ANNA UNIVERSITY, CHENNAI

AFFILIATED INSTITUTIONS

REGULATIONS - 2009

B. ARCH. (INTERIOR DESIGN)

II TO X SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER II					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
THEORY					
AR2151	Mechanics of Structures – I	2	0	0	2
AR2152	History of Architecture and Culture II	2	0	0	2
AR2153	Building Materials II	2	0	0	2
THEORY CUM STUDIO					
AR2154	Building Construction I	1	0	4	3
AR2155	Theory of Architecture	2	0	4	4
AR2156	Architectural Drawing II	1	0	4	3
STUDIO					
AR2157	Architectural Design – I	0	0	14	7
	SUB TOTAL	**10**	**0**	**26**	**23**

SEMESTER III					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
THEORY					
AR2201	Mechanics of Structures – II	2	0	0	2
AR2202	History of Architecture and Culture III	2	0	0	2
AR2203	Building Services I	3	0	0	3
AR2204	Climate and Built Environment	3	0	0	3
THEORY CUM STUDIO					
AR2205	Building Construction II	1	0	4	3
THEORY CUM PRACTICAL					
AR2206	Computer Aided Drafting	1	0	4	3
STUDIO					
AR2207	Architectural Design II	0	0	14	7
	SUB TOTAL	**12**	**0**	**22**	**23**

SEMESTER IV					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
AR2251	Design of Structures – I	3	0	0	3
AR2252	History of Architecture and Culture IV	2	0	0	2
AR2253	Building Materials IIIAR2252	2	0	0	2
AR2254	Building Services II	3	0	0	3
AR2255	Site Surveying and Planning	3	0	0	3
THEORY CUM STUDIO					
AR2256	Building Construction - III	1	0	4	3
STUDIO					
AR2257	Architectural Design III	0	0	14	7
	SUB TOTAL	**14**	**0**	**18**	**23**

SEMESTER V					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
THEORY					
AR2301	Design of Structures II	3	0	0	3
AR2302	History of Architecture and Culture V	3	0	0	3
AR2303	Building Materials IV	2	0	0	2
AR2304	Building Services III	3	0	0	3
ARxxxx	Elective – I	x	x	x	3
THEORY CUM STUDIO					
AR2305	Building Construction IV	1	0	4	3
STUDIO					
AR2306	Architectural Design IV	0	0	16	8
	SUB TOTAL	**12**	**0**	**20**	**25**

SEMESTER VI					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
THEORY					
AR2351	Design of Structures - III	3	0	0	3
AR2352	History of Architecture and Culture VI	3	0	0	3
AR2353	Professional Practice and Ethics I	3	0	0	3
AR2354	Architectural Acoustics	2	0	0	2
ARxxxx IDxxxx	Elective – II	x	x	x	3
THEORY CUM STUDIO					
ID2355	Interior Materials & Construction Techniques I	1	0	4	3
STUDIO					
ID2356	Interior Design – I	0	0	16	8
	TOTAL	**12**	**0**	**20**	**25**

SEMESTER VII					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
THEORY					
ID2401	Interior Design Principles & Theory	2	0	0	2
ID2402	Colour and Lighting in Interiors	2	0	0	2
ID2403	Interior Specifications and Estimation	3	0	0	3
THEORY CUM STUDIO					
ID2404	Interior Materials and Construction Techniques II	1	0	4	3
ID2405	Workshop I – Furniture Design (Carpentry & Metal)	1	0	4	3
ID 2406	Workshop II- Craft Based (Printing, Textiles & Ceramic)	1	0	4	3
STUDIO					
ID2407	Interior Design II	0	0	16	8
	TOTAL	**10**	**0**	**28**	**24**

SEMESTER VIII					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
ID2451	Internship Program I	x	x	x	12
	TOTAL	**0**	**0**	**0**	**12**

SEMESTER IX					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
ID2501	Internship Program II	x	x	x	10
ID2502	Dissertation	x	x	x	4
	TOTAL	**0**	**0**	**0**	**14**

SEMESTER X					
CODE NO	**COURSE TITLE**	**L**	**T**	**P/S**	**C**
IDxxxx	Elective III	x	x	x	3
IDxxxx	Elective IV	x	x	x	3
ID2551	Thesis	0	0	34	17
	TOTAL	**0**	**0**	**34**	**23**

Total no of Credits for completion of Semester : 215

Note:
L – Lecture period **T**- Tutorial period **P**- Practical period/ **S** –Studio period **C** - Credits

LIST OF ELECTIVES FOR B.ARCH. (INTERIOR DESIGN)

ELECTIVE – I (Fifth semester)

CODE NO	COURSE TITLE	L	T	P/S	C
AR2073	Art Appreciation	3	0	0	3
AR2027	Interior Landscape	3	0	0	3
AR2023	Structure and Architecture	3	0	0	3

ELECTIVE – II (Sixth semester)

CODE NO	COURSE TITLE	L	T	P/S	C
AR2071	Energy Efficient Architecture	3	0	0	3
ID2072	History of Furniture Design	3	0	0	3
ID2073	Current Trends in Interior Design	3	0	0	3

ELECTIVE – III (Tenth Semester)

CODE NO	COURSE TITLE	L	T	P/S	C
ID2074	Graphics & Visual Communications	3	0	0	3
ID2075	Vernacular and Indian Styles of Interior Decor	3	0	0	3
ID2076	Multi Media design tools for Interior Design	3	0	0	3

ELECTIVE – IV (Tenth Semester)

CODE NO	COURSE TITLE	L	T	P/S	C
ID2077	Restoration of Heritage buildings	3	0	0	3
ID2078	Theater / Film Set design	3	0	0	3
ID2079	Product Design	3	0	0	3

Note:
L – Lecture period **T**- Tutorial period **P**- Practical period/ **S** –Studio period **C** - Credits

AR2151 **MECHANICS OF STRUCTURES I** **L S P/S C**
2 0 0 2

AIM:
To make students aware of how structural resolutions become important in realization of architecture design concept. At this stage, students shall be exposed to forces, moments, and resolution that are to be resolved. Concepts of structures, and enable students to solve basic, simple problems.

OBJECTIVES:

- To enable a student to understand the effect of action of forces on a body and the concept of equilibrium of the body through exercises.
- To determine the internal forces induced in truss members due to external loads by working out problems.
- To calculate the sectural properties (centroid, moment of inertia, section modulus and radius of gyration) for various sections by working out problems.
- To study the struss – strain behaviors of steel and concrete due to axial loads and to determine the stresses and strains developed in solids due to external action through select problems.
- To drive the relationship between elastic constants and solving problems.

CONTENT:

UNIT I FORCES AND STRUCTURAL SYSTEMS 5

Types of force systems - Resultant of forces-lami's theorem- principle of moments vargion's theorem - principle of equilibrium (no reaction problems) - simple problems

UNIT II ANALYSIS OF PLANE TRUSSES 5

Introduction to Determinate and Indeterminate plane trusses - Analysis of simply supported and cantilevered trusses by method of joints.

UNIT III PROPERTIES OF SECTION 8

Centroid- Moment of Inertia - Section modules – Radius of gyration - Theorem of perpendicular axis - Theorem of parallel axis –simple problems.

UNIT IV ELASTIC PROPERTIES OF SOLIDS 6

Stress strain diagram for mild steel, High tensile steel and concrete - Concept of axial and volumetric stresses and strains. (excluding composite bar)

UNIT V ELASTIC CONSTANTS 6

Elastic constants - Relation between elastic constants - Application to problems.

TOTAL: 30 PERIODS

REQUIRED READINGS

1. R.K.Bansal – A textbook on Engineering Mechanics. Lakshmi Publications. Delhi 1992.
2. R.K.Bansal – A textbook on Strength of Materials Lakshmi Publications. Delhi 1998.

REFERENCES

1. P.C.Punmia, Strength of Materials and Theory of Structures; Vol. I, Lakmi Publications, Delhi 1994.
2. S. Ramamrutham, Strength of Materials – Dhanpatrai & Sons, Delhi, 1990.
3. W.A.Nash, Strength of Materials – Schaums Series – McGraw Hill Book Company, 1989.
4. R.K. Rajput – Strength of Materials, S. Chand & Company Ltd. New Delhi 1996.
5. A.P.Dongre – Structural Engineering for Architecture, Scitech Publications Ltd.

AR2152 HISTORY OF ARCHITECTURE AND CULTURE II

L	S	P/S	C
2	0	0	2

AIM:

To inform about the development of architecture in India from ancient times to its evolution through history under two religious movements- Buddhism and Hinduism- and the cultural and contextual determinants that produced that architecture.

OBJECTIVES:

- To understand Indian architecture as evolving within specific cultural contexts including aspects of society, religion, politics and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the Indus valley Civilization, Vedic period and manifestation of Buddhist and Hindu architecture in various parts of the country.

CONTENT:

UNIT I ANCIENT INDIA 4

Indus Valley Civilization: culture and pattern of settlement.- Aryan civilization – theories and debates of origin- origins of early Hinduism - Vedic culture - Vedic village and rudimentary forms of bamboo and wooden construction - origins of Buddhism and Jainism**.**

UNIT II BUDDHIST ARCHITECTURE 6

Evolution of Buddhism, Buddhist thought, art and culture - Hinayana and Mahayana Buddhism - interaction of Hellenic & Indian Ideas in Northern India - evolution of building typologies- the stupa, vihara and the chaitya hall - symbolism of the stupa - architectural production during Ashoka's rule Ashokan Pillar, Sarnath - rock cut caves at Barabar - Sanchi Stupa- rock cut architecture in Ajanta and Ellora - Karli - viharas at Nasik - Rani gumpha, Udaigiri - Takti Bahai, Gandhara.

UNIT III EVOLUTION OF HINDU TEMPLE ARCHITECTURE 6

Hindu forms of worship – evolution of temple form - meaning, symbolism, ritual and social importance of temple - categories of temple - elements of temple architecture - early shrines of the Gupta and Chalukyan periods Tigawa temple - Ladh Khan and Durga temple, Aihole - Papanatha, Virupaksha temples, Pattadakal - Kailasanatha temple, Ellora.

UNIT IV TEMPLE ARCHITECTURE - SOUTHERN INDIA 10

Brief history of South India - relation between Bhakti period and temple architecture - of temple towns - Dravidian Order - evolution and form of gopuram Rock cut productions under Pallavas: Shore temple, Mahabalipuram and Kailasanatha temple, Kanchipuram - Chola Architecture: Nartamalai, Brihadeeswara, Gangaikonda Cholapuram and Darasuram temples -– temple gateways of Madurai and Chidambaram - temple towns: Madurai, Srirangam and Kanchipuram Hoysala architecture: Belur and Halebid

UNIT V TEMPLE ARCHITECTURE -NORTHERN INDIA 4

Temple architecture of Gujarat, Orissa, Madhyapradesh and Rajasthan - their salient features Lingaraja Temple, Bhuvaneswar - Sun temple, Konarak. - Somnatha temple, Gujarat, Surya kund, Modhera Khajuraho, Madhyapradesh - Dilwara temple, Mt. Abu

TOTAL: 30 PERIODS

REQUIRED READINGS

1. Percy Brown, Indian Architecture (Buddhist and Hindu Period), Taraporevala and Sons, Bombay, 1983.
2. Satish Grover, The Architecture of India (Buddhist and Hindu Period), Vikas Publishing Housing Pvt. Ltd., New Delhi, 2003.
3. Christoper Tadgell, The History of Architecture in India from the Dawn of civilization to the End of the Raj, Longmon Group U.K.Ltd., London, 1990.

REFERENCES

1. A.Volwahsen, Living Architecture - India (Buddhist and Hindu), Oxford and IBM, London, 1969.
2. George Michell, The Hindu Temple, BI Pub., Bombay, 1977.
3. Stella Kramrisch The Hindu Temple
4. K.V. Soundarajan, Art and Architecture of South India
5. George Michell Ed, Temple Towns of Tamil Nadu
6. History of Indian Philosophy, Dasgupta

AR2153 **BUILDING MATERIALS II** **L S P/S C**
2 0 0 2

AIM:

This course is devised to make students understand some basic materials of construction such as brick, clay products and timber and its various market forms.

OBJECTIVES:

- To have an understanding of the properties, characteristics, strength, manufacture, processing and application of materials such as brick and other clay products.
- To inform the properties and characteristics of timber, its conversion, preservation and uses.
- To inform of the various market forms of timber, their production, properties and application in the building industry.

CONTENT:

UNIT I BRICKS **6**

Classification of bricks, characteristics, ingredients of bricks – Manufacture of bricks. Classification of bricks – Forms of bricks – Testing of bricks – Bonding in bricks and its types.

UNIT II CLAY PRODUCTS **6**

Manufacture of burnt clay bricks, paving bricks, hollow bricks – terracotta, porcelain, stoneware, earthenware and glazing and their uses.

Roofing materials - Manufacture and uses of Mangalore tiles, pot tiles, pan tiles

UNIT III TIMBER AND TIMBER PRODUCTS **6**

Classification of trees, structure of trees, Defects in timber, characteristics, seasoning of timber, Defects and diseases, Decay of timber, Preservation, Fire resistance, Conservation of timber, Storage of timber, Uses of timber of properties.

UNIT IV TIMBER PRODUCTS **6**

Market forms of timber, Industrial timber, - Veneers, Plywoods, Laminates, advantages and Blockboard uses.

UNIT V PAINTING AND VARNISHING IN TIMBER **6**

Composition, characteristics, preparation, painting different surfaces Enamels, Varnishing, Miscellaneous paints, defects, uses and cost of materials.

TOTAL: 30 PERIODS

REQUIRED READINGS

1. S. C. Rangwala, Engineering Materials, Character Publishing house, Anand – 3 8 8 001, India, 2002.
2. S.K. Duggal, Building materials, Oxford and IBH publishing Co, put, Ltd, New Delhi 110001, 1997
3. B. Reshpande, materials and construction oriental watchman publishing House Poona II

REFERENCES

1. P.C. Varghese, Building Materials, Prentice Hall of India put Ltd, New Delhi 110001, 2005.
2. R.J. Spencke and S.J. Cook, Building materials in developing countries, John Wiley and sons 1983.
3. To have an understanding of the various finishes that can be applied to timber.

AR2154 **BUILDING CONSTRUCTION I** **L S P/S C**
1 0 4 3

AIM

This course is devised to provide an understanding of the various components that go into the making of a building shell and to focus on the various technicalities of construction and construction detail using some of the basic building materials.

OBJECTIVE

- To involve students in a number of drawing exercises that will analyze the various building components in a simple load bearing structure.
- To involve students in a number of drawing exercises that will look at the design and detail of simple structures using naturally occurring materials such as mud, bamboo, straw, etc.
- To involve students in a number of drawing exercises that will look at the design and detail of various building components in a simple load bearing structure using stone.

CONTENT

UNIT I INTRODUCTION **9**

Functional requirements of building and its components, introduction to concept of load bearing and framed structures.
Exercises – involving the same.

UNIT II **SOILS** - Design and construction techniques **16**

Foundations – basic rules, design details, Base courses – basic rules, design details walls – basic principles – Design of openings, arches vaults, floors and roofs.
Design of buildings – using rammed earth, Adobe blocks, Compressed blocks – Exercises of the above

UNIT III **BAMBOO** – Design and Construction Techniques **20**

Foundations – Basic rules, design details, Base courses – Basic rules, design details. Design of walls, openings, floors and roofing- Thatch, grass, bamboo, reed.
Design Exercises of buildings using bamboo for building components, structural application of bamboo – Arched, Barrel vaults, weave structures.

UNIT IV **STRAW BALES** - Design and Construction Techniques **15**

Load bearing, Post and Beam systems, Foundations systems, Roofing options. Doors, Window details – stacking and plastering.
Design Exercises : using straw bales for building components.

