneur.

METHODOLOGY PROPOSED

Analyze and **document** the strength and the area of specialization while selecting an office for doing an internship. Training shall be taken in the office of an Architect registered with CoA with minimum five years' experience after CoA registration, and working in the field of Architecture. In case the student chooses to work in a firm where the principal is not an architect, he/she must be mentored by an employee of the firm registered with CoA and with the necessary experience. The evaluation of the performance of the students in Professional Training shall be as per the assessment procedure laid out in clause 12c (iv) in the regulations.

COURSE OUTCOMES

On completion of the course the student will be able to

- CO1** Application and importance of drawings in the process of building construction and execution.
- CO2** Comprehend the inter relationship between Architectural theory and professional practice.
- CO3** Apply the professional aspects of an architecture office/company and address multiple issues in conception, preparation and execution of a project on a site.
- CO4** Enabling the student to interact and deal appropriate with clients, contractors, vendors, workers on site etc.
- CO5** Understand and mitigate the challenges to be faced in professional life.
- CO6** Develop leadership skills, team work, co-ordination abilities.

SAR406 (Old)	EDUCATIONAL TOUR	L	T	P	Credits	Total Marks
		0	0	0	2	100

COURSE OBJECTIVES

- To give an opportunity to the students to experience both the contemporary and historical buildings and comprehend the site planning aspects and the context.

FOCUS

An educational tour to the places of architectural interest / building appraisal shall be organized as per the itinerary approved by the department. The documentation shall be done in the form of photographs / slides and sketches, presented in the form of a seminar and written report immediately after the tour / building appraisal. The students will be instructed to submit a Pre-Tour and Post Tour report of the selected zone. The tour will be in the form of choice based anyone state for a group of forty.

There will be a Minimum of two Assessments (pre tour and post tour) for the Educational Tour which carries a total of 50 Marks. Of these 45 marks will be awarded through assignments, documentation which includes drawings, sketches, pictures and report by the tour coordinator. The percentage of attendance secured by the candidate will carry a weightage of 5 Marks, which will be added to the internal assessment Marks of 45 thus making the total of 50 marks. Refer clause 12c (vii) in the regulations for assessment procedure.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1:Appreciating the monumental Architecture

CO2:Obtain knowledge in historical construction techniques and materials.

CO3:Understanding and comparing the Architecture of historical and Contemporary buildings

CO4:Analyzing the tangible and intangible factors

CO5:Interpreting the architectural character of the buildings and premises visited.

SARA2801 (Revised)	EDUCATIONAL TOUR		L	T	P	Credits	Total Marks
			0	0	0	2	100
Continuous Assessment	End Semester Examination	Min Pass Marks					
		Continuous Assessment	End Semester Examination				
50	50	25	25				

COURSE OBJECTIVES

☑To enable experiential learning through live case study of contemporary and historical buildings in order to comprehend the Architectural manifestation by documenting the inter relationship between the historical, social, cultural and economic aspects and its influence on selected works of master architects and visionaries

METHODOLOGY PROPOSED

An educational tour to the places of architectural interest / building appraisal shall be organized as per the itinerary approved by the department. The documentation shall be done in the form of photographs / slides and sketches, presented in the form of a seminar and written report immediately after the tour / building appraisal. The students will be instructed to submit a Pre-Tour and Post Tour report of the selected zone. The tour will be either choice based or anyone state for a group of forty. There will be a minimum of two assessments (pre tour and post tour) for the educational tour which carries a total of 50 marks. Refer clause 12c (v) in the regulations for assessment procedure.

COURSE OUTCOMES

On completion of the course the student will be able to

- CO1** Ability to understand and analyze the influence of historical, social, cultural and economic aspects on Architectural manifestations.
- CO2** Research and understand the role of scale and proportion in defining the character of a built form
- CO3** Critique and decode the fineness in construction techniques and judicious use of materials.
- CO4** Assess the architectural character and detailing in both historical and contemporary buildings

SDEB1101	FUNDAMENTALS OF VISUAL ARTS	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To develop a perspective of artistic and creative expression through experimentation with different tools, techniques, and mediums in two and three-dimensional visual art forms.
- ☐ To understand cultural diversity by recognizing various traditional art forms prevalent in the country.
- ☐ To determine how visual art has influenced world cultures throughout history.

UNIT I CONCEPT AND MEANING OF VISUAL ARTS - VISUAL CULTURE 6 Hrs

Definition and meaning of Visual Art; Categorization of Visual Art- Fine art, Contemporary arts, Decorative arts and crafts, Applied arts design - Understanding visual culture; Visual Theories; Visual Design; Symbolism, Time, Sound; Point of View, Visual Experience of historical artefacts, and relating visual experience to the cultural context.

UNIT II VISUAL ART HISTORY 8 Hrs

Art history to come as various eras, styles, and isms- Pre-Renaissance: Prehistoric Era, Ancient Civilizations, Classical Civilizations - Study of chronological periods from prehistory to post-modern art and artists of the West, with a focus on the various movements that transformed its history - Study of chronological periods and developments in Indian art from prehistory to the 19th century.

UNIT III APPLIED ARTS 6 Hrs

Applied Arts- Book cover design and illustration, cartoon, poster, advertisements for newspaper, magazine, hoardings, T.V., photography, computer graphics, animation, printing processes

UNIT IV ART CRITICISM AND AESTHETIC 10 Hrs

Purpose of Art Criticism; Steps of Art Criticism: Description, Analysis, Interpretation, Judgement; Aesthetic theories in Visual Art, Painting, Architecture and Sculpture, Artistic Styles, Aesthetic Experience Modes of Aesthetic Experience, Basics of Aesthetic values, Aesthetics of Thinking and Creativity, Taste and Aesthetes, Aesthetics of Symbols and Language Qualities of Visual Art literal qualities, formal qualities, expressive qualities

CONSTRUCTIVE ASSIGNMENTS

Book reading and review - Examples and case studies – Presentations - Comprehensive understanding through accompanying assignments, group discussions

Max. 30 Hrs

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Acquire basic knowledge about basic elements/principles of design and visual art.

CO2: Restate and exhibit an insight toward sensibility and aesthetic appreciation.

CO3: Demonstrate different and appropriate methodologies and tools for expressing and interpreting art forms..

CO4: Critically evaluate and make an assessment of art forms and its cultural background theories and principles of interiors

CO5: Criticize and visualize artistic styles and comprehend and represent their ideas through different medium

TEXT / REFERENCE BOOKS

1. Edward Treir,(1968), Form and Space, Thames and Hudson, London
2. Stanyer, P. (2003). The Complete Book of Drawing Techniques: A Professional Guide for the Artist. United Kingdom: Arcturus.
3. Dabrowski, M. (1995). Kandinsky compositions. New York: Museum of Modern Art
4. Wong, W. (1993). Principles of Form and Design. United States: Wiley.
5. Wong, W. (1997). Principles of Color Design. United Kingdom: Wiley.
6. Wong, W. (1972). Principles of Two-Dimensional Design. United States: Wiley.
7. Lawson, B. (2001). Language of Space, Architectural Press.
8. Tuan, Y., Hoelscher, S., (2001). Space and Place: The perspective of experience, University of Minnesota Press.
9. Ryan, M, (2004). Narrative across Media: The Languages of Storytelling, University of Nebraska Press.
4. Langellier K., Peterson B., (2004). Storytelling in Daily Life: Performing Narrative, Temple University Press.

SDE 1101	FUNDAMENTALS OF VISUAL ARTS I	L	T	P	Credit s	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☐ To acquaint students with the basic elements/principles of design and visual art.
- ☐ Understanding the basic characteristics of different techniques, mediums and its practical applications.
- ☐ To develop a perspective of artistic and creative expression through experimentation with different tools, techniques and medium in two and three dimensional visual art forms

UNIT 1	CONCEPT AND MEANING OF VISUAL ARTS	8 Hrs.
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Definition and meaning of Visual Art; Categorization of Visual Art- Fine art, Contemporary arts, Decorative arts and crafts, Applied arts

UNIT 2	ELEMENTS AND PRINCIPLES OF VISUAL ARTS	6 Hrs.
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Elements of Visual Art: color, form, line, shape, space, texture, and value; Principles of Composition of Visual Art: balance, emphasis, harmony, movement, pattern, proportion, repetition, rhythm, unity, and hierarchy

UNIT 3	2 DIMENSIONAL ARTS AND FORMS	6 Hrs.
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2D Methods & techniques; Drawing and Painting, Still life, Life drawing, Composition, Collage, Print making, Photography, Wall painting, Posters, Folk art forms, etc.

UNIT 4	3 DIMENSIONAL ARTS AND FORMS	6 Hrs.
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3D Methods & techniques; Sculpture, Clay modelling, Terracotta, Carving and relief work, Paper Mache, Mask making, Construction (using waste materials), Pottery, Installations, Folk art forms, etc.