UNIT V **STONE** **15**

Stone foundation, Masonry (Ashlar, rubble, cavity composite walls) flooring, coping, sills, lintels, corbels, arches, cladding.
Design Exercises – Using stone for building components.

TOTAL: 75 PERIODS

REQUIRED READINGS

1. S.P Arora and S.P. Bindra, Text book of Building Construction, ganpat Rai publications (P) Ltd New Delhi - 110002, 2005.
2. Klans Dukeeberg, Bambus – Bamboo, Karl Kramer verlag Stuttgart Germany, 2000.

REFERENCES

1. Don A. Watson Construction Materials and Processes Megraw Hill 1972, WB Mckey Building construction vol 1,2, Longman UK 1981.
2. Barry, the construction of buildings Affiliated East West press put Ltd New Delhi 1999.
3. Francisa D.K. Ching Building Construction illustrated John Wiley & Sons 2000.

AR2155 THEORY OF ARCHITECTURE L S P/S C
2 0 4 4

AIM

The course is devised to introduce architecture as a discipline, to develop sensitivity towards the aesthetic and psychological experience of form and space and to make aware of how meaning is created in architecture.

OBJECTIVES

- To introduce architecture as a discipline and to sensitize the students to the various functional aspects of architecture while looking at factors that contribute to the meaning of architecture and its visual aesthetic.
- To introduce the students to the ordering elements and principles of architecture to understand the vocabulary of the architectural language through the analysis of selected buildings.
- To understand not only the organization of form and space but to understand the organizing elements in a building through the case of selected buildings.
- To inform students of how meaning is created in architecture by analyzing cases of buildings, architects work(s), architectural styles.
- To engage students in seminars, case study analysis, workshops, etc that will look analytically at architecture.

CONTENT

UNIT I INTRODUCTION TO ARCHITECTURE AND MEANING IN ARCHITECTURE 10

Definitions of Architecture- context for architecture as satisfying human needs- functional, aesthetic and psychological –architecture as a discipline- introducing the various functional aspects of architecture: site, structure, skin, services, use, circulation etc.

Introduction to the factors that lend meaning to architecture- architectural expression and symbolism- character and style- movements, philosophies, ideologies and theories- meaning and interpretation of architecture

UNIT II ORDERING ELEMENTS AND PRINCIPLES OF ARCHITECTURE 20

Point, line, plane, form, shape, pattern, light, colour, texture – understanding the elements with respect to architecture
Exercises involving the above

Detailed study of the visual and emotional effects of geometric forms and their derivatives: sphere, cube, pyramid, cylinder and cone – Transformation of forms, Articulation of forms – mass-space/solid-void effects, articulation of edges, corners, surfaces
Exercises involving the above

Proportion, scale, balance, rhythm, axis, symmetry, hierarchy, datum, unity, harmony, dominance with respect to architecture
Exercises involving the above

UNIT III ORGANISATION OF FORM AND SPACE 20

Spatial relationships: space within space, interlocking spaces, adjacent spaces, space linked by a common space - spatial organization: centralised, linear, radial, clustered, grid - form- space relationships-
Exercises involving the above

UNIT IV CIRCULATION AND IN TOTALITY 20

Circulation as organizing element: building approach, building entrance, configuration of the path, path space relationship, form of circulation space
Exercises involving the above

UNIT V EXPERIENCING ARCHITECTURE 20

Understanding architecture in totality in terms of the various aspects through first hand experience, analysis and interpretation using the case of a building, architectural style, work(s) of contemporary architects
Seminar in the above **TOTAL: 90 PERIODS**

REQUIRED READINGS

1. Francis D.K.Ching, Architecture-Form, Space and Order, Van Nostrand Reinhold Company, New York, 2007.
2. Simon Unwin, Analysing Architecture, Rouledge, London, 2003.
3. V.S.Pramar, Design Fundamentals in Architecture, Somaiya Publications Private Ltd., New Delhi, 1973.

REFERENCES:

1. Leland M.Roth - Understanding Architecture, its experience history and meaning, Craftsman house, 1994.
2. Steen Eiler Rasmussen - Experiencing architecture, MIT Press, 1964
3. Peter von Meiss -Elements of architecture - from form to place, Spon Press 1992.
4. Rudolf Arnheim- The dynamics of architectural form, University of California Press 1977
5. Neils Prak, Mounton & Co 1968 The language of Architecture
6. Paul Alan Johnson - The Theory of Architecture - Concepts and themes, Van Nostrand Reinhold Co., New York, 1994.
7. Helen Marie Evans and Carla David Dunneshil, An invitiation to design, Macmillan Publishing Co. Inc., New York, 1982.

AR2156 ARCHITECTURAL DRAWING II L S P/S C
1 0 4 3

AIM:

To develop the skill of representation in advanced drawing techniques and building documentation.

OBJECTIVES:

- To involve students in a number of exercises that will help them develop the skill of representation in advance drawing techniques involving perspective and sciography.
- To involve students in a number of exercises that will help to understand the measured drawing method to document buildings of architectural interest using simple and advance techniques of representation.

CONTENT:

UNIT I SCIOGRAPHY 10

Principles of shade and shadow – construction of shadow of simple geometrical shapes – construction of sciography on building, shadows of architectural elements.

UNIT II PERSPECTIVE: SCIENTIFIC METHOD 25

Characteristic of perspective drawing. Concepts and methods of perspective drawing. One point and two point perspective of simple geometrical shapes like cube, prism, combination of shapes, simple one, two and three-point perspective of building interiors and exteriors. Adding of figures, trees furniture etc., shade and shadows and applying rendering techniques.

UNIT III PERSPECTIVE: SHORT CUT METHOD 15

Introduction to short cut perspective method. Adding of figures, trees furniture etc., shade and shadows and applying rendering techniques.

UNIT IV MEASURED DRAWING: HISTORIC DOCUMENT STUDY 10

Combined study of historic document along with small building by using simple measuring tools like tapes, photograph etc.

UNIT V MEASURED DRAWING: DOCUMENTATION 15

Documentation of a complete building of a special interest in terms of history, building construction, architectural excellence or technology.

TOTAL: 75 PERIODS

REQUIRED READINGS:

1. John M.Holmes, Applied Perspective, Sir Isaac, Piotman and Sons Ltd., London 1954.
2. Robert W.Gill, Basic Perspective, Thames and Hudson, London, 1974.
3. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
4. Francis Ching, Architectural Graphics, Van Nostrand and Reinhold Company, NY 1975

REFERENCES:

I. MEASURED DRAWING

1. Claude Batley, Indian Architecture, D.B.Taraporevale Sons and Co., Ltd., Bombay
2. William Kirby Lockard, Drawing as a Means to Architecture, Van Nostrand, Reinhold Company, New York.
3. George A Dinsmore, Analytical Graphics – D.Van Nostrand, Company Inc., Canada.

II. PERSPECTIVE

4. Interiors: Perspective in Architectural Design Graphic - SMA Publishing Co. Ltd., Japan, 1967.

III. SCIOGRAPHY

5. Ernest Norling, Perspective drawing, Walter Fostor Art Books, California, 1986.
6. Bernard Alkins - 147, Architectural Rendering, Walter Foster Art Books, 1986.
7. Rober W.Gill, Advanced Perspective, Thames and Hudson, London, 1974.

AR2157 ARCHITECTURAL DESIGN I

L	T	P/S	C
0	0	14	7

AIM:

To enable the conceptualization of form, space and structure through creative thinking and to initiate architectural design process deriving from first principles.

OBJECTIVES:

- To involve students in a design project(s) that will involve simple space planning and the understanding of the functional aspects of good design.

- To involve students in a small scale building project(s) which will sensitize them to intelligent planning that is responsive to the environmental context.
- To involve students in building case study by choosing appropriate examples to enable them to formulate and concretize their concepts and architectural program.
- To engage in discussion and analytical thinking by the conduct of seminars/ workshops.
- To enable the presentation of concepts through various modes and techniques that will move constantly between 2D representation and 3D modeling.

CONTENT:

Scale and Complexity: projects involving small span, single space, single use spaces with simple movement, predominantly horizontal, as well as simple function public buildings of small scale; passive energy

Areas of focus/ concern:

- architectural form and space
- aesthetic and psychological experience of form and space in terms of scale, colour, light, texture, etc.,
- function and need: user requirements, anthropometrics, space standards, circulation
- image and symbolism

Typology/ project: bedroom, bathroom, kitchen, shop, exhibition pavilion, children's environment, snack bar, residence, petrol bunk, fire station.

TOTAL: 210 PERIODS

REQUIRED READING

1. Joseph De Chiara, Michael J Crosbie, Time Saver Standards for Building Types, McGraw Hill Professional 2001.
2. Julius Panero, Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, Time Saver Standards for Interior Design and Space Planning, McGraw Hill 2001.
4. Ernst Neuferts Architects Data, Blackwell 2002
5. Ramsey et al, Architectural Graphic Standards, Wiley 2000

REFERENCES

1. Hideaki Hareguchi, A Comparative analysis of 20th century houses, Academy Editions, 1988
2. Robert Powell, Tropical Asian House, Select Books, 1996
3. Terence Conran, The Essential House Book, Conran Octopus, 1994
4. Sam F. Miller, Design Process: A Primer for Architectural and Interior Design, Van Nostrand Reinhold, 1995.

AR2201 MECHANICS OF STRUCTURES II

L	T	P/S	C
2	0	0	2

AIM:

To make students aware of how structural resolutions become important in realization of architecture design concept. At this stage, students shall be exposed to forces, moments, and resolution that are to be resolved. The focus is to study the concept of shear force and bending moment in beam section, deflection of beams and theory of columns and to know the concept of indeterminate structure.

OBJECTIVES:

- To enable a student to understand the basic concepts of shear force and bending moment acting on beams subjected to various loading conditions through exercises.
- To determine the stresses in beams and strength of sections by working out problems.
- To calculate deflection of beams using methods.
- To study the theory of columns by working out problems.
- To understand the concept of inter determinate structure and its analysis.

CONTENT:

UNIT I SHEAR FORCE AND BENDING MOMENT 5

Basic concepts – shear force and bending moment diagrams for cantilever and simply supported beams subjected to various types of loadings (Point loads, uniformly distributed loads, uniformly varying loads and concentrated moments/ couple) – Over hanging simply supported beams – Point of contra flexure

UNIT II STRESSES IN BEAMS 5

Theory of simple bending – Bending stress distribution – Strength of sections – Beams of composite sections (Flitched beams) – Shearing stress distribution in beam sections

UNIT III DEFLECTION OF BEAMS 8

Slope and deflection at a point – Double Integration method and Macaulay's method for simply supported and cantilever beams

UNIT IV COLUMNS 7

Short and long columns – Concept of Elastic stability – Euler's theory – Assumptions and Load carrying capacity of Columns with different end conditions – Concept of Effective length – Slenderness ratio – Limitations of Euler's theory – Rankine's formula – Eccentric loading – Core of a column section

UNIT V STATICALLY INDETERMINATE BEAMS 5

Introduction – Determination of degree of statical in determinacy for beams and frames – Concept of Analysis (No Problems)

TOTAL: 30 PERIODS

REQUIRED READING:

1. R.K. Bansal, A Text Book on Strength of Materials – Laxmi Publications, New Delhi, 1994.
2. B.C. Punmia, SMTS-I, Strength of Materials – Laxmi Publications, New Delhi, 1994.

REFERENCES :

1. M.M. Ratwani & V.N. Vazirani, Analysis of Structures, Vol. 1, Khanna Publishers – Delhi, 1987.
2. Timoshenko, S.P. and D.H. Young, Elements of Strength of Materials, Fifth edition, East West Press, 1993.
3. A.R. Jain and B.K.Jain, Theory and analysis of structures, Vol. 1, Nemchand and Bros, Roorkee, 1987.
4. R.K. Rajput "Strength of Materials", S.Chand & Company Ltd., New Delhi 1996.

AR2202 HISTORY OF ARCHITECTURE AND CULTURE III L T P/S C
2 0 0 2

AIM:

To inform about the development of architecture in the Western World through the evolution of Christianity as a religion and the cultural and contextual determinants that produced that architecture.

OBJECTIVES:

- To understand Church architecture as evolving within specific cultural contexts including aspects of society, religion, politics and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the Western World through the evolution of the church from early Christian times up to the Renaissance period.

CONTENT:

UNIT I EARLY CHRISTIAN 4

Birth and spread of Christianity – transformation of the Roman Empire – early Christian worship and burial.

Church planning – basilican concept: St. Clement, Rome; St. Peters Rome, - Centralized plan concept: S, Vitale, Ravenna; S. Hagia Sophia, Constantinople; St. Marks, Venice.

UNIT II EARLY MEDIEVAL PERIOD 6

The Carolingian Renaissance – Feudalism and rural manorial life – Papacy – Monasticism – Craft and merchant guilds.

Medieval domestic architecture – Medieval monasteries- Monastery of Cluny III, Cluny - Romanesque churches – Development of vaulting – Pisa Group – Abbaye aux Hommes – Durnham cathedral.

UNIT III LATE MEDIEVAL PERIOD 6

Political and social changes: Re-emergence of the city – Crusades, - Scholasticism.

Development of Gothic architecture Church plan, structural developments in France and England – Notre Dame, Amiens; Notre Dame, Paris; Salisbury Cathedral; Westminster Abbey – wooden roofed churches – domestic architecture**.**

UNIT IV RENAISSANCE AND MANNERIST 8

Idea of rebirth and revival – Humanism – Development of thought – the Renaissance patron – Urbanism Renaissance architecture: Brunelleschi and rationally ordered space – ideal form and the centrally planned church: Alberti and Donato Bramante – Merchant Prince palaces: Palazzo Ricardi – Villas of Palladop : Villa Capra Vicenza – Mannerist architecture : The Renaissance in transition – Michaelangelo : Library at S. Lorenzo, Florence, Capitoline Hill – Inigo Jones.

UNIT V BAROQUE AND ROCOCO 6

Protestantism – Counter Reformation – French Revolution – Monarchy and growth of nations.
Roman Baroque churches: The central plan modified – St. Peters, Rome; French Baroque : Versailles – English baroque – Sir Christopher wren ; St. Paul's London – Domestic Architecture in England.
Rococo Architecture – Interiors – hotels**.**

TOTAL: 30 PERIODS

REQUIRED READINGS:

1. Sir Banister Fletcher, A History of Architecture, University of London, The Antholone Press, 1986.

2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford University Press, London, 1985.

REFERENCES:

1. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams, Inc.Pub., New York, 1972.
2. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd., London, 1986.
3. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.
4. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994

AR2203 BUILDING SERVICES I L T P/S C
3 0 0 3

AIM:

The course is designed to familiarize the students with building services that support the functioning of a building in the area of water supply and sewerage

OBJECTIVES:

- To study water quality control and treatment and its distribution within a building
- To expose the students to water management concepts
- To understand the fundamentals of waste disposal from a building and the guidelines for planning a sewerage system.
- To expose the students to waste management concepts.
- To familiarize the students with equipment for management of usable water and waste water

CONTENT:

I. WATER SUPPLY AND WATER DISTRIBUTION SYSTEM

UNIT I WATER QUALITY CONTROL AND DISTRIBUTION SYSTEM 10

Water quality, purification and treatment – surface and ground water sources, water/quality-nature of impurities, treatments - sedimentation, Rapid sand filters, pressure filters – sterilization and disinfection.

Water distribution systems

Distribution systems in small towns, layouts – cold water lines, hot water lines, Design criteria for daily water requirements based on occupancy, various kinds of meters, Tank capacity - Pumping plant capacity, Testing of water hardness - calculation of water consumption for Residential/Multistoried buildings

Piping systems/piping materials/plumbing fixtures/selection –Domestic hot water systems Solar water heating systems, application and installation

UNIT II WATER MANAGEMENT CONCEPTS 8

Different methods of Harvesting rain water from roofs and paved areas

Waste water treatment – conventional, modern systems

Mandatory provision with respect to plumbing arrangements in apartment buildings.

II. SANITARY WASTE AND SEWERAGE SYSTEM

UNIT III FUNDAMENTALS, SANITARY WASTE AND SEWERAGE SYSTEM 11

Basic Principles of sanitation and disposal of waste matter from buildings, various systems of sewerage disposal and their principles

Model bye-Laws in regard to sanitation of buildings specifications of various sanitary fittings for buildings.

Planning of bathrooms, Toilets in domestic and Multistoried buildings. Standard type of sanitary fittings, Caulking compounds, traps, joints.

Flushing cisterns, manholes, septic tanks in relation to buildings. Intercepting Chambers, inspection Chambers and their location and ventilation of sewers.

Layout of simple drainage system for small buildings, apartments, commercial buildings – gradient used in laying of drains and sewers, size of drain pipes and materials used

UNIT IV WASTE MANAGEMENT CONCEPT 8

Sewerage disposal :

Primary, secondary treatment, activated sludge, intermittent and trickling sand filters, sewage treatment plant – layout for residential/commercial buildings

Solid waste disposal :

Refuse disposal, collection, and conveyance disposal of town refuse. Sanitary land fills, incineration, vermiculture, aerobic digestion for compost, anaerobic digestion for energy and organic filler (Bio gas) and rural energy systems

UNIT V EQUIPMENT'S USED FOR MANAGEMENT OF USABLE WATER AND WASTE WATER 8

Space requirements, Configuration and Sizing of motors and deep well, centrifugal, +submersible, reciprocating pumps and their location in building types

TOTAL:45 PERIODS

REQUIRED READINGS:

1. Manual of water supply and treatment, Second edition, CPHEEO, Ministry of works and housing, New Delhi 1977
2. AFE Wise, JA Swaffied Water, Sanitary & Waste Services in buildings – Mitchell Publishing Co. Ltd. – 2002, V Edition

REFERENCES:

1. G.M. Fair, J.C. Geyer and D.Okin, Water and Waste water engineering Volume II, John Wiley & Sons, Inc. New York, 1968
2. Manual on sewerage and sewerage treatment, CPHEEO – Ministry of works and housing, New Delhi, 1980
3. S.C.Rangwala, Water supply and sanitary engineering, Chartar publishing house, Anand 3888601, 1989, Lecture notes compiled by Chaman.L.Gupta
4. Renewable energy, basics and technology, supplement volume on integrated energy systems) Solar Agni systems, Sri Aurobindo Ashram, Pondicherry 605002 India

AR2204 CLIMATE AND BUILT ENVIRONMENT L T P/S C
3 0 0 3

AIM:

To enable the understanding of the technical basis of the environment which exists in or around a building and to integrate the requirements of climate in building and in relation to building functions.

OBJECTIVES:

- To study human heat balance and comfort.
- To familiarize students with the design and settings for buildings for daylight and factors that influence temperature
- To inform about the air pattern around buildings and the effect of wind on design and siting of buildings
- To expose the students to the various design strategies for building in different types of climatic zones.

CONTENT:

UNIT I CLIMATE AND HUMAN COMFORT 10

Factors that determine climate of a place – Components of Climate – Climate classifications for building designers in tropics – Climate characteristics. Human body heat balance – Human body heat loss – Effects of climatic factors on human body heat loss – Effective temperature – Human thermal comfort – Use of C.Mahony's tables.

UNIT II DESIGN OF SOLAR SHADING DEVICES 8

Movement of sun – Locating the position of sun – Sun path diagram – Overhead period–Solar shading–Shadow angles – Design of appropriate shading devices

UNIT III HEAT FLOW THROUGH BUILDING ENVELOPE CONCEPTS 9

The transfer of heat through solids – Definitions – Conductivity, Resistivity, Specific heat, Conductance, Resistance and Thermal capacity – Surface resistance and air cavities– Air to air transmittance (U value) – Time lag and decrement

UNIT IV IMPACT OF AIR MOVEMENT DUE TO NATURAL AND BUILT FORMS 9

The wind – The effects of topography on wind patterns – Air currents around the building – Air movement through the buildings – The use of fans – Thermally induced air currents – Stack effect, Venturi effect – Use of court yard.

UNIT V CLIMATE AND DESIGN OF BUILDINGS 9

Design strategies in warm humid climates, hot humid climates, hot and dry climates and cold climates – Climate responsive design exercises

TOTAL: 45 PERIODS

REQUIRED READINGS:

1. O.H. Koenigsberger and others (1993), Manual of Tropical Housing and Building – Part I - Climate design, Orient Longman, Madras, India.
2. Bureau of Indian Standards IS 3792 (1987), Hand book on Functional requirements of buildings other than industrial buildings, (Part I – IV), Manakbhavan, 9, Bahadur Shah Zafar Marg, New Delhi – 110002

REFERENCES:

1. Martin Evans (1980), Housing Climate and Comfort – Architectural Press, London
2. B. Givoni (1981), Man, Climate and Architecture, Architectural Sciences Series - Applied Science Publishers Ltd., London
3. B. Givoni (1994) Passive and Low Energy Cooling of building,Van Nortrand

Reinhold New York, USA..
4. Galloe, Salam and Sayigh A.M.M. (1998) “Architecture, Comfort and Energy”, Elsivier Science Ltd. , Oxford, U.K.

AR2205 BUILDING CONSTRUCTION II L T P/S C
1 0 4 3

AIM:
This course is devised to provide an understanding of brick and clay products and timber and industrial timber products that go into making of structural and non structural components of building.

OBJECTIVES
- To understand both in general and in detail the methods of construction by using basic materials such as brick; clay products and natural timber for both structural and non-structural components.
- To understand both in general and in detail the methods of construction by using man-made timber products such as ply wood.

CONTENT:

UNIT I BRICKS 10

Design and construction of various structural components using bricks – basics of brick bonding principles, types of bonding, foundations, load bearing walls, cavity walls, lintels, arches, corbels, piers, flooring etc.
Exercises of the above and application of the design details of brick construction in single or (Ground+1) buildings – small house, community hall, snack bar etc. and understanding the same through case studies.
Methods of construction of various non-structural building components such as partition walls, screens, compound walls, parapets, coping.

Exercises of the above through case studies and drawings.

UNIT II CLAY PRODUCTS 15

Clay block partition walls, screen walls, clay blocks for flooring and roofing. Roofing methods using Mangalore tiles, pot tiles, pan tiles.

Exercises involving the above through drawing and case studies.

UNIT III TIMBER JOINERY, PARTITIONS, PANELLING, FALSE CEILING 20

Methods of construction using natural timber in joinery works including methods of fixing and options for finishing.
Window types: panelled, pivoted, top hung, louvered, glazed, windows, French windows, corner windows, bay windows.
Door types: ledge-braced, panelled, glazed, sliding, sliding/folding, louvered
Ventilators: top hung, bottom hung, pivoted, louvered, glazed.
Hardware: For doors, windows and ventilators

Exercises involving the above through drawings and application of the above for a single or (G+1) building with schedule of joinery.

Timber Partitions, panelling, false ceiling. Methods of construction using man-made timber products such as ply woods, block boards, and laminated wood and gypsum products. in fixed partitions, sliding/folding partitions, wall panelling, false ceiling.

Exercises of the above through drawings and case studies.

UNIT IV TIMBER STAIRCASES 15

Types of timber staircases. Methods of construction of timber staircases- basic principles and design details including detailing of handrail and baluster-

Exercises involving the above through drawings.

UNIT V TIMBER WALLS, FLOORS AND TRUSSES 15

Methods of construction using natural timber in various structural components of the building such as walls, floors, roof trusses (lean to couple roofs, collar roof, king post, queen post and other trusses)

Exercises involving the above through drawings.

Quality assurance measures and testing procedures related to material, workmanship and performance for the above topics.

TOTAL: 75 PERIODS

REQUIRED READING

1. Don A. Watson, “Construction Materials and Processes”, McGraw Hill, 1972.
2. W.B. McKay, “Building Construction” Vol, 1 and 2, Longmans, UK, 1981.
3. S.C Rangwala “Building Construction” Charotar Publishing House, India, 2000
4. S.K.Sharma, “A Text book of Building Construction”, S.Chand & Co Ltd., New Delhi, 1998

REFERENCES

1. American Institute of Timber Construction (AITC), Timber Construction Manual, Wiley Publishers, 2004
2. Francis D.K Ching Building Construction illustrated, John Willey & Sons, 2000
3. Wills H Wagner, Howard Bud, Modern Carpentry, Good Heart – Wilcox publishers, Portland, 2003
4. Barry, Construction of Buildings, Volume 1&2, Blackwell Publishing Ltd., Oxford, 2005

AR2206 COMPUTER AIDED DRAFTING L T P/S C
1 0 4 3

AIM:

The lecture program and practical engage students with understanding of the Software, Visual languages, Design fundamentals and Visual literacy which provide the fundamental understandings required for the Medium.

OBJECTIVES:

- To introduce Computer operation principles and explore image editing through a visual composition using graphics.
- To impart training in Computer aided 2D drafting and 3D Modeling through projects
- To enable the rendering of a building so as to create a photo realistic image.

CONTENT:

UNIT I INTRODUCTION TO COMPUTER AND IMAGE EDITING 10

Project: Visual Composition using Graphics (Pixels /Vector)

Tools: Technology of small computer system, computer terminology operation principles of P.C., introduction to application software, and graphic system, and use of printers, scanner, plotter, File management, etc. Understanding Bitmap images and Vector Graphics, Image size and Resolution. Basic Tools for Editing and Creating Graphics in ADOBE PHOTOSHOP.

UNIT II INTRODUCTION TO VISUAL COMPOSITION USING COMPUTER TOOLS 15

Project: Visual Composition using various elements of Design (lines, shapes, colour, texture etc.)

Tools: Understanding the drawing unit's settings, scales, limits, drawing tools, drawing objects, object editing, and text, dimensioning in ACAD. Transparent overlays, hatching utilities, line type, line weight and colour. Multiline, Polyline, etc. Styles, blocks and symbol library in ACAD.

UNIT III INTRODUCTION TO COMPUTER AIDED 2D DRAFTING 15

Project: 2D Drafting of a simple building

Tools: Understanding the drawing unit's settings, scales, limits, drawing tools, drawing objects, object editing, and text, dimensioning in ACAD. Transparent overlays, hatching utilities, line type, line weight and colour. Multiline, Polyline, etc. Styles, blocks and symbol library in ACAD.

UNIT IV INTRODUCTION TO 3D MODELLING 15

Project: Create 3D sculpture using 3D primitives (cubes, spheres etc.)

Tools: Slide facilities script attributes, V-port, editing session. Introduction to 3D-modelling technique and construction planes, drawing objects, 3D surfaces setting up elevation thickness and use of dynamic projections in ACAD/ 3DMAX. Solid modeling with primitive command and Boolean operation.

UNIT V 3D RENDERING AND SETTING 20

Project: Visualize a building. Explore the potential of lights and camera in 3DMAX and use the same in the model created for the final submission.

Tools: Rendering and scene setting to create a photo realistic picture, understanding material mapping, environment setting and image filling in ACAD/ 3DMAX. Exercise to identify and visualize a building using the above said utilities.

TOTAL: 75 PERIODS

REQUIRED READING:

1. Photoshop 7 Bible Professional Edition, Wiley John & Son INC, New York, DekeMcClelland, 2000.
2. AutoCAD architectural user guide – Autodesk Inc., 1998.
3. A. Watt, Fundamentals of Three-Dimensional Computer Graphics, Addis Wesley, Massachusetts, 1989.

REFERENCES:

1. The Illustrated AutoCAD 2002 Quick Reference, Ralph Grabowski,
2. Autocad 2000: A Problem-Solving Approach, Sham tikoo. Pub: Thomson Learning,1999

AR 2207 **ARCHITECTURAL DESIGN II** **L T P/S C**
0 0 14 7

AIM:
To create an understanding of the inter relationships amongst various elements of architecture – form, function, space planning, user perception and behaviour.

OBJECTIVES:
- To understand the characteristics of site and the importance of site planning which includes built form and open space.
- To understand the relationship between form and spaces and the importance of aesthetics.
- To ascertain the response of user group through case studies.
- To enable the presentation of concepts through 2D drawings, sketches and model.

CONTENT:
Scale and Complexity : Project involving organization of multiples of single unit space with predominantly horizontal movement as well as single use public buildings of small scale; passive energy

Areas of concern/ focus:
- form-space relationships
- spatial organization
- behavioral aspects especially those relating to children
- site planning aspects
- appropriate materials and construction

Suggestive Typologies/ projects : residential buildings, institutional buildings: nursery or primary schools, schools for children with specific disabilities, primary health center, banks, neighborhood market, library

TOTAL: 210 PERIODS

REQUIRED READING
1. Joseph De Chiara, Michael J Crosbie, Time Saver Standards for Building Types, McGraw Hill Professional 2001.
2. Julius Panero, Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, Time Saver Standards for Interior Design and Space Planning, McGraw Hill 2001.
4. Ernst Neuferts Architects Data, Blackwell 2002
5. Ramsey et al, Architectural Graphic Standards, Wiley 2000

REFERENCES
1. Richard P. Dober, Campus Planning
2. Kanvinde, Campus Planning in India
3. Kevin Lynch, Site planning, MIT Press, Cambridge, 1967
4. Sam F. Miller, Design Process: A Primer for Architectural and Interior Design, Van Nostrand Reinhold, 1995

AR2251 **DESIGN OF STRUCTURES I** **L T P/S C**
3 0 0 3

AIM:
To enable the design of timber and steel structural members in a building.

OBJECTIVES:
- To introduce the design of various timber components in a building.
- To enable the understanding of the types, efficiency and strength, advantages and disadvantages of Rivet and welded joints in steel.
- To enable the design of Tension (beams) and compression (columns) steel members in a building under various conditions.

CONTENT:

TIMBER STRUCTURES

UNIT I DESIGN OF BEAMS AND COLUMNS 7
Grading of Timber – Permissible Stresses – Design of timber beams – Madras terrace roof – Design of timber columns.

STEEL STRUCTURES

UNIT II RIVETED AND WELDED JOINTS 12
Assumptions – failure of Riveted joints – Strength and Efficiency of Riveted Joints – Types – Design of Riveted Joints for Axially Loaded Members (Excluding eccentric connections)
Types of welded joints – Advantages and disadvantages – Design of Fillet welds
(Excluding eccentric connections).

UNIT III TENSION MEMBERS 8
Introduction – Net sectional area – permissible stresses. Design of Axially loaded Tension member – Lug angle – code provision – tension splice.

UNIT IV COMPRESSION MEMBERS 10
Introduction – various sections – built up section – Design of columns (excluding Lacing, Battening and other connections.)

UNIT V STEEL BEAMS 8
Introduction – laterally supported and unsupported beams – Design of laterally supported beams.

TOTAL: 45 PERIODS

REQUIRED READING

1. L.S. Negi, Design of Streel Structures – Tata McGraw Hill Publishing Company Ltd., New Delhi, 1997.
2. S. Ramachandra, Design of Steel Structures - Standard Book House, Delhi, 1984.

REFERENCES

1. A.S.Arya, Structural Design in Steel, Masonry and Timber, Nemchand and Bros, Roorkee, 1971.
2. National Building Code of India, 1983, Part VI, Structural Design.
3. Gurucharan Singh, Design of Steel Structures, Standard Publishers, New Delhi, 1982.
4. Dayaratnam.P, Design of Steel Structures, Oxford and IBH Publishing Co.
5. IS 883 – Code of Practice for Design of Structural Timber in Buildings
6. IS 800 – Code of Practice for use of Structural Steel in General Building Construction

AR2252 HISTORY OF ARCHITECTURE AND CULTURE IV L T P/S C
2 0 0 2

AIM:

To inform about the development of architecture in Asia particularly India through the evolution of Islam as a religion and the cultural and contextual determinants that produced that architecture.