UNIT5 CONSTRUCTIVE ASSIGNMENTS	4 Hrs.
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Demonstrate comprehensive understanding through accompanying assignments, group discussions, and site visits.

Max. 30 Hours

COURSE OUTCOME:

CO1	Understand the categorizations of visual art.
CO2	Apply elements (line, shape, form, texture, color, value, and space) and principles (repetition, variety, rhythm, proportion, movement, balance, emphasis, and unity) in work that effectively communicates their ideas.
CO3	Identify and discriminate between types of shape (geometric and organic), colors (primary, secondary, complementary, intermediates, neutrals, tints, tones, shades, and values), lines (characteristics, quality), textures (tactile and visual), and space (background, middle ground, foreground, placement, perspective, overlap, negative, converging lines positive, size, color), and balance (symmetrical, asymmetrical, radial)
CO4	Interpret and analyse the use of proportion, rhythm, variety, repetition, and movement in their work and the works of others.
CO5	Comprehend the various three dimensional art forms.

CO6	Develop and apply skills using a variety of two dimensional and three dimensional media, tools, and processes to create works that communicate personal meaning.
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TEXT / REFERENCE BOOKS

1. Form and Space -Edward Their, Thames and Hudson, London
2. Complete Book of Drawing Technique - Peter Stanyer
3. Dabrowski, M. (1995). Kandinsky compositions. New York: Museum of Modern Art
4. Principles of Form and Design by Wucius Wong John Wiley & Sons, New York
5. Principles of Color Design by Wucius Wong, Publisher: Wiley
6. Principles of Two-Dimensional Design, Wucius Wong, Publisher: Wiley

SDEB1103	SOCIETY CULTURE AND ENVIRONMENT	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the basic concepts / theories of formation of society, role of architecture in built environment and the relationship between man and the environment.
- ☐ To construct knowledge on the fundamentals of art and its reflection in culture, theories and solutions related to society and culture.
- ☐ To familiarize the students with community, various factors influencing various communities in a society and its impact on environment.

UNIT I CULTURE AND SOCIETY

8 Hrs.

Meaning and Definition of culture, Characteristics and Elements of Culture, Factors Bringing Changes in Culture. Importance of Culture and social identity with reference to various contexts. Evolution of civilization and cultures, groups, society, environment and time, Levels of social organization & the evolution of various social groups over time, human habitat to be related with research on cultural anthropology, ethnography and geographical contexts with examples in different eras.

UNIT II CULTURE, ARTS & CRAFTS (objects and artefacts)

6 Hrs.

Art - Role of art, art reality, perception, representation categories of art in terms of media and technique, paintings, sculpture, film- basic characteristics and development of each field, aspects of literature, performing arts -theatre, dance, music- understanding through cultural aspects, symbolism and techniques with examples from different cultural contexts.

UNIT III CULTURE AND BUILT ENVIRONMENT

8 Hrs.

Introduction to history and theory of built forms - Geographical location, politics, religion, materials, construction techniques and vernacular insights with examples in different contexts. Understanding human cultural development, built form and cultural context. Expression of the underlying value systems and relationship with the built form and interior elements.

UNIT IV CONSTRUCTION AND CULTURE

8 Hrs.

Evolution of forms and spaces during various eras and regions. Relationship between nature, architecture and interior. Architecture and its context, Social and cultural aspects of building practices, Role of intuition, innovation, inventiveness, creativity, ingenuity, expression of power in construction.

CONSTRUCTIVE ASSIGNMENTS

Book Review on Culture, Architecture and design by Amos Rapoport. Assignment on the topic - Aspects influencing the experience and expression - place, people, society, culture, history, tradition, time etc. Document the existing communities that illustrate the current socioeconomic and cultural pattern, and show the impact of socio-cultural change on age and the built environment.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Familiarize the cultural contexts; interpret the relationship between society, culture and the environment.

CO2: Impart knowledge on the evolution of social groups over time and human habitat related with various context and culture.

CO3: Identify and demonstrate various art forms and their representation during different periods.

CO4: Appraise the relationship of construction with respect to society and their culture.

CO5: Summarize the different cultural context and analyse their relationship with the design of built forms.

CO6: Appraise the traditional theories of space design including Vastushatra and Feng Shui in interior spaces.

TEXT / REFERENCE BOOKS

1. Lewis, Jeff. (2002) Cultural Studies - The Basics. SAGE Publications.
2. Rapoport, A. (2005). Culture, Architecture, and Design. Locke Science Publishing Company.
3. Rapoport, A. (1990). The Meaning of the Built Environment: A Nonverbal Communication Approach. United Kingdom: University of Arizona Press.
4. Stolley, Kathy S. (2005) the Basics of Sociology. London: Greenwood press.
5. James W. Spradley Late, D. W. (2015). Conformity and Conflict: Readings in Cultural Anthropology. Pearson; 15 edition.
6. Rapoport, A. (1969). House Form and Culture. Pearson; 1 edition.
7. Saile, D. G. (1986). Architecture in Cultural Change: Essays in Built Form and Culture Research. University of Kansas.
8. Hasnain N., (2011), Indian Anthropology.

SDE 1103	SOCIETY, CULTURE AND ENVIRONMENT	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☐ To construct knowledge on the fundamentals of art and its reflection in culture, theories and solutions related to society and culture.
- ☐ To understand the basic concepts / theories of formation of society, role of architecture in built environment and the relationship between man and the environment.
- ☐ To familiarize the students with community, various factors influencing various communities in a society and its impact on environment.

UNIT 1	CULTURE AND ARTS	4 Hrs.
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Introduction to the elements of culture. Role of art, art reality, perception, representation categories of art in terms of media and technique, paintings, sculpture, film- basic characteristics and development of each field, aspects of literature, performing arts - theatre, dance, music with examples from different cultural contexts.

UNIT 2	CULTURE AND SOCIETY	8 Hrs.
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Importance of Culture and social identity with reference to architecture, Evolution of civilization and cultures, groups, society, culture, environment and time, Levels of social organization & the evolution of various social groups over time, human habitat to be related with culture and various contexts with examples in different eras, research on cultural anthropology.

UNIT 3	CONSTRUCTION AND CULTURE	8 Hrs.
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Relationship between nature and architecture. Architecture and its context, Social and cultural aspects of building practices, Role of intuition, innovation, inventiveness, creativity, ingenuity, expression of power in construction and the origin of the Architect and the master builder Construction as an agent of change, emergence of the specialist, designer and builder relationship, culture of construction workers.

UNIT 4	BUILT ENVIRONMENT	6 Hrs.
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Introduction to history and theory of built forms - Geographical location, politics, religion, materials and construction techniques with examples in different contexts. Understanding human cultural development, built form and cultural context. Expression of the underlying value systems and relationship with the built form.

UNIT 5	CONSTRUCTIVE ASSIGNMENTS	4 Hrs.
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Book Review on Culture, Architecture and design by AmasRapoport. Assignment on the topic - Aspects influencing the experience and expression - place, people, society, culture, history, tradition, time etc. through Case studies of architects work. Document the existing communities in urban spaces that illustrate the current socioeconomic and cultural pattern, and show the impact of socio-cultural change on age and the built environment.

Max. 30 Hours**COURSE OUTCOME:**

CO1	Familiarize the cultural contexts, development of various art forms and their representation during different time periods.
CO2	Comprehend the relationship between society, culture and the environment.
CO3	Impart knowledge on the evolution of social groups over time and human habitat related with various context and culture.
CO4	Appraise the relationship of construction with respect to society and their culture and also the emergence of the Architect.
CO5	Summarize the different cultural context and analyze their relationship with the design of built forms.
CO6	Relate the role of culture and human behavior in a society and their response to environment.

TEXT / REFERENCE BOOKS

1. Lewis, Jeff. Cultural Studies - The Basics. SAGE Publications, 2002.
2. Rapoport, Amos. Culture, Architecture, and Design. Locke Science Publishing Company, 2005.
3. The Meaning of the Built Environment: A Nonverbal Communication Approach. University of Arizona Press, 1990.
4. Stolley, Kathy S. The Basics of Sociology. London: Greenwood press, 2005.
5. James W. Spradley Late, D. W. (2015). Conformity and Conflict: Readings in Cultural Anthropology. Pearson; 15 edition.
6. Rapoport, A. (1969). House Form and Culture. Pearson; 1 edition.
7. Saile, D. G. (1986). Architecture in Cultural Change: Essays in Built Form and Culture Research. University of Kansas

SDEB2105	GRAPHICS	L	T	P	Credits	Marks
		1	0	4	3	200

COURSE OBJECTIVES

- ☐ To outline the basic principles of drafting and rendering techniques
- ☐ To understand plane and solid geometry, isometric and axonometric view
- ☐ To familiarize basic principles of perspective drawing and sciography
- ☐ To develop the skill required for constructing a complete rendered three-dimensional simple form.