OBJECTIVES:

- To understand Islamic architecture as evolving within specific cultural contexts including aspects of society, religion, politics and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the Indian context through the evolution of the mosque and tomb in the various phases of Islamic rule in the country.
- To gain knowledge of the expertise of the Mughal rulers in city building and garden design.

CONTENT:

UNIT I INTRODUCTION TO ISLAMIC ARCHITECTURE 5

History of Islam: birth, spread and principles - Islamic architecture as rising from Islam as a socio-cultural and political phenomenon- evolution of building types in terms of forms and functions: mosque, tomb, minaret, madarasa, palace, caravanserai, market - character of Islamic architecture: principles, structure, materials and methods of construction, elements of decoration, colour, geometry, light

UNIT II ISLAMIC ARCHITECTURE IN INDIA & ARCHITECTURE OF THE DELHI SULTANATE 7

Advent of Islam into the Indian subcontinent and its impact including the change in the architectural scene- overview of development based on political history and the corresponding classification of architecture - Islamic architecture in India: sources and influences

Establishment of the Delhi Sultanate- evolution of architecture under the Slave, Khalji, Tughlaq, Sayyid and Lodhi Dynasties – tombs in Punjab- important examples for each period

UNIT III ISLAMIC ARCHITECTURE IN THE PROVINCES 7

Shift of power to the provinces and evolution of regional architecture with their own unique influences: geographic, cultural, political, etc., - Bengal, Gujarat, Jaunpur, Malwa, Kashmir, Deccan (Gulbarga, Bidar, Golconda and Bijapur) - important examples for each region

UNIT IV MUGHAL ARCHITECTURE 6

Mughals in India- political and cultural history- synthesis of Hindu-Muslim culture, Sufi movement - evolution of architecture and ouline of Mughal cities and gardens under the Mughal rulers: Babur, Humayun, Akbar, Jahangir, Shahjahan, Aurangazeb- important examples- decline of the Mughal empire.

UNIT V CROSS-CULTURAL INFLUENCES 5

Cross cultural influences across India and secular architecture of the princely states: Oudh, Rajput, Sikh, Vijayanagara, Mysore, Madurai- important examples

TOTAL: 30 PERIODS

REQUIRED READINGS:

1. George Mitchell, Architecture of the Islamic World - its history and social meaning, Thames and Hudson, London 1978.
2. Robert Hillenbrand, Islamic Architecture- Form, Function and Meaning, Edinburgh University Press 1994.

3. Brown Percy, Indian Architecture (Islamic Period), Taraporevala and Sons, Bombay 1983.
4. Satish Grover, Islamic Architecture in India, CBS Pub, New Delhi 2002

REFERENCES:

1. Christopher Tadgell, The History of Architecture in India, Penguin Books (India) Ltd, New Delhi 1990.
2. R.Nath - History of Mughal Architecture Vols I to III - Abhinav Publications - New Delhi, 1985.
3. Catherine Asher, Architecture of Mughal India, Cambridge University Press 2001
4. Architecture in Medieval India: Forms, Contexts, Histories, edited by Monica Juneja. New Delhi, Permanent Black 2001

AR2253 BUILDING MATERIALS III L T P/S C
2 0 0 2

AIM:

This course is devised to make students understand the materials of construction such as cement, concrete, paints and other surface finishes and their applications in the building industry.

OBJECTIVES:

- To have an understanding of the properties, characteristics, strength, manufacture, processing and application of materials such as cement, glass, paints and other finishing materials.
- To inform about the properties, characteristics and use of concrete in construction including its manufacture
- To inform about the properties, characteristics and manufacture of various type of concrete using aggregates.

UNIT I REQUIREMENTS OF INGREDIENTS FOR MORTAR/ CONCRETE 4

Cement: definition, composition, strength, properties, manufacture, test for cement, types of cement

Sand: sources, impurities, classification, tests for bulking of sand, quality of sand

Coarse aggregate: Sources, shape, size, grading, sampling and analysis, impurities

Water: sources, requirements, water quality, tests

UNITII CEMENT CONCRETE AND ITS MANUFACTURE 4

Definition, properties, specification, proportioning, water-cement ratio, workability, curing, water-proofing, guniting, special concretes.

Manufacture, construction of formwork, placing, quality assurance testing, fabrication, incorporation of steel in concrete.

UNIT III TYPES OF CONCRETE AGGREGATES AND CONCRETE 6

Lightweight aggregates, aerated concrete, no-fines concrete, polymer concrete, RCC, pre-stressed concrete, fibre-reinforced concrete, ready-mixed concrete

UNIT IV SURFACE FINISHING, FLOORING AND DAMP-PROOFING 8

Surface finishing: Smooth finishes, textured finishes, ribbed, etched, exposed aggregate finish- weathering of finishes- external renderings- roughcast, dry dash, textured, stucco, gypsum and POP applications, protective and decorative coatings.

Paints- properties and defects in paints, enamels, distemper, plastic emulsion, special paints- fire retardant, luminous and bituminous paints.
Materials for damp-proofing and water-proofing concrete structures: Hot and cold applications, emulsified asphalt, vinyl, epoxy resins, chemical admixtures, bentonite clay etc.- properties, uses and cost of materials.
Types of flooring- laying methods for marble, mosaic, and terrazzo, plain cement flooring, flooring stones & tiles.

UNITV GLASS 8

Composition of glass, brief study on manufacture, treatment, properties and uses of glass. Types of glass- float glass, cast glass, glass blocks, foamed glass. Decorative glass, solar control, toughened glass, wired glass, laminated glass, fire-resistant glass, glass blocks, structural glass - properties and application in building industry, glazing and energy conservation measures.

TOTAL: 30 PERIODS

REQUIRED READING

1. M.S.Shetty, Concrete Technology, S.Chand & Co.ltd,New Delhi,1986.
2. S.C.Rangwala, Engineering Materials, Charotar Publishing House, India, 1997.
3. S.K Duggal, Building Materials, Oxford and IBM Publishing Co, Pvt Ltd.,

REFERENCES

1. Arthur Lyons - Materials for Architects and Builders - An introduction Arnold, London, 1997.
2. Don A.Watson, Construction Materials and Process, McGraw Hill Co., 1972.
3. S.N Sinha, Reinforced Concrete Design, Tata-McGraw Hill, New Delhi, 2002
4. Howard Kent Preston, Prestressed concrete for Architects and Engineers, McGraw Hill, New York, 1964.

AR2254 BUILDING SERVICES II L T P/S C
3 0 0 3

AIM:

To familiarize the students with building services that support the functioning of a building in the area of electrical wiring, lighting and conveying systems

OBJECTIVES:

- To inform the students of the laws and basics of electricity and wiring systems within domestic and commercial buildings
- To expose the students to the fundamentals of lighting and lighting design
- To familiarize the students to the basic design principle systems of vertical distributions systems within a building
- To expose the student with the NBC Code for all of the above building services

CONTENT:

UNIT I ELECTRICAL AND ELECTRONIC SYSTEMS: ELECTRICAL WIRING SYSTEMS 10

Laws of electrical circuits: Ohms and Kichoffs Laws
Basics of electricity – Single/Three phase supply. Earthing for safety – types of earthing - ISI specifications
Electrical wiring systems in domestic and commercial buildings. Conduits, Types of wiring Diagram for connection.

Bus way, Bus Bars, lighting track and conduits (Aluminum metallic, non metallic) arrangements. Power handling, equipment, switch board, panel boards.
Lighting conductors : Purpose, materials, fixing, earthing arrangements
Electronic and Communication systems
Communication and data systems- communication spaces, pathways, cabling systems, voice and data, communication, Electronic security systems, computer labs/server, Rooms etc.
Electrical Installations in Buildings. Main and distribution boards – transformers – switch gears – substations – space requirement and Layout of the same in building types

UNIT II FUNDAMENTALS OF LIGHTING 10

Principles of light – Electromagnetic radiation, waves, nature of vision, measurement of lighting.
Principles of illumination: definitions, Visual tasks, Factors affecting visual tasks Units of light, definitions of flux, solid angle, luminous intensity –utilization factor – depreciation factor- MSCP – MHCP, brightness, glare.

UNIT III ILLUMINATION AND LIGHTING 7

Electric light sources: brief description, characteristics and application of different types of lamps, methods of mounting and lighting control
Luminaries classification/ - Lumen method for design – Room reflectance/ Glare – manufacturer's data on luminaries / luminaries cost

UNIT IV LIGHTING DESIGN: INSTALLATION AND APPLICATION IN BUILDINGS 8

Artificial light sources, spectral energy distribution, Luminous efficiency- color temperature – color rendering, Additive, subtractive color and their application areas and out door lighting
Lighting for Office, Schools, Libraries, Residential, Hospital, Parking, Outdoor.
Elementary ideas of special features required and minimum level of illumination for the physically handicapped and elderly in building types
Solar energy systems for lighting – Photovoltaic systems for Residential/Commercial buildings. Reducing electric loads, installation and maintenance.

UNIT V LIGHTING DESIGN: CONVEYING SYSTEMS 10

Basic design Principles, criteria for planning sizing, selection and layout of vertical distribution systems – (lifts, Escalators and moving walkways) along with mechanical, dimensional details
Elevators- types of elevators - design criteria, capacity, frequency, car size, speed, number and size of elevators, layout of banks of elevators, planning and locating service cores in buildings, types of elevators – pit, machine room details – NBC code
Escalators and Conveyors parallel and criss cross escalators, horizontal belt conveyors, horizontal moving walkways – design criteria, speed size, capacity, number
Detailing for comfort, convenience of users- special features for physically handicapped and elderly

TOTAL: 45 PERIODS

REQUIRED READINGS:

1. E.P.Ambrose, Electric Heating, John Weley & Sons Inc., New York, 1968
2. Philips Lighting in Architectural Design, McGraw Hill. New York, 1964
3. R.G.Hopkenson & J.D.Kay, The lighting of Buildings, Faber & Faber, London, 1969

Conveying systems

1. Elevators, Escalators , Moving Walkways – Manufactures catalogues
2. National Building Code.

REFERENCES

Electrical Systems:

1. Handbook of building Engineers in metric systems, New Delhi 1968
2. National Building Code

AR2255 SITE SURVEYING AND PLANNING L T P/S C
3 0 0 3

AIM:

To enable the appreciation of site and its elements and to equip students with the various types of techniques of site surveying as well as to introduce them to aspects of site planning and site analysis

OBJECTIVES:

- To teach various techniques of site surveying
- To teach the importance of site and its content in architectural creations
- To orient the students towards several influencing factors which governs the siting of a building or group of buildings in a given site.
- To teach the students the methodology of preparing a site analysis diagram. This will serve as a prelude to any architectural creation.

CONTENT:

UNIT I INTRODUCTION 6

Definition of plot, site, land and region, units of measurements, reconnaissance and need for surveying.

UNIT II SITE SURVEYING 10

Chain survey and Triangulation – Instruments used, method of survey and plotting into survey drawing, plain table, Compass and Theodolite Surveys, method, instruments used and application.

Computation of area by geometrical figures and other methods. Marking plans, layout plans and centerline plans – Importance, procedure for making these drawings and dimensioning. Setting out the plan on site – Procedure and Precautions.

UNIT III SITE ANALYSIS 10

Importance of site analysis; On site and off site factors; Analysis of natural, cultural and aesthetic factors – topography, hydrology, soils, vegetation, climate, surface drainage, accessibility, size and shape, infrastructures available - sources of water supply and means of disposal system, visual aspects; Preparation of site analysis diagram.

Site selection criteria for housing development, commercial and institutional projects.

UNIT IV DETAILED ANALYSIS AND TECHNIQUES 9

Context of the site. Introduction to existing master plans landuse for cities, development control Rules. Preparation of maps of matrix analysis & composite analysis.

Study of contours, slope analysis, grading process, grading criteria, functional and aesthetic considerations.

UNIT V SITE PLANNING AND SITE LAYOUT PRINCIPLES 10

Organization of vehicular and pedestrian circulation, types of roads, hierarchy of roads, networks, road widths and parking, regulations. Turning radii & street intersections Study of microclimate; vegetation, landforms and water as modifiers of microclimate.

TOTAL: 45 PERIODS

REQUIRED READING:

1. Kevin Lynch - Site planning - MIT Press, Cambridge, MA - 1967.
2. B.C.Punmia - Surveying Vol.I - Standard Book House, New Delhi - 1983.

REFERENCES:

1. Edward. T. Q. Site Analysis – Architectural Media, 1983.

2. P.B.Shahani - Text of surveying Vol.I, Oxford and IBH Publishing Co – 1980
3. Joseph De.Chiarra and Lee Coppleman - Planning Design Criteria - Van Nostrand Reinhold Co.,
4. Storm Steven, Site engineering for landscape Architects, John wiley & Sons Ine, 2004.
5. Development Control Rules – CMDA.

AR2256 BUILDING CONSTRUCTION - III L T P/S C
1 0 4 3

AIM:

To provide an understanding of construction using concrete as well as to expose students to the current research in concrete construction and detailing.

OBJECTIVES:

- To introduce construction of building components in Reinforced Cement Concrete.
- To introduce various water proofing, insulation & protection systems and their methods of construction.
- To expose the students to the advanced construction systems developed by research institutes in the country and the detailing of the same.

CONTENT:

UNIT I CONCRETE CONSTRUCTION 25

Construction of simple framed buildings using RCC-

Types of foundations (strip foundation, raft, isolated, combined, and continuous) construction details.

Construction details of RCC frames- beams, columns, slabs, precast frames.

Construction details of apertures- concrete lintels, sunshades, arches, shading devices, screen walls, pergolas.

Construction principles and details for RCC slabs- one way slabs, 2-way slab, continuous, flat slab, waffle slab, coffer slab etc.

Construction details of concrete blocks-for walls, lintels, floors and roofs.

Exercises of the above through drawings and case studies.

UNIT II WATER-PROOFING AND DAMP-PROOFING OF CONCRETE STRUCTURES 10

Construction methods for water-proofing, damp-proofing for concrete walls, roofs

Construction methods for water-proofing and damp proofing basements, retaining walls, swimming pools etc.

Exercises of the above through case studies and drawings.

UNIT III DESIGN AND CONSTRUCTION METHODS FOR CONCRETE STAIRCASES 15

Staircases- basic principles, types of staircase- straight flight, dog-legged, quarter-turn, spiral, helical and other types. Support conditions for stairs and details of handrail, baluster etc. and finishes for stairs.

Exercises of the above through case studies and drawings

UNIT IV ADVANCED CONSTRUCTION SYSTEMS DEVELOPED BY RESEARCH ORGANISATIONS IN INDIA 10

Design and detailing of building materials and components developed by research organisations like CBRI, SERC, NBO, BMTPC.

Special construction details for materials like brick, concrete, other materials developed by Building research organisation.

Exercises of the above through case studies and drawings.

UNIT V GLASS 15

Construction methods using glass for single storey all glass structures like pavilions, green houses, staircases. Construction methods using glass for single/multi-storey buildings including curtain walling details.

Exercises of the above through case studies and drawings.

Quality assurance measures and testing procedures related to material, workmanship and performance for the above topics.

TOTAL: 75 PERIODS

REQUIRED READING

1. M.S.Shetty, Concrete Technology, S.Chand & Co.ltd,New Delhi,1986.
2. Dr. B.C.Punmia, A Text book of Building Construction, Laxmi Publications Pvt. Ltd., New Delhi, 2001.
3. 3.T.D Ahuja and G.S. Birdie, Fundamentals of Building Construction, Dhanpat Rai Publishing Company Pvt. Ltd., New Delhi, 1996
4. S.P Arora and S.P Bindra, A Text Book of Building Construction - Dhanpat Rai Publishing Company Pvt. Ltd., New Delhi, 1990

REFERENCES

1. Alan Blanc, Stairs, Steps and Ramps, Butterworth, Heinemann Ltd., 1999
2. Francis D.K Ching Building Construction illustrated, John Willey & Sons, 2000
3. W.B. McKay, “Building Construction” Vol, 1 and 2, Longmans, UK, 1981.
4. Barry, Construction of Buildings, Volume 1&2, Blackwell Publishing Ltd., Oxford, 2005
5. Pamphlet and Manuals supplied or published by SERC, BMPTC, HUDCO and Other research organization
6. Standard and Specification for cost effective innovation, Building Materials and Sequence, BMPTC Publication, New Delhi
7. R. Chudley**,** Construction Technology, Richard Clay, Chanur Press, 1980

AR2257 ARCHITECTURAL DESIGN III L T P/S C
0 0 14 7

AIM:

To create a holistic understanding of the socio-cultural, geographic and economic aspects that shape the built environment as well as to expose the students towards the design of simple community oriented buildings.

OBJECTIVES:

- To make a comprehensive study of a rural settlement that is an exemplar of collective design evolved organically over a period of time.

- To expose the students on the methodology of conducting various surveys covering, physical, visual characteristics and demographic aspects.
- To understand the vernacular / traditional architecture involving local materials and construction techniques.
- To emphasise on the importance of designing built form and open spaces that meet the aspirations of the community.
- To enable the presentation of concepts through 2D and 3D presentation including sketches and model.

CONTENT:

Scale and Complexity: Projects involving public and community oriented buildings -multi room, single use, small span, multiple storied, horizontal and vertical movement; active cum passive energy; comprehensive analysis of rural settlement in a hierarchical manner.

Area of concern/ focus :

- rural settlements and architecture
- community oriented design
- simple public buildings (not more than Ground+ 2 floors)

Suggestive Typologies/ projects : Rural projects that involve studies and design at settlement and building level- noon meal centre, market, primary health centre; department store, higher secondary school, campus students centre

TOTAL: 210 PERIODS

REQUIRED READING

1. Joseph De Chiara, Michael J Crosbie, Time Saver Standards for Building Types, McGraw Hill Professional 2001.
2. Julius Panero, Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, Time Saver Standards for Interior Design and Space Planning, McGraw Hill 2001.
4. Ernst Neuferts Architects Data, Blackwell 2002
5. Ramsey et al, Architectural Graphic Standards, Wiley 2000

REFERENCES

1. Richard P. Dober, Campus Planning
2. Kanvinde, Campus Planning in India
3. Kevin Lynch, Site planning, MIT Press, Cambridge, 1967
4. Sam F. Miller, Design Process: A Primer for Architectural and Interior Design, Van Nostrand Reinhold, 1995

AR2301	**DESIGN OF STRUCTURES II**	**L**	**T**	**P/S**	**C**
		3	**0**	**0**	**3**

AIM:

To facilitate the design of Reinforced concrete beams and slabs by working stress method and limit state method.

OBJECTIVES:

- To inform about the methods of design through working stress and limit state methods.

- To use the above two methods for the design of Concrete beams and slabs under various conditions.
- To use the limit state method for design of a concrete staircase.

UNIT I METHODS OF DESIGN FOR CONCRETE MEMBERS 12

Concept of Elastic method, Ultimate Load Method and Limit State Method – Advantages of Limit State Method over other methods.

WORKING STRESS DESIGN OF BEAMS

Analysis and Design of Singly and Doubly reinforced rectangular and flanged beams for bending – Design of Beams for shear

UNIT II LIMIT STATE DESIGN OF BEAMS 12

Analysis and design of singly and doubly reinforced rectangular and flanged beams for Bending - Design of beams for shear – Design of Continuous beams using IS code co-efficient.

UNIT III LIMIT STATE DESIGN OF SLABS 7

Behaviour of one way and two way slabs – Design of one way and two way slabs for various edge conditions - Corner effects.

UNIT IV DESIGN OF CIRCULAR SLABS 7

Design of Simply supported and fixed Circular slabs subjected to uniformly distributed loads.

UNIT V DESIGN OF STAIRCASE BY LIMIT STATE METHOD 7

Types of Staircases – Design of Dog Legged Staircase.

TOTAL: 45 PERIODS

REQUIRED READING

1. S.N. Sinha, Reinforced Concrete Design – Tata McGraw Hill Publishing Co. Ltd.,New Delhi, 1998.
2. Shah, Reinforced Concrete, Vol. 1 and 2 – Charotar Publishing House, Anand, 1998.

REFERENCES:

1. P.Dayaratnam, Design of Reinforced Concrete Structures, Oxford and IBH Publishing Co., 1983.
2. C. Sinha and S.K. Roy, Fundamentals of Reinforced Concrete, S.Chand & Co., New Delhi, 1983.
3. Dr. B.C. Punmia, Reinforced Concrete Structures, Vol, 1 & 2 Laxmi publication, Delhi, 1994.
4. IS 456:2000, Indian Standard, Plain and Reinforced Concrete – Code of Practice, Bureau of Indian Standards.
5. S. Unnikrishnan Pillai and Devados Menon, Reinforced Concrete Design – Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1999.

AR2302 HISTORY OF ARCHITECTURE AND CULTURE V L T P/S C
3 0 0 3

AIM:

To expose the students to the origin, development and spread of modern architecture in the Western world as well the architectural production of colonialism in India.

OBJECTIVES:

- To introduce the condition of modernity and bring out its impact in the realm of architecture
- To study modern architecture as evolving from specific aspects of modernity- industrialisation, urbanisation, material development, modern art as well as society's reaction to them.
- To study the further trajectories of modern architecture in the post WWII period.
- To create an overall understanding of the architectural developments in India influenced by colonial rule.

CONTENT:

UNIT I LEADING TO A NEW ARCHITECTURE 8

Beginnings of modernity –Origin and development of Neo Classicism- Structural Neo classicists: Laugier, Soufflot, Schinkel, Labrouste - Romantic Neo classicists:Ledoux , Boulle, Durand, Jefferson- Industrialization and its impact- Urbanization in Europe and America- split of design education into architecture and engineering streams- Emergent new building / space types- Growing need for mass housing- Development of Industrial material and construction technologies- concrete, glass and steel- structural engineering, standardization-Industrial exhibitions- Chicago School and skyscraper development.

UNIT II REVIEWING INDUSTRIALISATION 8

Opposition to industrial arts and production - Arts and Crafts in Europe and America : Morris, Webb- Art Nouveau: Horta, Van De Velde, Gaudi, Guimard, Mackintosh - Vienna secession: Hoffman, Olbrich- Wright's early works

UNIT III MODERN ARCHITECTURE: DEVELOPMENT AND INSTITUTIONALISATION 13

Adolf Loos and critique of ornamentation- Raumplan: Peter Behrens- Werkbund – Modern architecture and art - Expressionism: Mendelsohn, Taut, Polzeig- Futurism- Constructivism, Cubism-Suprematism- De–Stijl

Bauhaus- Gropius, Meyer and Mies -CIAM I to X and its role in canonizing architecture- growth of International Style

Ideas and works of Gropius, Le Corbusier, Aalto, Mies, later works of Wright

UNIT IV MODERN ARCHITECTURE : LATER DIRECTIONS 8

Post WW II developments and spread of international style – Later works of Corbusier: Brasilia, Unite- Works of later modernists: Louis Kahn, Paul Rudolph, Eero Saarinen

UNIT V COLONIAL ARCHITECTURE IN INDIA 8

Colonialism and its impact- early colonial architecture :forts, bungalows, cantonments – Stylistic transformations: Neo- classicism, Gothic Revival and Indo Saracenic - PWD and institutionalization of architecture - Building of New Delhi showcasing imperial power.

TOTAL: 45 PERIODS

REQUIRED READING:

1. Kenneth Frampton , Modern Architecture: A Critical History , Thames & Hudson, London, 1994
2. Manfredo Tafuri., Modern Architecture, Harry N. Abrams Inc.
3. Leonardo Benevolo, History of Modern Architecture, 2 Vols.,Routledge & Keganpaul, London, 1971
4. Miki Desai et. al., Architecture and independence, Oxford University Press,2000

REFERENCES:

1. Thomas Metcalf, An imperial Vision, Faber & Faber/ Electa, 1980.

2. Christian Norburg Schulz., Meaning in Western Architecture, Studio Vista
3. William J. Curtis – Modern Architecture since 1900.

AR2303 BUILDING MATERIALS IV L T P/S C
2 0 0 2

AIM:
This course is devised to make students understand ferrous and non ferrous materials of construction as well as plastics and their applications in building industry.

OBJECTIVES:
- To have an understanding of the properties, characteristics, strength, manufacture, processing and application of materials such steel and steel alloys, aluminum and aluminum alloys.
- To inform the innovations in the steel industry and the standards and accepted industrial practices involved.
- To inform the properties, characteristics and application of plastics in the construction industry as well as other light weight roofing materials.

UNIT I FERROUS METALS: STEEL AND STEEL ALLOYS 6

Iron ore: definition, introduction, manufacture of iron ore, types- pig iron, wrought iron and cast iron- their properties and uses.
Steel- definition, properties, Manufacture, casting, heat treatment, mechanical treatment process of steel, market forms of steel, fire protection of steel. Steel alloys- properties and uses.
Structural steel-definition and protection. Steel sheeting- types of sheeting.
Corrosion of ferrous metals: Causes, factors of corrosion and prevention

UNIT II INNOVATIONS IN STEEL AND STEEL INDUSTRY 6

Study of codes, standards, accepted industrial practices and procedures regarding the performance, expectations and acceptance criteria for steel, stainless steel in building Industry. Study of innovations in steel industry. Design and construction parameters developed by **INSDAG**.

UNIT III NON-FERROUS METALS 6

Aluminium and Aluminium Alloys: Manufacture, properties, durability, and uses.
Aluminium products- extrusions, foils, castings, sheets etc.
Other non-ferrous metals- copper, lead, zinc: Manufacture, grades, forms, sizes.

Study of **protection to non-ferrous metals and products** such as anodizing, powder coating, painting, stove enamelling, chromium plating, varnishing, melamine treatments.

UNIT IV PLASTICS 6

Polymerisation, thermoplastics, thermosetting plastics, elastomers, properties of plastics, strength, plastic forming process, uses of plastics and decorative laminates
Plastics in construction: polythene, poly propylene, PVC, ethylene, polycarbonate, acrylic flooring, PVC tiles.

UNIT V OTHER MATERIALS 6

Light-roofing materials: Asbestos, corrugated GI Sheets, corrugated aluminium sheet, PVC and others.
Adhesives, **Sealants and joint fillers**. Relative movement within buildings, types of sealants- elasto-plastic, elastic sealants- joint design- fire resistant sealants- gaskets- adhesives, epoxy, wall paper, bitumen, plastic pipe.
Materials for flooring finishes such as epoxy, oxy-chloride, hardeners, PVC, carpets.

TOTAL: 30 PERIODS

REQUIRED READING

1. S.C.Rangwala, Engineering Materials, Charotar Publishing House, India, 1997.
2. S.K Duggal, Building Materials, Oxford and IBM Publishing Co, Pvt. Ltd.,
3. P.C Vargheese, Building Materials, Prentice Hall of India Pvt. Ltd., New Delhi, 110001

REFERENCES

1. Don A.Watson, Construction Materials and Process, McGraw Hill Co., 1972.
2. Arthur Lyons - Materials for Architects and Builders - An introduction Arnold, London, 1997.
3. Gorenc, Tinyou, Syam, Steel Desinger's Handbook, CBS Publishers and Distributors, New Delhi, Bangalore, 2005
4. Ralph Monletta, Plastics in Architecture – A guide to acrylic and Polycarbonate, Marcel Dekker Inc, New York, 1989
5. Jack M Landers, Construction Materials, Methods, Careers, Good Heart-WilCox Company, Inc Publishers, Homewood, IL, 1983

AR2304 BUILDING SERVICES III L T P/S C
3 0 0 3

AIM:

To familiarize the students with building services that support the functioning of a building in the area of internal environment control and fire and security systems.

OBJECTIVES:

- To expose the students to the science behind an air-conditioning and refrigeration system.
- To familiarize them with the various air- conditioning systems and their applications.
- To study the design issues for the selection of various systems and their installation
- To inform of the various ways by which fire safety design can be achieved in buildings through passive design.
- To familiarize the students with the various fire fighting equipment and their installation.

CONTENT:

UNIT I AIR CONDITIONING: BASIC REFRIGERATION PRINCIPLES 9

Thermodynamics – Heat – Temperature – Latent heat of fusion – evaporation, saturation temperature, pressure temperature relationship for liquid refrigerants, refrigeration cycle components – vapor compression cycle – compressors – evaporators – Refrigerant control devices – electric motors – Air handling Units – cooling towers

UNIT II AIR CONDITIONING: SYSTEMS AND APPLICATIONS 12

Air conditioning system for small buildings – window types, evaporative cooler, packaged terminal units and through the wall units split system

b) Systems for large building – Chilled water plant – All Air system, variable air volume, All water system

Configuring/ sizing of mechanical equipment, equipment spaces and sizes for chiller plant, cooling tower, Fan room, Circulation Pumps, Pipes, ducts

UNIT III AIR CONDITIONING: DESIGN ISSUES AND HORIZONTAL DISTRIBUTION OF SYSTEMS 6

Design criteria for selecting the Air conditioning system for large building and energy conservation measures - Typical choices for cooling systems for small and large buildings - Horizontal distribution of services for large buildings - Grouped horizontal distribution over

central corridors, Above ceiling, In floor, Raised access floor, Horizontal distribution of mechanical services

UNIT IV FIRE SAFETY: DESIGN AND GENERAL GUIDELINES OF EGRESS DESIGN 10

Principles of fire behavior, Fire safety design principles _ NBC Planning considerations in buildings – Non- Combustible materials, egress systems, Exit Access – Distance between exits, exterior corridors – Maximum travel distance, Doors, Smoke proof enclosures
General guidelines for egress design for Auditoriums, concert halls, theatres, other building types, window egress, accessibility for disabled- NBC guidelines – lifts lobbies, stairways, ramp design, fire escapes and A/C, electrical systems.

UNIT V FIRE SAFETY: FIRE DETECTION AND FIRE FIGHTING INSTALLATION 8

Heat smoke detectors – sprinkler systems
Fire fighting pump and water requirements, storage – wet risers, Dry rises
Fire extinguishers & cabinets
Fire protection system – CO2 & Halon system
Fire alarm system, snorkel ladder
Configuring, sizing and space requirements for fire fighting equipments

TOTAL: 45 PERIODS

REQUIRED READINGS:

1. William H.Severns and Julian R Fellows, Air conditioning and Refrigeration, John Wiley and Sons, London, 1988
2. Fire Safety: nAtional Building Code of India 1983 published by Bureau of Indian Standards…

REFERENCES:

1. A.F.C. Sherratt, Air conditioning and Energy conservation, The Architectural Press, London, 1980
2. Design for fire safety (Andrew H Buchanan, John Wiley & Sons Ltd., New York)

AR2305 BUILDING CONSTRUCTION IV L T P/S C
1 0 4 3

AIM:

To provide an understanding of the various construction practices and details using steel and aluminum in the structural and non structural components of a building.

OBJECTIVES:

- To understand both in detail the methods of construction using steel for structural purposes such as roof trusses and roof covering.
- To understand both in detail the methods of construction of building components using steel such as staircases, rolling shutters, doors and windows.
- To understand both in detail the methods of construction of building components using aluminum such as doors and windows, partitions and curtain walling.
- To understand both in detail the methods of construction of building components using plastics such as doors and windows, partitions, roofs and curtain walling.