MODULE I INTRODUCTION TO FREE HAND DRAWING

12 Hrs.

Basic exercises, Construction of lines, line value, line types, Basic rendering techniques, basics of sheet presentation drawing, drawing instruments, sheet layout. Use of scale, free hand and geometric construction of Lines, Still life, Basic forms, effect of lines to represent textures - Understanding of different types of perspective views using vanishing points, shading exercises etc.

MODULE II GEOMETRICAL DRAWING

16 Hrs.

Construction of shapes - angles, circles, tangents. Construction of Plane Curves: Ellipse, Parabola and Hyperbola. Principles of orthographic projections, Construction and multi view projection of - Points, lines, square, rectangle, polygon, etc. - Multi- view projection of solids – cube, prism, pyramids, cones, cylinders etc.; Sections of solids, true shape of solids.- Plan, elevation and section of simple solids like cube, prism, pyramids, cones etc. Isometric and Axonometric projection of planes, solids and combination of solid etc. Isometric and Axonometric projection of simple objects etc.

MODULE III PERSPECTIVE AND SCIOGRAPHY

18 Hrs.

Study of concepts, types and terminologies such as picture plane, station point, vanishing point, eye level, ground level, Horizon etc. Technical construction of one point, two point and three-point perspective drawings through exercises on simple objects like cube, prism, combination of shapes and views at various eye levels. - Adding figures, trees, furniture etc., shade and shadows - Principles of shade and shadow- construction of shadow of simple geometrical shapes - point, line and planes. Construction of Sciography on small objects and elements.

MODULE IV SKETCHING AND RENDERING

14 Hrs.

Outdoor sketching including Lawns, bushes, Water Bodies, Plants & trees in different media. Indoor sketching - furnitures, lights, corridor, lobby, class room etc - Techniques of rendering for various drawings - Colour Pencils Rendering, Watercolor Rendering, Pen & Ink Rendering, Marker Rendering Techniques, Using Mixed Media Rendering Techniques - Plans, site plan, elevations, views etc.,

Max. 60 Hrs

COURSE OUTCOMES

On completion of the course the student will be able to

- CO1:** Understand the concepts and fundamentals of architectural drawing. .
- CO2:** Develop representation skills and to generate geometrical forms and its projections.
- CO3:** Ability to represent various solids and its sectional projection.
- CO4:** Measure real objects and represent them graphically.
- CO5:** Create three-dimensional solids and combination of solids
- CO6:** Develop graphical skill to represent real time objects.

TEXT / REFERENCE BOOKS

1. Gilliatt, M. (2005). Mary Gilliatt's Interior Design Course. United Kingdom: Conran Octopus.
2. Binggeli, C., Ching, F. D. K. (2012). Interior Design Illustrated. United Kingdom: Wiley.
3. Egan, M. D. (1983). Concepts in Architectural Lighting. United Kingdom: McGraw-Hill.
4. The Handbook of Interior Architecture and Design. (2013). United Kingdom: Bloomsbury Publishing.
5. Kopec, D. A., Kopec, D. (2006). Environmental Psychology for Design. United Kingdom: Bloomsbury Academic.
6. Drawing A creative Process, Francis D.K. Ching, John Wiley Sons, New York
7. How to paint & draw, Bodo W.Jaxtheimer, Thames & Hudson, London
8. Geometrical drawing for art students, 2nd revised edition - I.H.Morris, Orient Longman, Calcutta, 1995.
9. Architectural drafting and design, 4th edition Ernest R. Weidhaas, Allyn and Bacon, Boston, 1981
10. Building drawing, 3rd edition M G Shah, C M Kale, Tata Mcgraw Hill publishing, New Delhi.

SDE 4053	INTERIOR GRAPHICS I	L	T	P	Credits	Total Marks
		1	0	3	3	200

COURSE OBJECTIVES:

- ☐ To outline the basic principles of drafting and rendering techniques
- ☐ To understand plane and solid geometry, isometric and axonometric view
- ☐ To familiarize with simple objects and building components through measured drawing.

UNIT 1	INTRODUCTION	12 Hrs.
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Introduction to fundamentals of drawing/ drafting: Construction of lines, line value, line types, lettering, architectural notations & dimensioning. Basic rendering techniques, basics of sheet presentation drawing, drawing instruments, sheet layout. Use of scale, free hand and geometric construction of Lines

UNIT 2	GEOMETRICAL DRAWING - PLANE GEOMETRY	12 Hrs.
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Construction of shapes - angles, circles, tangents. Construction of Plane Curves: Ellipse, Parabola and Hyperbola. Principles of orthographic projections, Construction and multiview projection of - Points, lines, square, rectangle, polygon, etc.

UNIT 3	GEOMETRICAL DRAWING - SOLID GEOMETRY	16 Hrs.
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Multi- view projection of solids – cube, prism, pyramids, cones, cylinders etc.; Sections of solids, true shape of solids.

UNIT 4	MEASURED DRAWING	8 Hrs.
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Study of plan, section and elevation of simple objects, simple building components and furnitures through documentation exercises.

UNIT 5	ISOMETRIC AND AXONOMETRIC VIEW	12 Hrs.
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Isometric and Axonometric projection of planes, solids and combination of solid etc. **Isometric and Axonometric projection of simple objects, building components etc.**

Max. 60 Hours

COURSE OUTCOME:

CO1	Understand the concepts and fundamentals of architectural drawing.
CO2	Develop representation skills and to generate geometrical forms and its projections.
CO3	Ability to represent various solids and its sectional projection.
CO4	Measure real objects and represent them graphically.
CO5	Create three-dimensional solids and combination of solids
CO6	Develop graphical skill to represent real time objects.

TEXT / REFERENCE BOOKS

- Ching, F. D. (2015). Architectural graphics. John Wiley & Sons.
- Reekie, R. F., & McCarthy, T. (1995). Reekie's architectural drawing. Edward Arnold.
- Morris, I. H. (1912). Geometrical drawing for art students. Longmans, Green.
- Martin L.C. (1978). Architectural Graphics, The Macmillan Company, New York.
- Dinsmore.G.A. (1968). Analytical Graphics, Van Nostrand, Company Inc., Canada.

SDEB1104	CRAFTS AND DESIGNERS	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the definition and scope of Design and Craft & Technology
- ☐ To document and disseminate the role of Craft & Technology in design through literature; best studies and case studies
- ☐ To create awareness and exposure for skill-based knowledge systems and the link between tradition and continuity
- ☐ To evaluate various craft typologies and understand the role of crafts person and designer collaborations

UNIT I CRAFTS SYSTEM DEFINITION AND UNDERSTANDING 8 Hrs.

Introduction, Definition and Understanding of Craft, Handicrafts and Building Crafts, Craft & technology- applications and it's relation to Design, Craft Elements and Craft Clusters - Studies related to the Craft Sector, Issues and Challenges, Policies and Reforms, Case studies of various regions in India, Miscellaneous Case Studies of Indigenous building crafts, Continuity and revival.

UNIT II SKILL AND KNOWLEDGE 8 Hrs.

An introduction to Documenting Knowledge and Skills, Traditional Knowledge Systems and skills of the communities, Indigenous materials tools and techniques, Space Making Crafts & Surface Narrative Crafts, Preserving and revitalising the symbols of cultural heritage - Introduction to SMC - Crafts and built form - Different elements where they can be integrated- construction, doors, windows, flooring, furniture, surfaces, etc. Materials associated with SMC- Bamboo, Earth, Glass, Metal, Stone, Wood | Production Processes.

UNIT III CONTEXT AND COMMUNITIES 6 Hrs.

Significance of Space making Craft from environmental, socio-cultural, emotional and resource conditions of the context it represents. Lifestyle of user and intention of the maker - Craft Mapping of Different regions - Crafts integrated within day to day routine - Examples- Bhunga house, Gujarat; Bamboo house, NE India; Kath Kuni house, Himachal Pradesh.

UNIT IV CONTEMPORARY CRAFTS 6 Hrs.

Reimagining crafts in contemporary times, Studio Based Crafts, Challenges for artisans, Craftsman/Designer collaborations- Process-based, product-based, technology-based, management-based - Craft Designer collaborations - Emerging modes of practice. Examples of Work - Raas, Jodhpur- Ambrish Arora - Nrityagram, Bangalore- Gerard Da Cunha - Athithi Griha, Auroville- Dharmesh Jadeja - Shaam-e-sarhad, Kutch- Hunnarshala Foundation - India House, Pune- Christopher Benninger - Manualaya Resort- Sameep Padora - Dasavatara Hotel, Tirupati- SJK Architects etc.

CONSTRUCTIVE ASSIGNMENTS

Mapping Crafts and techniques from different regions. Creating visual plates for Craft based on particular material or technique. - Analysing craft communities and craft routine lifestyle connections.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Understand the meaning of 'Craft' and the breadth of its definition and how crafts play a role in Interior Design

CO2: Understand how Craft plays a role in representing the culture and traditions of our country.

CO3: Understand common aspects of craft practices, systems and elements

CO4: Evaluate the various Indian policies for indigenous craft sector

CO5: Understand the contemporary situation w.r.t Indian building crafts

CO6: Give design inputs for the benefit of the targeted craft/cottage industries.

TEXT / REFERENCE BOOKS

1. Ranjan, M. P., Ranjan, A. (2007). Handmade in India. India: Council of Handicraft Development Corporations.
2. Jain. R, (2018) 'Crafts in Interior Architecture: 1990 onwards', Cept University Press
3. Jaitly, J. (1990). The Craft Traditions of India. India: Lustre Press.
4. Saraf, D. N. (1991). D.N. Saraf in the Journey of Craft Development, 1941-1991: Reminiscences. India: Sampark.
5. Risatti, H. (2009). A Theory of Craft: Function and Aesthetic Expression. United Kingdom: ReadHowYouWant.com, Limited.

SDEB1105	PERSONALITY DEVELOPMENT AND COMMUNICATION SKILL	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To enhance verbal and non-verbal communication skills
- ☐ To improve the skills of reading and writing, language and conversational ability
- ☐ To enable and develop skills to express in various mediums such as presentation (written - graphics and audio)
- ☐ To enable the student to ultimately explain/defend his/her design to single person or panel.

UNIT I PERSONALITY

8 Hrs.

Define Personality, Determinants of Personality Development, Perception – Definition, Perceptual Process - Factors of Association – Relationship, Personality Traits, Developing Effective Habits, And Emotional Intelligence - Motivation, Introspection, Self-Assessment, Self-Appraisal & Self-development, Sigmund Freud Id, Ego & Super Ego - Self Esteem and Maslow, Self Esteem & Erik Erikson, Mind Mapping, Competency Mapping & 360 Degree Assessment, Types of Personalities – Introvert, Extrovert & Ambivert person - Spiritual journey beyond the management of change, Good manners & Etiquettes

UNIT II ART OF GOOD COMMUNICATION (BODY LANGUAGE)

8 Hrs.

Verbal and non-verbal communication - Body language and vocalic - Types of Body Language - Functions of Body Language - Role of Body Language – Voice culture, vocalic and body language - Proxemics - Difference between Oral and Written Communication - 7'Cs of Effective Communication - Importance of Effective Communication - Preparing and presenting verbal explanation on design and concept – Effective Speech - projective positive body language - Design related Articles review – Interview preparation – Dress code – Mock Interview – successful interview

UNIT III WRITING - AN ART OF COMMUNICATION

6 Hrs.

Writing as a communication skill – elements of written communication - Interpersonal skills - Analytical writing skills - Business writing skills - Technical writing skills - Effective Communication & Its key aspects – Profile – Letter writing – Types – Discussion - Resume Writing

UNIT IV GROOMING AND CONFIDENCE BUILDING

8 Hrs.

Team Behaviour - Types of Teams - Team Roles and Behaviour - Group Discussion - Do's and Don'ts - Assertiveness, Decision-making skills, Conflict: Process & Resolution, Leadership & Qualities of Successful Leader - Interpersonal Relationship - Attitude – Concept -Significance -Factors affecting attitudes – Positive attitude–Advantages –Negative attitude-Disadvantages -Ways to develop a positive attitude, Carl Jung 's contribution to personality development theory

CONSTRUCTIVE ASSIGNMENTS

Evaluation of individual's writing and presentation skills – Small team building activities – Experimenting presentation skills – power point presentations – group discussions – Debate – Project work – Book review - Articles review and presentation

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Explain about different types of personalities, manners and etiquettes

CO2: Examine the ability to listen and deliver information in a clear and accurate way

CO3: Demonstrate the art of expressing clearly and using language with precision

CO4: Critically appreciate and analyse design, sharpen convincing, oratory skills and develop effective communication

CO5: Formulate effective skills of writing and presentation, with special emphasis on informative (expository) and persuasive (argumentative) discourse

TEXT / REFERENCE BOOKS

1. .K K Nelson, F Dubors, Learning to learn, Allyn & Bacon
2. E. H. McGrath, Basic Managerial Skills for all, Prentice hall of India
3. P D Kulkarni & B B Sharma, Independent Study Techniques, TTTI, Chandigarh
4. MalvikaNagarkar, Communication Skills, MSBTE
5. Wren & Martin, English Grammar, Chand Books
6. Burgoon Michael, Human Communication, London: Sage Pub.
7. G Leech & Jan Svartvik, A Communicative grammar of English, ELBS
8. R K Bansal & J B Harrison, Spoken English for India, New York: Mcgraw Hill
9. J D O'Conner, Better English Pronunciation, N Delhi: Orient Longman
10. Technical Communication : A Reader Centered Approach, by Anderson, Thomson Learning.

SDEB2106	BASIC DESIGN AND CRAFTS STUDIO	L	T	P	EL	Credits	Marks
		2	0	13	2	10	400

COURSE OBJECTIVES

- ☐ To provide students with a foundation in design through the comprehension of elements and principles of composition;
- ☐ To develop visual representation and modelling of 2D & 3D art and craft forms using different media;
- ☐ To introduce students to ideas and techniques of creative thinking and communication;
- ☐ To investigate the properties and appropriate use of materials for visual representation.

MODULE I

30 Hrs.

Exploring the interrelationship between part and the whole- Gestalt principles depicting everyday objects | Shapes - Developing geometric and organic shapes and compositions | Texture - the study of textures - stimulating human senses | Colour- symbolism using colour- Expressing the psychological and physiological effect of colour, Effect of Colour in Form, Emotional Response to Colour – Various colour schemes and its application. Expressing works using narrative

MODULE II

40 Hrs.

Transformation of form and shape using Compositional principles & Proportioning systems | Modelling Classical orders, Representing Golden Section & Types of proportions | Communicative, expressive & functional 3-D modelling | Subtractive (soap, a plaster block, polystyrene), Constructional (Cardboard with slots or glue, wire bent and looped, wood with nails, joints or curtain wire hooks, cloth sections stuffed and stitched together), and Additive (clay, plasticine, plaster, paper mache) modelling techniques to form an expressive figure or design

MODULE III

30 Hrs.

Exploring cutting and folding techniques for origami and kirigami to form 3-D forms | 2D to 3D- Creating layered patterns from nature & surroundings, Creating a layered cut-out light box from a real sketch/photograph, Creating a pop out card | Creating paper based forms from music tones and dance poses | Light and shade for 3 dimensionality | Slicing 2d shapes to form organic 3-D forms.

MODULE IV

30 Hrs.

Designing of a life size expressive art installation in an interior space on campus considering the context and functionality of the space.

Max. 130 Hrs

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Apply art and design elements to their work

CO2: Generate ideas from imagination, memory and direct observation

CO3: Use drawing for observation, recording and analysis, as a means of thinking and for communication and expression

CO4: Create expressive sculptures using Subtractive, Constructional and Additive modelling techniques.

CO5: Develop skills for understanding and creating 3 dimensional depth using 2 dimensional media

CO6: Devise a narrative approach to their art work

TEXT / REFERENCE BOOKS

1. John W.Mills (1966). The Technique of Sculpture, B.T.Batsford Limited, New York - Reinhold Publishing Corporation, London.
2. C.LawrenceBunchy. (1972). Acrylic for Sculpture and Design, New York
3. Ching, F. D. K. (2014). Architecture: Form, Space, and Order. Germany: Wiley.
4. Jones, J. C. (1992). Design Methods. United Kingdom: Wiley.
5. Lawson, B. (2005). How Designers Think. (n.p.): Taylor & Francis.
6. Ching, F. D. K., Juroszek, S. P. (2019). Design Drawing. United States: Wiley.
7. Pipes, A. (2003). Foundations of Art and Design. United Kingdom: Laurence King.
8. White, A. W. (2011). The Elements of Graphic Design. United Kingdom: Allworth.

SDEB1102	ELEMENTS AND PRINCIPLES OF DESIGN	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To make the students learn the theoretical aspects of design and understand how it could be manifested in different aspects of design.
- ☐ To understand various ideologies from the works of great architects, interior designers, and product designers.
- ☐ To develop design vocabulary skills by exposing the students to visual, emotional effects and aesthetic design relationships like proportion scale, balance, symmetry, etc., by studying important examples.

UNIT I DESIGN VOCABULARY – PRIMARY ELEMENTS

8 Hrs.

Primary elements of Design – point, line, volume, shape - Linear, Planar, volumetric elements – Geometry in Design - texture, and color – in relation to light, pattern. Synthesis of these elements evolves understanding of basics of design - static and dynamic aspects of different compositions of design elements– order to chaos - Regularity and irregularity.

UNIT II ORDERING PRINCIPLES

8 Hrs.

Introduction to various ordering principles: Axis, Symmetry, Hierarchy, Rhythm, Repetition, Transformation, and Balance - symmetrical, radial, occult; harmony; unity; variety; rhythm; emphasis, - scale - proportion -- Golden Section, Le modular, Fibonacci series Renaissance Theories. Figure and ground, positive and negative spaces.