CONTENT:

UNIT I STEEL CONSTRUCTION 15

Structural steel sections- construction methods, methods of connections, steel in foundations, column-beam connections.

Steel roof trusses: Design and detailing. Types of trusses- north-light, butterfly truss, bow-string truss, space frames, portal frames, spacer decks- construction details of the above and the context in which they are used.

Steel roof covering. Types of roof covering using steel, aluminium, asbestos, and other sheets.

Exercises of the above through drawings and case studies.

Steel staircases: basic principles, types of staircase- straight flight, dog-legged, spiral and other types. Support conditions for stairs and details of handrail, baluster etc. and finishes for stairs.

Exercises of the above through case studies and drawings. 10

UNIT II STEEL DOORS, WINDOWS AND ROLLING SHUTTERS 10

Types of doors, windows – operable, sliding etc., methods of construction using steel.
Design and detailing of steel rolling shutter, collapsible gate, strong room, safe vault doors.

Exercises of the above through case studies and drawings.

UNIT III ALUMINIUM DOORS AND WINDOWS 10

Brief study of aluminium products- market forms of aluminium, aluminium extrusions- sketches of the above.

Aluminium doors and windows- design details. Doors- operable, sliding, pivoted, fixed. **Windows-** operable, sliding, fixed, louvered. Ventilators- top hung, bottom hung, pivoted, louvered.

Exercises of the above through case studies and drawings.

UNIT IV ALUMINIUM PARTITIONS, STAIRS, CURTAIN WALLING, ROOFING 15

Partitions- fixed partitions, false ceiling, shopfront, using aluminium – construction methods and details.

Aluminium staircase- design and construction details- including detailing of handrail and baluster.

Aluminium roofing- Northlighting, glazing bar, roofing sheets - construction details including gutter details

Aluminium Curtain walling- design and construction details.

Exercises of the above through case studies and drawings.

UNIT V PLASTICS 15

Primary plastic building products for walls, partitions and roofs - design and construction details.

Secondary building products for windows, doors, rooflights, domes, and handrails- design and construction details.

Exercises of the above through case studies and drawings.

Quality assurance measures and testing procedures related to material, workmanship and performance for the above topics.

TOTAL: 75 PERIODS

REQUIRED READING

1. Dr. B.C.Punmia, A Text book of Building Construction, Laxmi Publications Pvt. Ltd., New Delhi, 2001.
2. 2.T.D Ahuja and G.S. Birdie, Fundamentals of Building Construction, Dhanpat Rai Publishing Company Pvt. Ltd., New Delhi, 1996

REFERENCES

1. Alan Blanc, Architecture and Construction in Steel, E&FN Spon, London, 1993
2. Alan Blanc, Stairs, Steps and Ramps, Butterworth, Heinemann Ltd., 1999
3. 3.W.B. McKay, "Building Construction" Vol. 1 and 2, Longmans, UK, 1981.
4. Barry, Introduction to Construction of Buildings, Blackwell Publishing Ltd., Oxford, 2005
5. Barry, Introduction to Construction of Buildings Vol. 3, Blackwell Publishing Ltd., Oxford, 2005
6. Allan Brookes, Cladding of Buildings, E&FN Spon, London, 1998
7. R.M. Davis, Plastics in Building Construction, Battersea College of Technology, Blackie, London, 1966

AR2306 ARCHITECTURAL DESIGN IV L T P/S C
0 0 16 8

AIM:

To explore the design of buildings addressing the socio – cultural & economic needs of contemporary urban society.

OBJECTIVES:

- To enable the students to understand the importance of spatial planning within the constraints of Development Regulations in force for urban areas.
- To enable the students to design for large groups of people in a socially and culturally sensitive manner, taking into account aspects such as user perception, crowd behaviour, large scale movement of people and identity of buildings.
- To emphasise on the importance of understanding the relationship between open space and built form, built form to built form and site planning principles involving landscaping circulation network and parking.
- To explore computer aided presentation techniques involving 2D and 3D drawings and models as required.

CONTENT:

Scale and Complexity: Buildings and small complexes that address the social and cultural needs of contemporary urban life (residential. Commercial, institutional) with a thrust on experiential qualities; multi bayed, multiple storied and circulation intensive; passive and active energy

Areas of concern/ focus

- behavioral aspects and user satisfaction
- socio-cultural aspects
- designing for the differently abled
- Building byelaws and rules
- Appropriate materials and construction techniques
- Climatic design

Typology/ project: Housing Projects- detached, semi-detached, row housing, cluster housing, apartment; housing and facilities for other user groups- Old age Home, orphanage, working women's hostel, home for physically and mentally challenged; Museum/ Art centre, Educational campus, R & D centre, shopping complex

TOTAL: 240 PERIODS

REQUIRED READING

1. Joseph De Chiara, Michael J Crosbie, Time Saver Standards for Building Types, McGraw Hill Professional 2001.
2. Julius Panero, Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, Time Saver Standards for Interior Design and Space Planning, McGraw Hill 2001.
4. Ernst Neuferts Architects Data, Blackwell 2002
5. Ramsey et al, Architectural Graphic Standards, Wiley 2000

REFERENCES

1. Richard P. Dober, Campus Planning
2. Kanvinde, Campus Planning in India
3. Kevin Lynch, Site planning, MIT Press, Cambridge, 1967
4. Sam F. Miller, Design Process: A Primer for Architectural and Interior Design, Van Nostrand Reinhold, 1995

AR2351 DESIGN OF STRUCTURES III

L	T	P/S	C
3	0	0	3

AIM:

The course is structured to teach the design of Reinforced concrete column, footings and retaining walls and to introduce the concept of pre-stressed concrete.

OBJECTIVES:

- To use limit state design for the analysis and design of columns.
- To enable the learning of design of structural elements like footings, retaining walls and masonry walls.
- To understand the principle, methods, advantages and disadvantages of pre stressed concrete.

CONTENT:

UNIT I LIMIT STATE DESIGN OF COLUMNS 10

Types of columns – Analysis and Design of Short Columns for Axial, Uniaxial and biaxial bending – Use of Design aids.

UNIT II DESIGN OF FOOTINGS 10

Types of footings – Design of wall footings – Design of Axially loaded rectangular footing (Pad and sloped footing). Design of Combined Rectangular footings.

UNIT III DESIGN OF RETAINING WALLS 10

Types of Retaining walls – Design of RCC cantilever Retaining walls.

UNIT IV DESIGN OF MASONRY WALLS 8

Analysis and Design of masonry walls – use of Nomograms - code requirements.

UNIT V INTRODUCTION TO PRESTRESSED CONCRETE 7

Principle of Prestressing – Methods of Prestressing, advantages and disadvantages.

TOTAL: 45 PERIODS

REQUIRED READING:

1. B.C. Punmia, Reinforced Concrete Structures, Vol. 1 & 2, - Laxmi Publications, Delhi, 1994.
2. IS 456:2000, Indian Standard, Plain and Reinforced Concrete – Code of Practice, Bureau of Indian Standards.
3. SP – 16, Design Aids for Reinforced Concrete to IS 456
4. National Building Code of India, 1983
5. IS 1905, Code of Practice for Structural Safety of Buildings

REFERENCES:

1. P.Dayaratnam , Design of Reinforced Concrete Structures, Oxford and IBH Publishing CO., 1983.
2. N.C.Sinha and S.K.Roy, Fundamentals of Reinforced Concrete, S.Chand and Co., New Delhi, 1983.
3. Ashok K.Jain Reinforced Concrete (Limit State Design) - Nemchand, Bros Roorkee 1983.
4. Krishna Raj, Prestressed Concrete Structures

AR2352 HISTORY OF ARCHITECTURE AND CULTURE VI L T P/S C
3 0 0 3

AIM:

To expose the students to the diverse postmodern directions in architecture in the Western world from the 1960s onwards as well as the architectural production of India from the end of colonial rule to the contemporary period.

OBJECTIVES:

- To introduce the context for the critiques of modern architecture and the evolution of new approaches.
- To study in detail the different postmodern directions in architecture.
- To understand the trajectory of architecture in India from the end of colonial rule to the contemporary period- architectural debates associated with nation, establishment of modern architecture and subsequent quest for Indianness.

CONTENT:

UNIT I CRITIQUING MODERNISM 9

TEAM X- Brutalism- projects of Smithsons and Aldo Van Eyck – writings of Jane Jacobs, Robert Venturi, Aldo Rossi and Christopher Alexander.

UNIT II AFTER MODERNISM – I 8

Conditions of Post Modernity- various postmodern directions in architecture– canonization of Post Modernism– works of Graves, Venturi, Moore- postmodern classicism- ideas and works of urbanism: Soleri, Archigram and Metabolism- Neo Rationalism.

UNIT III AFTER MODERNISM – II 8

High Tech architecture: Works of Stirling, Rogers and Piano –Deconstructivist theory and practice- Eisenmann, Hadid, Gehry, Libeskind, Tschumi

UNIT IV ALTERNATIVE PRACTICES AND IDEAS 9

Critical Regionalism- Ideas and works of Baker, Fathy, Ralph Erskine, Lucien Kroll, Ando, Bawa, Barragan, Siza

UNIT V POST INDEPENDENT ARCHITECTURE IN INDIA 11

Architectural debates associated with nation formation– early modernist architecture- post independence city planning: Chandigarh and Bhuvaneswar- influences on post independence architects- Architecture of Kanvinde, Raje, Doshi, Correa, Nari Gandhi, Raj Rewal- PWD architecture – new directions after 1960s- post- independent architecture of Chennai

TOTAL: 45 PERIODS

REQUIRED READING:

1. Kenneth Frampton , Modern Architecture: A Critical History , Thames & Hudson, London, 1994.
2. Diane Ghirardo , Architecture after Modernism, Thames & Hudson, London, 1990.
3. Miki Desai et. al., Architecture and independence, Oxford University Press,2000

REFERENCES:

1. Christopher Alexander, Pattern Language, Oxford University Press, Oxford.
2. Robert Venturi , Complexity and Contradiction in Architecture, 1977.
3. Aldo Rossi, The Architecture of the City, MIT Press, Massachusetts, 1982.
4. Michael Hays ed., Architecture Theory since 1968, CBA, 1999
5. Jane Jacobs, Deaths and Life of Great American Cities, Vintage, 2003
6. James Steele, Hassan Fathy, Academy Editions
7. Kenneth Frampton ed, Charles Correa, The Perennial Press, 1998
8. William Jr. Curtis, Balkrishna Doshi, An Architecture for India, Rizzoli
9. Brian Brace Taylor, Geoffrey Bawa, Thames & Hudson

AR2353 PROFESSIONAL PRACTICE AND ETHICS I L T P/S C

3 0 0 3

AIM:

To provide the students a general understanding of the architectural profession and the importance of ethics in professional practice.

OBJECTIVES:

- To give an introduction to the students about the architectural profession.
- To enable the students to grasp the elementary issues concerning professional practice.
- To teach the students about the role of professional and statutory bodies in the conduct of professional practice.
- To teach the students about the importance of code of conduct and ethics in professional practice.
- To expose the students some of the important legislation which have a bearing on the practice of architectural profession.

CONTENT:

UNIT I INTRODUCTION TO THE ARCHITECTURAL PROFESSION 8

Importance of Architectural Profession – Role of Architects in Society – Alternatives open on entering the profession – Registration of Architects –Architect's office and its management (location, organization structure, responsibility towards employees, consultants and associates, elementary accounts, tax liabilities).

UNIT II PROFESSIONAL ETHICS AND CODE OF CONDUCT 9

Role of Indian Institute of Architects – Architects Act 1972 (intent, objectives, provisions with regard to architectural practice) – Council of Architecture (role and functions) – Importance of ethics in professional practice (Council of Architecture guide lines) – Code of conduct for

architects as prescribed by Council of Architecture, punitive action for professional misconduct of an architect.

UNIT III ARCHITECT'S SERVICES & SCALE OF FEES 9

Mode of engaging an architect – Comprehensive services, partial services and specialised services – Scope of work of an architect – Schedule of services – Scale of fees (Council of Architecture norms) – Mode of payment – Terms and conditions of engagement.

UNIT IV ARCHITECTURAL COMPETITIONS 9

Importance of Architectural competitions – Types of competitions (open, limited, ideas competition) – Single and two stage competitions – Council of Architecture guidelines for conducting Architectural competitions –International Competitions (case studies).

UNIT V LEGAL ASPECTS & LEGISLATION 10

Copy rights and patenting – (provisions of copy right acts in India and abroad, copy right in architectural profession) – Easement – (meaning, types of casements, acquisition, extinction and protection) – Development Regulations in Second master plan for Chennai Metropolitan Area, Chennai Corporation Building rules 1972 – The Panchayat rules 1940 – Persons with Disabilities Act (provisions, responsibilities of architect and local body on creating barrier free environment).

TOTAL: 45 PERIODS

REQUIRED READING:

1. Architects Act 1972.
2. Publications of Handbook on Professional practice by IIA.
3. Publications of Council of Architecture-Architects (Professional conduct) Regulations 1989, Architectural Competition guidelines
4. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984.

REFERENCES:

1. J.J.Scott, Architect's Practice, Butterworth, London 1985.
2. Ar. V.S. Apte, Architectural Practice and Procedure, Padmaja Bhide, Pune, 2008.
3. Development Regulations of Second Master Plan for Chennai Metropolitan Area – 2026.
4. Chennai City Corporation Building Rules 1972.
5. Persons with Disabilities Act.
6. T.N.D.M. Buildings rules, 1972.

AR2354 ARCHITECTURAL ACOUSTICS L T P/S C
2 0 0 2

AIM:

To provide technical knowledge to integrate sound control in relation to building functions.

OBJECTIVES:

- To understand the science behind acoustical design.
- To expose students to understand noise control and sound transmission and absorption.
- To familiarize the students with various building and interior elements which lend to better hearing conditions.
- To familiarize the students with the basic principles of acoustic design for spaces and building types which require good hearing conditions.

CONTENT:

UNIT I FUNDAMENTALS 5

Sound waves, frequency, intensity, wave length, measure of sound, decibel scale, speech and music frequencies, human ear characteristics - Tone structure.

UNIT II SOUND TRANSMISSION AND ABSORPTION 6

Outdoor noise levels, acceptable indoor noise levels, sonometer, determinate of density of a given building material, absorption co-efficient and measurements, choice of absorption material, resonance, reverberation, echo, exercises involving reverberation time and absorption co-efficient.

UNIT III NOISE CONTROL AND SOUND ABSORPTION 5

Types of noises, transmission of noise, transmission loss, noise control and sound insulation, remedial measures and legislation.

UNIT IV CONSTRUCTIONAL MEASURES 6

Walls/partitions, floors/ceilings, widow/doors, insulating fittings and gadjets, machine mounting and insulation of machinery.

UNIT V ACOUSTICS AND BUILDING DESIGN 8

Site selection, shape, volume, treatment for interior surfaces, basic principles in designing open air theatres, cinemas, broadcasting studios, concert halls, class rooms, lecture halls, schools, residences. Call Centers, Office building and sound reinforcement systems for building types.

TOTAL: 30 PERIODS

REQUIRED READINGS:

1. Dr.V.Narasimhan - An Introduction to Building Physics - Kabeer Printing Works, Chennai-5 - 1974.
2. D.J.Groomet - Noise, Building and People - Pergumon Press - 1977.
3. Thomas D.Northwood - Architectural Acoustics - Dowden, Hutchinson and Ross Inc. – 1977.