UNIT III CONCEPT OF GEOMETRY & VISUAL COMPOSITION

8 Hrs.

Introduction to different 3-D forms and primitive forms, shapes - characteristic features and their behaviour - understanding the behaviour when combined. Transformation of 2-D to 3-D - process - principles - types - Composition - types - Principles of composition using grids, symmetrical/asymmetrical, Rule Of Thirds, Centre Of Interest, Gestalt's Theory of Visual Composition.

UNIT IV COLOUR THEORY

6 Hrs.

Introduction colour theory - spectrum of colours - application - concept - Colour wheel – primary, secondary, tertiary colours, colour wheel, colour schemes colour value, intensity, and modification of colour hues – tints, shades, neutralization. Colour charts types, making and using. colour harmony, use of colour harmony. Psychological impact of colour – warm, cool and neutral colours, impact of specific hues, meanings of colour, colour and form, colour and light, colour and surface qualities, colour and distances and scales.

CONSTRUCTIVE ASSIGNMENTS

Review and discussion - articles about famous design examples - Group discussion about interesting design and its impact - Assignment on inspiring designs and various components in terms of elements and principles to be identified, documented and presented.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Illustrate different characters and aspects of principle elements and their application in design.

CO2: Recall and translate the identified design vocabulary and ordering principles there by perceiving the visual environment

CO3: Demonstrate the integrated relationship between the different elements, principles and spaces which helps in understanding the design concepts and solutions

CO4: Appreciate the relationship between, space, dimensions, scale, spaces, products and various activities involved.

CO5: Develop the ability to analyse the design problem, synthesize the response and critically evaluate the design by analysing the works of great designers.

TEXT / REFERENCE BOOKS

1. Binggeli, C., Ching, F. D. K. (2012). Interior Design Illustrated. United Kingdom: Wiley.
2. The Handbook of Interior Design. (2015). United Kingdom: Wiley.
3. Linton, H. (2003). Color in Architecture: Design Methods for Buildings, Interiors, and Urban Spaces. United Kingdom: McGraw-Hill.
4. Poore, J., Ragan, S. L. (1994). Interior Color by Design: A Design Tool for Architects, Interior Designers, and Homeowners. Hong Kong: Rockport Publishers.
5. Whiton, S. (2013). Elements Of Interior Design And Decoration. United Kingdom: Read Books Limited.

SDEB1201	PSYCHOLOGY OF DESIGN	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the autonomous responses of human mind to design based actions / choices.
- ☐ To understand the various basis of the subconscious responses of human mind towards certain design contexts
- ☐ To be conscious of the significance and role of ambiguity in such complex psychological response scenarios and how the design process can adapt to those.

UNIT I HUMAN SIDE OF DESIGN – EMOTIONS AND PERCEPTIONS

8 Hrs.

Role of psychology and physiology. The 4 c's of design, earlier origins of human scale in everyday contexts, Brief understanding of human relations and psychology, Humans as participants in a co-design process.

UNIT II COGNITIVE AND INTUITIVE SIDE OF DESIGN

8 Hrs.

Sensation and perception, Human information processing and execution, Elements of learning, Learning theories of behaviourism, Cognitivism, constructivism. Piaget's developmental theory. Ergonomics, Cognitive Systems and beyond, Vision and Perception, Cognition, Information processing approach, Attention and memory, Lapses in attention and memory, Types of memory, Human decision making.

UNIT III ENVIRONMENTAL PSYCHOLOGY

6 Hrs.

Complexity and systems: dynamism, complexity, uncertainty, Uncertainty as a fundamental challenge in human performance; coping with the unexpected, Dynamic Challenges in large-scale systems not typically present in simple systems, Challenges of human behaviour in large scale systems, complex inter linkages with technology., Human errors in complex systems

UNIT IV PERCEPTION AND THINKING

8 Hrs.

Perceptual processing, Role of attention in perception, Perceptual organization, Perceptual sets, Perceptual constancies, depth perception, distance and movement; Illusions - Thinking and Language: mental imagery, concepts, decision making; nature of language, language development - Learning and Motivation: Principles and applications of Classical conditioning, operant conditioning, and observational learning; Learning strategies; Learning in a digital world; Self-regulated learning; Perspectives on motivation, types of motivation, motivational conflicts.

CONSTRUCTIVE EXERCISES

Applying the theories learnt above in exercises that help in processing them and achieving clarity.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1:Familiarise with the human minds working and response pattern to certain broad scenarios of design

CO2:Distinguish the facets and depths of human psychology that are autonomous and what physical attributes are directly influencing the mind

CO3:Identify the various complexities in a broader context of design responses and the various exceptions

CO4:Compare and interpret the multiple systems that work behind in understanding human behavioural responses to various design decisions.

CO5:Interpret the learning in real time design performances and how to authenticate them or validate them.

TEXT / REFERENCE BOOKS

1. Alex W. White, The Elements of Graphic Design: Second Edition Paperback – 15 March 2011
2. Rajeev Batra (Editor), Colleen Seifert (Editor), Diann Brei (Editor), The Psychology of Design: Creating Consumer Appeal 1st Edition
3. Susan M. Weinschenk “100 Things Every Designer Needs to Know about People”
4. NirEyal, Hooked: How to Build Habit-Forming Products
5. Robert Cialdini, Influence: The Psychology of Persuasion.

SDE 1203	PSYCHOLOGY OF INTERIORS	L	T	P	Credits	Total Marks
		2	0	0	2	100

COURSE OBJECTIVES:

- ☐ To expose the students to the role of users' psychology and the relationship in interior design.
- ☐ To give an overview of psychological impact of colour and lighting in the interior spaces.
- ☐ To understand the role of space design on the psychology of the human and their behaviour.

UNIT 1	PERCEIVING INTERIOR SPACES	6 Hrs.
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Psychological Motivations for Affecting Spaces - Identity Claims, Thought and Feeling Regulators, Behavioural Residue; Expression of Psychological Attributes in Interior Environments; Environmental Perception - probabilistic functionalism and collative properties; Perception of spaces at home and work

UNIT 2	COLOUR AND ITS EFFECTS IN INTERIOR ENVIRONMENT	8 Hrs.
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Characteristics of colour, Psychological and physiological effect of colour, Meaning of Warm, Cool and Neutral Colour, colour and emotions, Effect of Colour in Form, Emotional Response to Colour in Interior Spaces

UNIT 3	LIGHT IN INTERIORS	6 Hrs.
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Glass and carpet colourful components in interior ancient architecture, elements of lighting and psychology of lighting, Light as a Cognitive Map and Emotional Driver, Light as a Gestaltic Device, Light vs. Dark, Lighting and Environment: Towards an "Ecological" Approach to Light Perception in interiors

UNIT 4	PSYCHOLOGY AND DESIGN PROCESS IN INTERIOR DESIGN	6 Hrs.
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Psychological qualities, emotional responses and aesthetic qualities of the environment – essence of complexity, novelty, surprises and incongruity in interior environment -related the design process and creativity

UNIT 5 CONSTRUCTIVE ASSIGNMENTS

4 Hrs.

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

Max. 30 Hours

COURSE OUTCOME:

CO1	Understand the various psychological attributes in interiors.
CO2	Articulate the coexistence of more than one psychological aspect and to determine which of the aspects play a dominant role.
CO3	Inculcate the role of colours, patterns and psychological impacts in the interior environment.
CO4	Comprehend the importance of natural and artificial light, their application and perception in interior design.
CO5	Design interiors incorporating the emotions and aesthetic values.
CO6	Apply psychological aspects in their own design.

TEXT / REFERENCE BOOKS

- Interior Design Course, Mary GilliatCoyran, OctopusLtd., London
- Interior Design, Francis D.K. Ching, John Wiley & Sons, New York
- Light right- M.K.Halpeth, T.Senthilkumar, G.Harikumar
- Concepts of lighting, Lighting design in Architecture- Torquil Barker
- PublicationsonTraditionalArts&CraftsofIndia,MinistryofHandicraftSDEvelopment,Government of India.
- Environmental Perception and Interior Design Samuel d. Gosling, Robert Gifford, and Lindsay Mccunn
- Psychology, 2015, 6, 1216-1222 Published Online August 2015 in SciRes. <http://www.scirp.org/journal/psych> ; <http://dx.doi.org/10.4236/psych.2015.610119>

SDEB1202	ANTHROPOMETRICS AND ERGONOMICS	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand a space with respect to human body dimensions, recognizing the functional aspect and imparting them in designing a spaces/ furniture/products.
- ☐ To understand detail working drawing for construction of the furniture, products for various functions and activities.
- ☐ To identify the purposes of understanding human physical variation, and develop design solutions.

UNIT I INTRODUCTION TO ANTHROPOMETRICS AND ERGONOMICS

8 Hrs.

Introduction to Anthropometry, Types of Anthropometric Data-Static and Dynamic Anthropometric data necessary to design. Anthropometric considerations in design development. Introduction to Ergonomics, Need for study of anthropometric and ergonomics. Meaning of Ergonomics, Concept, objectives, Applications, Ergonomic Factors Applicable to design. Ergonomics for various static activities (Seated, standing, sleeping, etc).

UNIT II ANTHROPOMETRICS AND ERGONOMICS – IN PRIVATE SPACES

8 Hrs.

Space requirements and their dimensions in residential space. Space requirements and allocation in various rooms. Dimensions of various fixtures. Space requirements in Toilets, powder rooms, bathrooms. Ergonomics in Kitchens: Ergonomic working triangle. Different work counters in Kitchens. Types of kitchen - Determination of work surface height, depth, Comfortable work chair height. Standard Furniture dimensions. Furniture used and space requirements in residential spaces with dimensions.

UNIT III ANTHROPOMETRICS AND ERGONOMICS – IN PUBLIC SPACES

8 Hrs.

Space requirements in office spaces: reception areas, office work counters, conference rooms. Space requirements in Restaurants: Space allocation in Alcove configuration, Parallel configuration, and Diagonal configuration. Space requirements for public washrooms with universal access.

UNIT IV ANTHROPOMETRICS AND ERGONOMICS FOR SPECIAL NEEDS

6 Hrs.

Ergonomic Factors &. Anthropometries Data, Circulation, Work Surfaces for Different Functions, Arrangement & Clearances, Door Width, Kitchen Counter Height, Counter Width, Furniture, materials finish suggested for them & their Details. Facilities Provided in Recreational Areas, Public Areas Etc.- Activity and behaviour based measurements and its importance in developing various designs

CONSTRUCTIVE ASSIGNMENTS

Representation of anthropometric measurements: vertical and horizontal reach. Various human postures with dimensions: standing, sitting, cross legged, crawling, reclining, sleeping - Drawings and sketching of different postures with respect to various activities - Representation techniques -Sketching, Drawings, drafting and rendering- Measuring of various furniture and spaces, its relationship with human postures.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Explain the role of measurements and proportions of human body and its importance for our everyday lifestyle.

CO2: Analyse the various approaches to Product and accessories design for different purposes.

CO3: Apply various human factors in design of spaces, products and accessories.

CO4: Construct and communicate various possibilities towards design of products and spaces incorporating safety, health and other standards.

CO5: Design and develop different design solutions which are aesthetically pleasing without compromising the comforts of individuals and their choices.

TEXT / REFERENCE BOOKS

1. Joseph De Chiara et.al., Time Saver Standards for Building Types, McGraw Hill International, Singapore, 3rd ed., Singapore, 1995.
2. Joseph De Chiara et.al., Time Saver Standards for Housing & Residential Development, McGraw Hill International Singapore, 3rd ed. 1995
3. Ernst and Peter Neufert, Neufert Architects Data, Wiley Blackwell, 4th Edition, 2012
4. William Lidwell, Kritina Holden, Jill Butler, Universal principles of Design, Rockport
5. CPWD Guidelines for Space Standards for Barrier Free Built Environment for Disabled & Elderly Persons, CPWD, New Delhi

SDEB1203	MATERIALS AND FINISHES	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the physical features, properties, application of materials in different spaces, accessories and products.
- ☐ To construct knowledge on the fundamentals of different finishes.
- ☐ To familiarize various theories and design solutions based on functional and aesthetic properties of wide range of materials.

UNIT I NATURAL MATERIALS AND ITS APPLICATION

8 Hrs.

Introduction to various natural materials - products, accessories and interior spaces – properties – characteristic features – Definition - scope and importance – impact on environment – process involved in manufacturing various products, accessories and interior application – public awareness - Evolution of products and other applications – bamboo, cane – properties – process – application – stones - Igneous, metamorphic & sedimentary – classifications, types – properties –availability – applications – advantages – Wood – properties – seasoning – raw materials – products – advantages – applications - Material and workmanship, specifications–technology- innovation in developing new products, accessories etc.

UNIT II TERRACOTTA, CERAMICS AND GLASS

8 Hrs.

Terracotta art , craft, origin – application – process - properties and application – ceramic – definition – traditional ceramics – earthenware, stoneware, porcelain – history – evolution – properties – process – application as products and in interior spaces – accessories – mosaic – mosaic art – products - Glass and glass products – Composition and fabrication of glass, classification, all types of glass annealed, float, mirrored, tinted, stained, etc. – including wired glass, fiberglass, laminated glass, glass blocks, etc. - their properties and uses - commercial forms available – their physical and behavioural properties.- Application of glass: tools and technology of its application in spaces, accessories, products etc. Material and workmanship, specifications.

UNIT III NATURAL AND SYNTHETIC RUBBERS, PLASTICS

6 Hrs.

Rubber – Natural rubber, latex, coagulation, vulcanizing and synthetic rubber properties - and application – general rubber – special rubber - Plastics – Types, thermosetting and thermo plastics, resins, common types of moldings, fabrication of plastics, polymerization and condensation. Plastic coatings reinforced plastic, plastic laminates, accessories, commercial plastics – properties, uses and applications-advantages and disadvantages – composite materials – Linoleum, PVC and PVA flooring, accessories, products their properties, other uses and applications - Material and workmanship, specifications.

UNIT IV METALS, HARDWARE, RESINS AND ADHESIVES

8 Hrs.

Metals – definition –types - workability – manufacturing process – properties – advantages – its application – coating and finishes – metallic finishes – its process – combination of metal with other materials for spaces and products – innovation and role of technology in innovative products and designs – hardware, accessories and basic tools required for designing small products and accessories – fittings – basic profiles etc. – resin a raw material for various products – its workability – methods and designs – aesthetic component - different resin products – process- properties – advantages- disadvantages. Adhesives -Natural and Synthetic, their varieties, thermoplastic and thermosetting adhesives, epoxy resin. Method of application, bond strength etc.

CONSTRUCTIVE ASSIGNMENTS

Material exploration through site visits – product information collection visiting expos and vendors – Simple assignments to review existing products, analysing the pros and cons of the products – reviewing works of famous, influential designers their designs, products.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Familiarize different materials its properties, uses, advantages and disadvantages.

CO2: Impart knowledge on the evolution of various materials over time and role of technology in the evolution of the products.

CO3: Identify and document various process in developing designs, products and their applications.

CO4: Summarize and elucidate the application of different materials and finishes

CO5: Evaluate different components its properties, advantages and disadvantages of various products in terms of their materials and finishes.

TEXT / REFERENCE BOOKS

1. The New Science of Strong Materials (or Why You Don't Fall Through the Floor) by J.E. Gordon. Penguin (various editions). This classic, very readable book explains how and why materials such as wood and metals behave as they do. Part III, The Metallic Tradition (Chapters 9–11), covers metals.
2. Alan N. Gent, ed., Engineering with Rubber, A.C.S. Rubber Division, 1992. A practical introduction and theoretical reference.
3. P. B. Lindley, Engineering design with natural rubber, NR Technical Bulletin, The Malaysian Rubber Producers' Research Association, 1984.
4. Maurice Morton, ed., Rubber Technology, Van Nostrand Reinhold, 3rd ed., 1987. A basic introduction to rubber technology.
5. Harry Long, ed., Basic Compounding and Processing of Rubber, A.C.S. Rubber Division, 1985.
6. James M. Margolis, "Elastomeric Polymers 2000 to 2010: Properties, Processes and Products" Report, 2000.
7. KRATON Polymers and Compounds, Typical Properties Guide, Shell Chemical Company, Houston, Texas, 1997.
8. Products, Properties and Processing for PELLETHANE Thermoplastic Polyurethane Elastomers, Dow Plastics, The Dow Chemical Company Midland, Michigan, ca. 1997.
9. Modern Plastics Encyclopedia '99, McGraw-Hill, New York, 1999, pp. B-51, B-52.
10. Engage, A Product of DuPont Dow Elastomers, Wilmington, Delaware, and December 1998.

SDEB1204	COMMUNICATING DESIGN	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the process of communication and to develop ways of integrating narrative with design ideas
- ☐ To recognize the importance of storytelling and integrate it in design process
- ☐ To examine various methods of visual representation of spatial design using various visual principles
- ☐ To create convincing design project presentations using visual elements.

UNIT I DESIGN PRESENTATION

6 Hrs.

Process of Communication- Verbal, Text-based Visual representation of design. Types of users to which representation needs to be conveyed- Clients, Designers/Co-Designers, Agencies - Terms and Terminologies used in Interior Design- Elements , Formal vs Informal Communication- strategies for communication.