REFERENCES:

1. B.J.Smith, R.J.Peters, Stephanie Owen - Acoustics and Noise Control - Longman Group Ltd., - New York, USA - 1982.
2. David Eagan concepts in Architectural Acoustics.
3. Harold Burris – Meyer and Lewis Good friend, Acoustics for Architects – Reinhold

ID2355 INTERIOR MATERIALS AND CONSTRUCTION TECHNIQUES I L T P/S C
1 0 4 3

AIM:

To introduce students to the variety of materials, the properties, applicability and techniques of construction that can be used in interiors for furnishing, finishes and decoration.

OBJECTIVES:

- To enable the students to explore the plethora and versatility of materials
- Criteria for selection of material such as visual, technical, specific usage and cost
- Understanding of various finishes applicable to interior materials and to understand the apparent need for detailing to achieve this
- To understand the colour, texture, suitability, cost and treatment of materials

- To provide adequate opportunity and knowledge to innovate the use of materials and construction technique for efficient and speedy completion, as well as ease of maintenance

UNIT I MATERIALS FOR SENSITISING AMBIENCE 10

Study of basic characteristics of materials used for interior fitouts and finishes

To study colour, texture, reflective index, and inherent property of material which leads itself to quality in finish and details

Specific usage of appropriate furnish materials in interior fitouts – laminates, plywood boards, veneer in basic flitch on mounted forms – glass, metal, gypsum, natural and engraved marbles and stares.
Wall finishes – selection of appropriate quality of paints for specific usage and application techniques

Method statement for wall finishes

UNIT II FURNITURE AND AESTHETICS OF MATERIALS 10

Selection of materials - based on evaluation of finishes for floor, wall ceiling, fixtures, furniture and equipment - the aesthetic issues - technical quality of materials - functional and legal consequences of selection of materials

Aspects of function, durability, maintainability, safety / health and cost factors, inclusivity (sustainable, green, energy efficient, eco friendly) of the selection of materials.

Colour, texture, cost, treatment, finishes and moods required in the design.

Specifics - Characteristics of glass as an architectural ensemble with special emphasis on interiors.

UNIT III FURNITURE, FURNISHING ACCESSORIES, CABINETS – CONSTRUCTION DETAILS 25

Planar finishes (wall, ceiling, and flooring) – panelling, cladding, false ceiling (acoustical boards, plaster of Paris panel, aluminium panels, metal strips etc.), tiling (polished stones, ceramic tiles, vinyl, linoleum, wood) – types, details and construction techniques

Furniture - cabinets, wardrobes / closets – joinery, various forms, construction details

Furnishing – Fabric (ex: carpet, rug, upholstery), accessories – furniture hardware, wall paper and architectural anomalies (ex. sculpture, murals, partitions, fountains etc) – fixing details

Approach to selection - minimalistic approach or thematic requirements, illusion or real cost factor, branding – representative examples in an interior space – layout, materials, finishes, furniture – construction details

Special study - suspended spaces, inside - outside penetration of space, space within space: materials used, technique of construction
Effects - optical illusion, competing curves and hard / soft edges.

UNIT IV DECORATIVE CONSTRUCTION DETAILS 20

Decorative, functional and aesthetic treatment - combination of materials and the construction details.

Wall cladding, panelling, brackets, cornices, decorative columns, pediments, false ceiling and layout.

Flooring – finishes, setting and layouts and their different methods of construction.

UNIT V FLOOR FINISHES AND MOTIFS 10

Technical criteria – such as hardness scale, friction coefficient, planarity, size tolerances

Tiles clay based – vitrified, non-vitrified, homogenous, non-homogeneous – ceramic and porcelain tiles

Method statement for finishing works – flooring – wall finishes – ceiling finishes.

Floor finishes (wear resistant, smooth, non – slip, clear, pigmented, gloss) and patterns, durability, textures and workability

Motifs: standing and running trims, lamination / cladding, brackets, signage and graphics

TOTAL: 75 PERIODS

REQUIRED READING:

1. Furniture and cabinet construction – William P Spence, L-Duane Giffiths – Prentice Hall Inc (1989)
2. Flooring – The essential source book for planning, selecting and restoring floors – Elizabeth Nilhinde – Ryland peters & small (1997)

REFERENCES

1. Interior design reference manual – David K Ballast, AIA – Professional publication, Inc Belmont, CA 2006
2. Time Saver standard for interior design and space planning – Joseph Dechiara, Julius panero and Martin Zelnic (2003)
3. Design secrets – Architectural interiors – Justin Henderson, Stroke Nora Richter, Grier (2003)

ID2356	**INTERIOR DESIGN I**	**L**	**T**	**P/S**	**C**
		0	**0**	**16**	**8**

AIM :

To apply knowledge derived in architecture and interiors to the “process of design”.

OBJECTIVE :

- Integrating theoretical knowledge and technical database to design of interior spaces
- Trying to appreciate and incorporate thematic styles of interior design
- Understanding choice / section criteria of material, finish, furnishing, products and accessories to enhance space aesthetics
- Inculcating a “sense of detail” to interior spaces
- Insight into support services of interiors

CONTENT:

Introduction to design of interior spaces – design approach – themes &styles.
Layouts – Furniture, fixtures and equipments, furniture & finishes, sample & mood boards
Construction – Detailing of the interiors
Computer – Usage of computer aided design as a visualizing medium / 3-dimensional approach
Presentation – Presentation of mood boards and material boards and FF & E books.

Interior design for small scale building typologies

Residential (apartments, villa)
Commercial (office, mall)
Recreational (Resort, multiplex)
Healthcare (Clinic, nursing home)

REQUIRED READING:

1. Interior Detail – Residence –I-Archiworld Co. Ltd., 2004
2. Interior Best Collection – Commence – Asia II, Archiworld, 2003

REFERENCES :

1. Interior Design Reference Manual – David. K. Ballast, AIA – Professional Publication, Inc Belmont, CA2006
2. Interior Best Collection – Restaurant – Asia IV, Archiworld, Co. Ltd., 2003
3. Time savers std for Interior Design and Space Planning – Joseph De Chiara, Julious and Martin Zelnic, 2003

TOTAL: 240 PERIODS

ID2401 INTERIOR DESIGN PRINCIPLES & THEORY L T P/S C
2 0 0 2

AIM:

To understand the relationship of man and space and an exposure to design methods.

OBJECTIVES:

- An overview of interior design theory.
- To study colour and the perception of colour.
- To give an exposure to human perception of spaces.
- Understanding the relationship between spatial elements and kinesthetics.
- To study the interior design process
- To study special design needs.
- To understand design imagery.

UNIT I INTRODUCTION 6

Vocabulary of design, the elements of interior design, colour, furniture, interior materials, lighting, accessories, painting, sculpture, systems design, etc. Concepts and philosophies used in Interior design. Current issues and future directions.

UNIT II PSYCHOLOGY OF SPACE 6

Relationship between man and space. Design and human perception. Cognitive theories and gestaltan principles of psychology of space.

UNIT III SPACE PERCEPTION 8

Colour theory ,colour wheel and colour schemes and perception of colour.
Relationship of spatial elements like floor, wall windows, door, stairs, roof light colour to the psychology and perception of space.

Kinesthetics – understanding perception while in movement and space organization around such a phenomena.

UNIT IV THE DESIGN PROCESS 4

Sequential outline, programming, concept development, design development, design implementation. Case studies.

UNIT V INTERIOR DESIGN FOR SOCIAL RESPONSIBILITY SPECIAL NEEDS 6

Environmental / Green concerns, Adaptive reuse and historic preservations.
Differentially abled children, elderly and Universal design. Case studies.

TOTAL: 30 PERIODS

TEXT BOOKS:

1. John Pile – Interior Design (Third Edition) Prentice Hall Inc and Harry N. Abraham, Inc. publishers, 2003.
2. Francis D. K. Ching, Interior Design (Third Edition) Prentice Hall Inc and Harry N. Abraham, Inc. publishers, 2003

REFERENCES:

1. Victorial Kloss Ball, Architects of interior design, John Willey & Sons, New York, 1980.
2. Joseph de Chiera, Architects of interior design, John Willey & Sons, New York, 1980.
3. Arnold Friedman and others, Interior Design – An introduction to Architectural Interiors

ID2402 COLOUR AND LIGHTING IN INTERIORS L T P/S C
2 0 0 2

AIM:

To expose the students to colours as an inherent part of our interior environment. Light as a theory and application to interior – exterior design in creating 'moods' in interior.

OBJECTIVES:

- To understand the physiology and psychology of colour.
- Light as a vehicle in manipulating colour.
- To appreciate the modifying factors of colour – namely light, surface quality, distance and scale in perceiving the Interior – exterior characteristic of built space.
- Lighting levels, lighting criteria, visual field.
- Ingenious and aesthetic laying out of lighting switches and other gadgets.

UNIT I THEORY OF LIGHTING 6

Basics theory of lighting as applicable to interiors of buildings and spaces of lighting: Luminous flux, luminous intensity, the standard light sources and physical condition of space, definition of illumination, glare and discomfort while looking at the light source and lighted area.

UNIT II LIGHTING SYSTEMS 6

Concepts of lighting: Standards and guidelines for illumination recommended for different spaces. Types of lighting systems and activities expected to be performed in the space. Task lighting, ambient lighting. The psychosomatic values of space such as repose, joy, celebration and concepts of lighting. Reconciling between eyestrain or glare between bright recessed down light and the surface that holds it – either it be the ceiling or wall.

UNIT III LIGHT AND COLOUR 6

Lighting and Colour perception. Implication of vertical, horizontal and base planes and their finishes on lighting system & vice versa. Perceived colour as determined by the surface finishes and lighting criteria, day lighting vs artificial . Sources of lighting, the heat emission and its implication. The perception of the objects shape and colour as affected by level and type of light

source. Angled light and its effect on the object making it flat or otherwise. Green concepts in lighting design.

UNIT IV SPECIAL EFFECT IN LIGHTING 8

Space and dimensions. Lighting arrangements as special artistic effects generated by the impressions of distortion of the physical nature. Lighting as an element of orientation and direction. Lighting of buildings.Lighting for interiors of residences ,shops,hotels and offices.

UNIT V ELECTRICAL LAYOUT AND DRAWING 4

Electrical layouts, science of wire distribution, control panels, lights as products available in the market. Project drawings of lighting.Current trends in control panels,sensoes etc,

TOTAL: 30 PERIODS

TEXT BOOKS

1. Colour your world, Maria Flynn, Creating harmonious moods in Homes. Rotovision, Switzerland, 2000 (MAA library)
2. Perfect colour choices for the Home Decorator – Michael Wilcock, F & w Publication ine , Cincinnati, 1999.

REFERENCES

1. Colour harmony, Bride M Whelan – Rock fort publishers, 1994
2. Lighting, Marta Feduchi – Harper design, 2005
3. Designing with light – Retail spaces – Janet Turnee – Rotovision SA, 1998.

ID2403 INTERIOR SPECIFICATIONS AND ESTIMATION L T P/S C
3 0 0 3

AIM:

To equip students in writing specifications and in computing qualities of various items in interior works. To train them in the preparation of estimates and work orders.

OBJECTIVES:

- To understand the advanced issues concerning the practice of interior design such as tendering and contracting.
- To learn the methodology of specification writing with reference to material, workmanship and performance of different items of work.
- To train students in computing quantities of various items of work in buildings and interiors and presentation in the form of estimates.
- To equip students in rate analysis of various items of work
- To learn details of financing of projects on practice.

UNIT I TENDER AND CONTRACT 7

Types of tenders, tender documents, tender notice and trends in tendering.
Conditions of contract – Contents of contract document – responsibilities of the contractor and owner and new trends in contracting.

UNIT II SPECIFICATIONS 10

Definitions – types of specifications – principles of specification writing – specification writing – for different items of works –basic concrete such as slabs, beams, lintels and columns ,masonry, , metal works, wood work, cladding / covering, water proofing, , doors & windows, surface finishes – plastering, pointing, white washing, colour washing, painting, flooring, roofing, sanitary and water supply work, electrical works, HVAC work, furniture / equipment, building

fabric, false ceiling, interior paneling, soft furnishing, built in furniture and crafted furniture, partitions, etc.

UNIT III ESTIMATION 10

General rules for measurements of works. Estimation – types of estimation. Estimates– basic shell and estimates of interior works. Estimation of lighting and electrical ,Estimates for air conditioning and an understanding of economic considerations when selecting choice of Air Conditioning system. Estimation for Sanitary and Plumbing.

UNIT IV RATE ANALYSIS 10

Definition – purpose and importance – factors affecting rate analysis, procedure for rate analysis, rates of materials and labour, analysis of rates for false ceiling, wall cladding, partition, floor finishing, cabinet making, furniture.

UNIT V CONSTRUCTION FINANCE 8

The business environment and the structure in practice details. Financing of interior projects, Economic feasibility report, Valuation and depreciation.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. S.C.Rangwala, Elements of Estimating and Costing, Charoter Publishing House, India.
2. Dutta, Estimating and Costing, S.Dutta and Co., Lucknow

REFERENCES:

1. W. H. King and D. M .R. Esson, Specification and Quantities for Civil Engineers, The English University Press Ltd.
2. T.N. Building Practice, Vol.1, Civil, Govt. Publication.
3. P.W.D. Standard specifications, Govt. Publication.

ID2404 INTERIOR MATERIALS AND CONSTRUCTION TECHNIQUES-II L T P/S C
1 0 4 3

AIM:

Learning of building construction will not realize its full objectives unless it is supplemented by a thorough understanding of the methods for achieving sound detailing. It is necessary for the students to understand the principles of detailing as applicable to various structural and non-structural situations , and in interiors in the Indian context.

OBJECTIVES:

- To enable students to appreciate the challenges in detailing for both the newly designed buildings as well as while carrying out additions and alterations to existing buildings.
- To enable students to understand the various Fittings, Furniture & Equipment (FFE) that are needed in buildings and their installation methods.
- To train students towards adopting an integrated approach while dealing with complex buildings incorporating various allied requirements.
- To train students to understand integrated design solutions in the interior especially towards learning how to mesh interior design with services..

UNIT I INTRODUCTION TO CURRENT DEVELOPMENTS IN BUILDING INDUSTRY 10

Smart Materials: Characteristics, classification, properties, energy, behaviour, intelligent environments.

Recycled and ecological materials and energy saving materials: Straw-bale, card board, recycled plastics, , paper-crate, , photovoltaic, solar collectors, light-pipes, wind catchers. Their application in architecture and interiors.

Exercises of the above through case studies.

UNIT II DETAILING OF WALLS, ROOFS AND FLOORING 15

a) Detailing of a residence - audio visual room
b) Detailing of classrooms, (in school, college) smart classrooms
c) Detailing auditorium, exhibition spaces

UNIT III DETAILING OF WALLS, ROOF, FLOORING FOR ALL BUILDINGS 25

a) Detailing of shop-fronts and show windows, office spaces for commercial buildings including detailing of main doors/ staircases,
b) Detail of integrated false ceiling with services –lighting ,wiring/cabling, ducts and sprinkler.
c) Sub floor with wiring/cabling and ducts and trunking in floors.
d) Details of joints between different materials in flooring.
e) Details of false ceilings using more than one material and system.
f) Detailing of irregular shapes in ceilings and walls.
g) Electrical detailing with respect to switches etc

UNIT IV DETAILING OF BUILT-IN FURNITURE AND FITTINGS 10

Detailing of built-in elements like kitchen counters, cupboards, cabinets, public toilets, toilet fitting.

Office systems , workstations ,conference tables.

UNIT V DETAILING OF EXTERIOR AND INTERIOR ELEMENTS 15

Detailing of architectural elements like indoor fountains, water walls, transparent floors, hard and soft landscape, water bodies ,courtyard spaces and green walls.

Detailing of interior architectural elements in existing buildings (e.g. lift interior detailing,/ reception desk in hotel lobbies,/ cold storage, sauna and steam room etc.)