UNIT II PITCHING AND NARRATIVE

8 Hrs.

Principles of effective storytelling | Imagination and Speculation- Creating scenarios - sales pitch- Preparing a convincing proposal - Context- Emotional, Environmental, Social - Narrative arc - Communicate their ideology and design process - Elements of a good narrative: facts, situation, characters, plot and resolution of a design project

UNIT III VISUAL LANGUAGE AND DRAWINGS

8 Hrs.

Visual language in Design- Diagramming- need and types - Graphics within the design process. Presentation dwgs- Isometrics, Perspective - Rendered dwgs, Line dwgs, Shaded dwgs, Walkthroughs - Models Technical dwgs- Wall elevations, Sections, Details/Shop dwgs, Layouts- Site dimensions, Furniture, Partition dismantling & mounting, Reflected ceiling, Lighting & Electrical, Plumbing, Air-conditioning, Flooring Methods of representation within the Interior Design Process- Inspiration, Identification, Conceptualization, Exploration, Modelling, Communication & Production.

UNIT IV DESIGN PRESENTATION

8 Hrs.

Graphics- Do's and don'ts - Competitions vs academic work - Mood & Material boards -Presentation boards- Construction, Size, Orientation, Colour, Layout, Grids, Typography - Self profiling - Portfolio & Resume of an Interior Designer - Using new and future-oriented technologies.

CONSTRUCTIVE ASSIGNMENTS

Understanding and expressing the design process through representation at different stages of the design process from brief to build- Inspiration, Identification, Conceptualization, Exploration, Modelling, Communication, Production.

Max. 30 Hrs

COURSE OUTCOMES

On completion of the course the student will be able to:

CO1: Explore various types of communication involving various stakeholders of an Interior design project

CO2: Discuss and apply elements of verbal, text-based, and visual communication

CO3: Evaluate elements of a story to incorporate in an interior design presentation

CO4: Recognize steps required for a successful interior design sales pitch

CO5: Distinguish representation of design used within the different stages of the interior design process

CO6: Prepare professional presentations using graphic design principles

TEXT / REFERENCE BOOKS

1. Design is Storytelling, Ellen Upton

SDEB1205	INTRODUCTION TO DESIGN	L	T	P	Credits	Marks
		2	0	0	2	100

COURSE OBJECTIVES

- ☐ To understand the core need for the process of designers.
- ☐ To review the works of famous designers of all fields.
- ☐ To get accustomed to the different school of thoughts under the umbrella of design
- ☐ To be able to understand the difference and take decisions accordingly in choosing the right design process, based on user / need / premise / expected output, etc..

UNIT I DESIGN – BIRTH, NEED AND ITS INCEPTION

8 Hrs.

Need for design, Creativity, Satisfying everyday needs / Basics in lifestyle, objects to experiences, Enhancing the existing, Evolution and adaptation and its influence in the rise and boom of designing.

UNIT II INTUITIVE AND HUMAN QUOTIENT OF DESIGN

8 Hrs.

Human behaviour& experience, Human-technology interaction, Psychometrics, Behaviour change by design, Design ethics, Emotion mapping and designing for well-being, Being a clever consumer of social science, User experience design.

UNIT III DESIGN AS PROCESS

8 Hrs.

The Rational Model, Technical Problem Solving and the Reason-Centric Perspective. The alternative view has been called Reflection-in-Action, Evolutionary Design, co-evolution, and The Action-Centric Perspective.

UNIT IV DESIGNERS / FORE RUNNERS AND THEIR WORKS

6 Hrs.

How designers in many fields, produce designs - Dorst and Dijkhuisargument – Examples of products and experiences as works of designers chronologically and geographically from across the world is familiarised.

CONSTRUCTIVE ASSIGNMENTS

Exercises involving developing simple design solutions for different cases, Case study on human behaviour and recording the output, Case studies on various problem solving techniques and process.

Max. 30 Hrs.

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Explain the basic palette of design outside the premise of the built envelope.

CO2: Familiarize with the various methods tested successfully and survived time

CO3: Deliberate how user and function can dictate the process of design.

CO4: Familiarize with the ability to decide different design process methods and to adopt the suitable method

CO5: Infer and integrate various tools applied in design process.

TEXT / REFERENCE BOOKS

1. Dave Gray, Liminal Thinking, Create the change you want by changing the way you think, 2017
2. Dan Ariely, Payoff: The Hidden Logic That Shapes Our Motivations
3. Richard H. Thaler, The making of Behavioral Economics, Misbehaving
4. Seth Stephens-Davidowitz , Don't Trust Your Gut: Using Data to Get What You Really Want in Life, May 10, 2022
5. Tim Brown, CHANGE BY DESIGN HCINDIA PB, 2012

SDEB2205	MODEL MAKING STUDIO	L	T	P	EL	Credits	Marks
		0	2	4	2	4	200

COURSE OBJECTIVES

- ☐ To develop an understanding of scope of materials and methods to manipulate them
- ☐ To learn the skills of using various tools used in model making
- ☐ To broaden a sense of accuracy and precision through manipulating the materials into various meaningful and abstract forms.

MODULE I INTRODUCTION

15 Hrs.

Introduction to concepts of model making | Various styles of models | Materials and tools used for model making | Types of adhesives and their usage | Safety practices | Preparation of base for models using wood or boards | Sketch to Measured drawing to 3D model | Marking and using scale | Practising basics of cutting various types of sheets, making half- cuts for curving and folding flat sheets

MODULE II SURFACES

15 Hrs.

Painting and texture representation of various glossy and matte surface finishes for floor, wall, roof, furniture and fenestration | Brick/stone, Stucco finish, Concrete, Tiles, Marble, Wood, Wallpaper, Carpet, Fabric, Leather, Water, Grass, etc. | Flat vs Curved surfaces.

MODULE III OBJECTS

15 Hrs.

Making detailed scaled model representations of various building elements like Walls, Columns, Steps, Windows/glazing, Sunshades, and Hand rails using materials like Mount/foam board, Snow-white board, cardboard, polystyrene, metal and acrylic sheets. Organic shapes and forms using clay, POP. Representation of landscape- Trees, shrubs, planters, lawn etc. Creating scaled models of various types of furniture and accessories in an interior space like tables, chairs, stools, counters and cabinets.

MODULE IV INSTALLATION ART

15 Hrs.

Making models of the various interior spaces such as • Residences • Offices • Retail Spaces • Recreational Spaces. Exposure to advanced techniques such as laser cutting and etching for models.

Max. 60 Hrs.

COURSE OUTCOME:

On completion of the course the student will be able to:

CO1: Explore the properties of various materials and their appropriate application techniques.

CO2: Select and specify materials for different models based on the its properties and requirements

CO3: Familiarize different tools and techniques used for model making

CO4: Able to develop and design simple objects in different scales based on their application in interior space models

CO5: Have an overview of the various 3D art forms and developing miniature installations for spaces

TEXT / REFERENCE BOOKS

1. Haun, L. (1999). Carpentry. United Kingdom: Taunton Press.
2. Taylor, J. D. (1996). Tools of the Trade: The Art and Craft of Carpentry. United States: Chronicle Books.
3. Jannsen, (1973). Constructional Drawings & Architectural models, Karl Kramer Verlag Stuttgart.
4. Smith W.H., (1982). The art of making furniture in miniature, E.P.Dutton Inc., New York.

SDEB2206	DESIGN PROCESS STUDIO	L	T	P	EL	Credits	Marks
		0	0	12	2	8	400

COURSE OBJECTIVES

- ☐ To enable the students to understand the principles of various elements and their role in space.
- ☐ To understand the role of transformation of 2-dimensional elements into different forms and products
- ☐ To know the importance of spatial qualities and to experiment with the art of spatial arrangement
- ☐ To explore and experiment with concepts and themes for different spaces through creative thinking.
- ☐ To analyse the functional relationship between a space/form and the user.

MODULE I

30 Hrs.

Role of various principles and elements of design – application in designing different macro to micro products/spaces – analysing compositions based on elements and principles – application

MODULE II

60 Hrs.

Concept – theme – context – response to user need – functional units – Anthropometry - Materials, Universal compliance – Small single space, products to complex utilitarian objects. Examples of useful products based on identified issues – are spatial / product-based solutions – small rooms/products for different age groups – redesigning day-to-day products/ spaces based on the user's needs and feedback, etc.

MODULE III

70 Hrs.

Identifying interdisciplinary design problems – solutions – understanding Interrelationship between spaces – scale – proportion – Mastery of various forms – addressing human needs – environmental sensitivity – Examples like various products/furniture/spaces for public gathering spaces – Designer – his needs – spaces – products – furniture, etc.

Max. 160 Hrs

COURSE OUTCOMES

On completion of the course the student will be able to

CO1: Recollect the knowledge gained in the previous semester and interpret inferences in the design.

CO2: Identify and deliberate the data in a small-scale design project that incorporates functional, technical, psychological, and visual areas of study.

CO3: Appreciate the transformation of ideas through graphical and three-dimensional models

CO4: Evolve design concepts that abide by various standards and confer them to pragmatic design

CO5: Develop and present a single space design project and demonstrate different problem-solving approaches.

TEXT / REFERENCE BOOKS

1. Neufert E, Neufert P, (2012). “Neufert Architect’s Data”, Wiley Blackwell Publication, UK.
2. DechiaraJ., Panero J., Zelnik M., (2011). “Time Saver Standards for Interior design and Space Planning”, McGraw Hill, London.
3. DechiaraJ., Panero J., (2011)“Standards for Interior Design and Space Planning”, McGraw Hill Professional.
4. Jones, J. C. (1992). Design Methods. United Kingdom: Wiley.
5. Lawson, B. (2005). How Designers Think. (n.p.): Taylor & Francis.
6. Laseau, P. (2001). Graphic Thinking for Architects and Designers. United Kingdom: Wiley.
7. Weigand, J., Faimon, P. (2004). The Nature of Design. United States: F+W Media.
8. Pipes, A. (2003). Foundations of Art and Design. United Kingdom: Laurence King.

SARA7301	ADVANCED STRUCTURAL SYSTEMS & MAINTENANCE AND REHABILITATION OF STRUCTURES	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES:

☐ To address the design factors pertaining to various building structure typologies and to explore new techniques in construction such as pre-engineered and prefabricated buildings.

☐ To understand the need and importance of structural maintenance and extending the serviceability and durability of structures. And to explore the techniques for repairing structures, selection and use of suitable materials for maintenance to enhance the life of structure.

UNIT 1 INTRODUCTION TO BUILDING STRUCTURAL SYSTEMS 9 Hrs

Height analysis, plan shapes, grids and core design - Construction sequencing, building skin and envelope - structural loading, sequential loading, materials, high performance concrete – Fibre reinforced concrete, High strength concrete, Lightweight concrete - Loading and movement Gravity Loading, Dead and Live load - Methods of Live load reduction – impact, gravity loading, construction loads, wind loading – Static and dynamic approach – Earthquake loading – Equivalent lateral force, model analysis, combinations of loading – Working stress design, limit state design, plastic design - Codes & Standards - Tensile structures in high-rise. High rise behaviour.

UNIT 2 PRE- FABRICATED STRUCTURES AND THEIR APPLICATION 12 Hrs

Specific requirements for planning and layout of prefabricated plant, Design Principles, modular coordination, standardization, disuniting of prefabricated production, transportation and erection, stages of loading, safety factors - Reinforced concrete - Prefabricated structures, wall panel types and two way fabricated slabs, partial and curtain walls, trusses, shells, crane - gantry systems - Floor slabs and roofs, types of floor slabs, cored and panel types and two way systems, staircase slab, insulation requirements, joints, their behaviour and reinforcement requirements – Walls, types of wall panels blocks and large panels, curtain - Partition and load bearing walls, wall joints - Behaviour and design, leak prevention, joint sealant, sandwich wall panels.

UNIT 3 SERVICEABILITY, MAINTENANCE AND REPAIR OF STRUCTURES 9 Hrs

Effects due to climate, temperature, chemicals, wear and erosion - Design and construction errors, corrosion mechanism - Effects of cover thickness and cracking - Methods of corrosion protection, corrosion inhibitors, corrosion resistant steels, coatings, and cathodic protection. Maintenance, repair and rehabilitation - Facets of Maintenance importance - Maintenance preventive measures on various aspects – Inspection and assessment procedure for evaluating a damaged structure - Causes of deterioration - testing techniques.

UNIT 4 MATERIALS & REPAIRING TECHNIQUES 9 Hrs

Special concretes and mortar, concrete chemicals - Special elements for accelerated strength gain, expansive cement, polymer concrete, sulphur infiltrated concrete, fibro cement, fibre reinforced concrete. Rust eliminators and polymers coating for rebars during repair foamed

concrete, mortar and dry pack, vacuum concrete - Guniting and shotcrete epoxy injection, mortar repair for cracks, shoring and underpinning. Repairs to overcome low member strength - Deflection, cracking, chemical disruption, weathering wear, fire, leakage, marine exposure - Engineered demolition techniques for dilapidated structures - Case studies

UNIT 5 CONSTRUCTIVE ASSESSMENTS

6 Hrs

Study and propose a building with the suitable structural system and carry out a thorough case study analysis and identify the areas where it could be improved along with the alternative construction techniques. Also identify an old building with the damages and propose a suitable material & techniques for repairing the selected structure to enhance the life span.

Max. 45 Hours

COURSE OUTCOMES:

- CO1** Get exposure to different types of loads and analysis methods while designing the building structures.
- CO2** Acquire knowledge about different types of special structures, pre-engineered and prefabricated structures.
- CO3** In depth understanding on the requirements of good serviceability and longevity of structures.
- CO4** Acquire knowledge and exposure to damages in the structure and their evaluation and maintenance procedures.
- CO5** Identify suitable materials for repair and selection of appropriate techniques to enhance the life of faulty structures.
- CO6** Comprehensive knowledge in the design and maintenance aspect of all types of structures with suitable materials and techniques to improve the life span of the structure.

TEXTS / REFERENCE BOOKS

1. Wolfgang Schueller, High Rise Building Structures, John Wiley and Sons, 1977
2. Bryan Stafford Smith and Alex Coull, Tall building structures, Analysis and Design, John Wiley and Sons, 1991
3. Lin T.Y. and Sidney D. Stotesbury, Structural Concepts and systems for Architects and Engineers, John Wiley & Sons, 1981
4. Bungale Taranath, Steel, Concrete and Composite Design of Tall Buildings, McGraw Hill, 1997.
5. Denison Campbell, Allen and Harold Roper, Concrete Structures, Materials, Maintenance and Repair, Longman Scientific and Technical UK, 1991
6. Allen R.T. and Edwards S.C., Repair of Concrete Structures, Blahie and Sons, UK, 1993
7. Shetty M.S., Concrete Technology- Theory and Practice, Chand and Company, New Delhi, 2000
8. Verghese P.C., Maintenance, Repair & Rehabilitation & Minor Works of Buildings, Prentice Hall, 2014
9. Samuel Y. Harris, Building Pathology – Deterioration, Diagnostics and Intervention, John Wiley & Sons, 2001.

SARA7403	LEAN CONSTRUCTION MANAGEMENT	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES:

- ☐ To provide exposure to the students on the principles and techniques of lean construction.
- ☐ To enhance their skills by training in lean project management software.
- ☐ To appreciate Lean management and develop a lean culture.

UNIT 1 INTRODUCTION TO LEAN PRINCIPLES**9 Hrs**

Introduction — productivity measurement in projects and work diagnostics; Mapping of lean principles into construction; Lean construction — fundamental concepts; Lean thinking and culture.

UNIT 2 PROJECT LIFE CYCLE AND LEAN PROJECT DELIVERY SYSTEM**9 Hrs**

Project life cycle and lean project delivery system; Lean tools, techniques and measures; Collaborative planning and last planner system; Location based management system.

UNIT 3 LEAN IN DESIGN AND LEAN TOOLS**12 Hrs**

Lean in design and supply chain management; Lean enablers and integration; Application in lean project management software - Master planning; Value Stream Mapping, Visual Management, 5S

UNIT 4 PLANNING AND PROJECT PERFORMANCE**9 Hrs**

Framework for pull planning and constraint analysis; Look ahead planning, weekly work plans , Standup Meetings, Learning PPP, Key performance indicators for plan reliability and project performance.

UNIT 5 CONSTRUCTIVE ASSIGNMENTS**6 Hrs**

Design of pull planning charts, weekly work plans and look ahead charts for display using a case study.

Max. 45 Hours**COURSE OUTCOMES**

- CO1** Develop lean thinking and map lean culture in project delivery.
- CO2** Interpret the Lean delivery systems.
- CO3** Demonstrate skill in applying Lean planning tools.
- CO4** Develop pull planning and other visual charts for follow up of project schedules and targets.

- CO5** Understand Lean in supply chain management.
- CO6** Investigate the key performance indicators and analyze project performance after implementation of lean management techniques.

TEXT / REFERENCE BOOKS

1. Alston, F. (2017), *Lean implementation; Applications & hidden costs*. London: CRC Press.
2. Fidelis, A. Emuze, Tare is io A. Saurin (2015). *Value and waste in lean construction*. London : Routledge, Taylor and Francis.
3. Forbes, L., Ahmed, S. (2011). *Modern construction – Lean project delivery and integrated practices*. CRC Press, New York.
4. Luis Alarc6n (1997). *Lean construction*. New York: Routledge, Taylor and Francis.
5. Shang Gao, Sui Pheng Low (2014). *Lean construction management: The Toyota Way*. Springer.
6. Tapping, D., Luyster, T. and Shuker, T. (2002). *Value stream Management*, New York:Productivity Press.
7. Rafael Sacks , Samuel Korb , Ronen Barak ((2017) *Building Lean, Building BIM: Improving Construction the TidharWay*.London : Routledge, Taylor and Francis.