TOTAL: 75 PERIODS

TEXT BOOKS:

1. Furniture and Cabinet Construction – William P Spence, L-Duance Giffiths – Prentice – Hall – Inc (1989)
2. Flooring – the essential source book for planning, selecting and restoring floors – Elizabeth nilhinde – Ryland peters and small (1997)

REFERENCES:

1. Interior Design Reference Manual – David K. Ballast, AIA – Professional Publication, INC Belmont, CA 2006
2. Time-Saver standard for interior design and space planning – Joseph Decharia, Julius Panero and Martin Zelnic – 2003
3. Design secrets: Architectural Interiors – Justin Henderson / Nora Richter Greer – 2003.

ID 2405 WORKSHOP I-Furniture Design (Carpentery and metal) L T P/S C
1 0 4 3

AIM:

To have a broad understanding of materials, comparative analysis of various materials and their properties and surface finishes: To explore interior design models through working and feeling with wood and metals.

This course also investigates how ergonomics plays a major role in furniture design.

OBJECTIVES:

- To work with wood and wood products to understand material parameters and related exercise.
- To learn wooden joinery and its strength and wood polishes.
- To understand methods of working with metals based on its properties.
- To work with exercises on metal products for Interior forms.
- To analyze effective use of Wood work and metal work through experience.
- To understand Aesthetics and psychological impact of furniture.
- To apply ergonomic principles, anthropometrics data in design furniture.
- To study functional, technical aspects, understanding of materials and its application in furniture design.
- To analyze the various materials and manufacturing process available

UNIT I WOOD, WOOD PRODUCTS AND DERIVATIVES 12

Wood, wood products and derivatives

Types of wood - natural and artificial and its properties, Seasoning.

Working with wood and wood products to understand material parameters and related exercise.

UNIT II WOODEN JOINERY AND ITS STRENGTH 24

Wooden joinery and its strength.

Wood polishes and other finishes –texture, colour and surface quality.

Coatings, clear and pigmented finishes, technical or protective coatings and related exercise.

UNIT III METAL WORKS AND INTERIORS 12

Types of metals and its properties, definitions of terms with reference to properties and uses of metal.

Various methods of working with metals, fixing, joineries, finishing and treatment of metals, finishes on metal., Standard specifications.

UNIT IV FURNITURE FORMS 12

Human factors and ergonomics analyse furniture forms based on ergonomics, material, working parameters and visual perception of furniture as a single form and as a system in a given

interior space. **Understanding wood and metal as materials and how they perform for construction of furniture**.Design of a single furniture – chair – furniture with a moving component – folding chair, with respect to visual perception, ergonomics and material. **Models of office workstation/bar counter/shop display.**
Design a storage system for a specific interior space as part of a workshop exercise.

UNIT V METALS IN `BUILT FORM' AND EXERCISES RELATED TO WOOD WORK AND METAL WORK 15

Metals in `Built form' activity - horizontal, vertical and inclined surfaces in interior elements. Metal products for interior forms like ornamental and abstract doors, windows, jalies, railing, stairs, etc. and related exercise.

Analysis of effective use of mixing materials and its result. Related exercise.

TOTAL: 75 PERIODS

TEXT BOOKS:

1. Furnish – Furniture and Interior Design for the 21st Century – Sophie Lovell
2. Handbook of Human Factors and Ergonomics – Gavriel Salvendy

REFERENCES:

1. Alvar Aalto – Objects and Furniture Design By Architects – Sandra Dachs
2. Joseph de Chiaractal. Time Scenario Standards for interior design, 2001.
3. Inca – Interior Design Register, Incs publication, Chennai 1989.

ID 2406 WORKSHOP II- Craft Based (Printing, Textiles & Ceramic) **L T P/S C**
1 0 4 3

AIM:

Understanding the principles of printing, clay, ceramic, textiles and glass products by working with materials, having feel of materials and working with materials. Visual perception of printing, clay, ceramic, textiles and glass and their applications and finishes. Creating interior elements. Innovative, abstract and functional products for interior spaces.

OBJECTIVES:

- To study the importance of design in printing and the process of printing.
- To understand the development of clay products in interior.
- To learn different types of ceramic and techniques of forming and decorating.
- To analyze the development of textile design from primitive art to contemporary design.
- To have a basic understanding of the use of glass and the industrial applications of glass working techniques.

UNIT I PRINTING DESIGN 15

Technological development of printing- an outline. Importance of design in printing. Types of printing and process Letter press, Offset, Gravure, Flexography and silk screen. Typography.
Colour printing, colour process, colour separation, colour correction, colour reproduction. Role of digital medium in printing. Related exercise.

UNIT II DESIGN WITH CLAY PRODUCTS 15

Introduction to Developments of clay product, Types of clay, process, Shaping, modeling, moulding, coil work, throwing, potters weel method, detailing, carving, firing with low temperature. Colouring. Related exercise.

UNIT III CERAMIC CLAY AND DECORATIONS 15

Types of Ceramic. Ceramic clay and carving. Use of ceramic clay with other materials - cloth, thread, wires etc.

Process and techniques of forming and decorating.Slab work, throwing, pinching and coil work and firing process.

Colour pigments and glazes on ceramic. Tiles and its inter-locking characteristics.

Introduction to molding, plasters as material, process of mixing and its use in reproduction.

UNIT IV DEVELOPMENT OF TEXTILE DESIGN 15

Development of textile design from primitive art to contemporary designs.

The elements and principles of textile design. Analysis of a motif. Pattern as a basic unit of design in textile printing.

Block Printing - developing block, understanding materials and treatments. Use of Dyes and their mixing process, Textile dying and printing. Screen printing - design evolution for wall hanging, preparing screen and understanding the technique, printing on paper and printing on fabric. related exercise.

UNIT V DESIGN WITH GLASSES 15

Properties of glass, types of glass, Understanding of the possibilities and limitations of hot and cold glass working processes. Knowledge and skills in the use of basic tools, techniques, and processes sufficient to develop a work from concept to finished object.

Basic understanding of the industrial applications of glass working techniques. Introduction of glass composition, coloring, mold preparation, casting, surface decoration, sand blasting, grinding, and polishing, blowing.

Site visits to related product factories, sample collection, documentation, display of creative work, related exercise.

TOTAL: 75 PERIODS

TEXT BOOK:

1. Polly Rothenburg, Complete book of ceramic art, London, George Allen & Unwin Ltd.
2. Illustration today, International Text Book Company, Printed in U.S. - 1993.

REFERENCES:

1. McAllister, R Path ways to print: colour. Thomson Learning.
2. McAllister, R Path ways to print: Trapping, Thomson Learning
3. Mosaic art today, Larry Argiro, International Text Book Company, Scranton, Pennsylvania.

ID 2407 INTERIOR DESIGN II L T P/S C
0 0 16 8

AIM:

To scale up the application of concepts and techniques for creating pleasing interiors in large interior frequented by varied kinds of users.

OBJECTIVES:

- To design corporate interiors with energy consciousness.
- To understand the nascent qualities of sobre and tranquil interiors for religious places.
- To visualize and execute interiors where dignity and awe inspiration is required.

- To expose the students to fabulous and breath taking exercise of creating commercial interiors.
- To inculcate the philosophy that there is no dichotomy (as it is often assumed by many) between interior and exterior when it comes to large public activity areas.

Interior design for large scale interiors like

- Institutional
- **Museums**
- Trade, Convention, Exhibition Centres
- Commercial including corporate / IT offices / Hotels

TOTAL : 240 PERIODS

TEXT BOOKS:

1. Interior Design Reference Manual – David K. Ballast, AIA – professional publication, Inc Belmont, CA, 2006
2. Time – saver standard for Interior Design and Space Planning – Joseph Dechiara, Julius Panero, and Martin Zelnic – 2003

REFERENCES:

1. Interior Detail –III-Office – Jeong, Kwang young, - Archiworld co.ltd, 2004
2. Interior Detail – IV Hospital– Jeong, Kwang young, - Archiworld co.ltd, 2006
3. Interior Detail –V Exhibition – Jeong, Kwang young, - Archiworld co.ltd, 2006

SEMESTER VIII

ID2451	**INTERNSHIP PROGRAM - I**	**L**	**T**	**P/S**	**C**
		0	**0**	**0**	**12**

AIM:

To expose students to the daily realities of an architectural practice through a one year intensive internship program

OBJECTIVES:

- To facilitate an understanding of the evolution of an architectural project from design to execution.
- To enable an orientation that would include the process of development of conceptual ideas, presentation skills, involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure, site supervision during execution and coordination with the agencies involved in the construction process.

The internship program would be done in offices empanelled by the Institution and in firms registered under the Council of Architecture.

The progress of practical training shall be assessed internally through submission of log books supported by visual documents maintained by students every month along with the progress report from the employer/s of trainees.

The students would be evaluated based on the following criteria:

1. Adherence to time schedule, Discipline.
2. Ability to carry out the instructions on preparation of schematic drawings, presentation drawings, working drawings.

3. Ability to work as part of a team in an office.
4. Ability to participate in client meetings and discussions.
5. Involvement in supervision at project site.

At the end of the Internship program a portfolio of work done during the period of internship along with certification from the offices are to be submitted for evaluation by a viva voce examination. This will evaluate the understanding of the students about the drawings, detailing, materials, construction method and service integration and the knowledge gained during client meetings, consultant meetings and site visits.

TOTAL: 36 WEEKS

SEMESTER IX

ID2501	**INTERNSHIP PROGRAM II**	**L**	**T**	**P/S**	**C**
		0	**0**	**0**	**10**

AIM:

To expose students to the daily realities of an architectural practice through a one year intensive internship program

OBJECTIVES:

- To facilitate an understanding of the evolution of an architectural project from design to execution.
- To enable an orientation that would include the process of development of conceptual ideas, presentation skills, involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure, site supervision during execution and coordination with the agencies involved in the construction process.

The internship program would be done in offices empanelled by the Institution and in firms registered under the Council of Architecture.

The progress of practical training shall be assessed internally through submission of log books supported by visual documents maintained by students every month along with the progress report from the employer/s of trainees.

The students would be evaluated based on the following criteria:

1. Adherence to time schedule, Discipline.
2. Ability to carry out the instructions on preparation of schematic drawings, presentation drawings, working drawings.
3. Ability to work as part of a team in an office.
4. Ability to participate in client meetings and discussions.
5. Involvement in supervision at project site.

At the end of the Internship program a portfolio of work done during the period of internship along with certification from the offices are to be submitted for evaluation by a viva voce examination. This will evaluate the understanding of the students about the drawings, detailing, materials, construction method and service integration and the knowledge gained during client meetings, consultant meetings and site visits.

TOTAL: 36 WEEKS

ID2502 **DISSERTATION** **L T P/S C**
0 0 0 14

Design studio emphasize on explaining and understanding Interior Architecture primarily through the mode of making. Dissertation offers an opportunity to look at architecture, history and design primarily through textual mode. However, like design, dissertation involves process of observation, reflection and abstraction. Students are encouraged to choose any topic of there interest. They may range from analyzing the works of an architect / Interior design, history, typological changes, writing, design process and many more. The dissertation should state its objectives, followed by exhaustive documentation and arguments. The emphasis however, could vary according to the topic. The dissertation proposal in about 1500 words stating the topic issues to be explored and the scope must be submitted. After approval the work would be periodically reviewed. A well written report of a minimum 15,000 words must be submitted in the prescribed format, if any provided by the University. The student would subsequently make a presentation of his/her work and defend them.

REFERENCES

1. Ian Border, Kurt Rueideu, The Dissertation, An Architectural Students Hand Book, Architectural Press, 2000
2. Linda Grant and David Wang, Architectural Research Methods, John Wiley Sons, 2002

ID2551 **THESIS** **L T P/S C**
0 0 34 17

OBJECTIVE:

All the five years of architectural / interior design culminate in the thesis Project to motivate students to involve in individual research and methodology. This is to train them in handling projects independently.

TOPICS OF STUDY

The main areas of study and research can include advanced architectural / interior design, including contemporary design processes, environmental design, conservation and heritage precincts, housing etc. However, the specific thrust should be architectural / interior design of built environment.

METHOD OF SUBMISSION

The Thesis Project shall be submitted in the form of drawings, project report, models, slides and reports**.**

TOTAL:510 PERIODS

REQUIRED READING:

1. Linda Grant and David Wang, Architectural Research Methods, John Wiley Sons, 2002

REFERENCES:

1. Donald Appleyard, The Conservation of European Cities, M.I.T. Press, Massachusetts
2. Michelle Provoost et al., Dutchtown, NAI Publishers, Rotterdam, 1999
3. Richard Kintermann and Robert small site planning for cluster Housing van nastrand reinhold company, Jondon/New York 1977.

4. Miller T.G. Jr., Environmental Sciences, Wadsworth Publishing Co. (TB)
5. Kevin Lynch - Site planning - MIT Press, Cambridge, MA - 1967.
6. Geoffrey And Susan Jellico, The Landscape of Man, Thames And Hudson, 1987.
7. Arvind Krishnan & Others, Climate Responsive Architecture, A Design Handbook for Energy Efficient Buildings, TATA McGraw Hill Publishing Company Limited, New Delhi, 2001

AR2073 ART APPRECIATION L T P/S C
3 0 0 3

AIM:

The objective of the course is to understand and appreciate art in terms of its form, content and context through the study of works of art over history in order to develop a sensitivity towards aesthetics which is a necessary component of architecture.

OBJECTIVES:

- To introduce the vocabulary of art and the principles.
- To inform students about the various art forms through the ages within the cultural contexts.
- To study Modern Art and the new directions that evolved in the 19th and 20th centuries.
- To inform the production of art in the Indian context through history and the contemporary manifestations.

CONTENT:

UNIT I INTRODUCTION TO ART 6

Definition of art - need for art – role of art – art reality, perception, representation- categories of art in terms of media and technique - appreciating art: form, content and context

UNIT II VOCABULARY OF ART 9

Introducing the vocabulary of art constituted by elements (line, shape, form, space, colour, light, value, texture) and principles (unity, variety, harmony, rhythm, balance, proportion, emphasis, contrast, movement)

UNIT III APPRECIATING ART – BEGINNINGS TO MODERN ART 10

Appreciating art through the study of art production in the West from the beginnings to the birth of modern art. Important works from the following art traditions will be studied and analysed in terms of their form, content and context

Prehistoric Art - Egyptian and Mesopotamian art Greek and Roman art– Medieval art - Renaissance and Baroque art - Neoclassicism - Romanticism - Realism

UNIT IV APPRECIATING ART- MODERN ART AND AFTER 10

Appreciating art through the study of art production in the West over history from modern art till the present. Important works from the following art traditions will be studied and analysed in terms of their form, content and context :

Context for new directions in art in the late 19th and early 20th century - Impressionism - post Impressionism – Fauvism- Expressionism- Cubism – Dadaism – Surrealism - abstract art – Futurism - Constructivism – Suprematism –- De Stijl - Abstract Expressionism - Pop art - Op art- new forms and media of art

UNIT V APPRECIATING ART- INDIAN ART 10

Appreciating art through the study of art production in India over history. Important works from the following art traditions will be studied and analysed in terms of their form, content and context

Indus Valley Art - Hindu Buddhist and Jain art - Mughal and Rajput miniatures - art during the colonial period - modern Indian Art.

TOTAL: 45 PERIODS

REQUIRED READING

1. Fred, S. Kleiner, Gardener's Art through Ages, Harcourt College Publishers, 2001
2. Bernard S. Myers, Understanding the Arts, Holt,Rinehart and Winston Inc, 1964
3. Edith Thomory- a History of Fine Arts in India and the West, Orient Longman Publisher's Pvt. Ltd, New Delhi
4. H.H. Arnason, History of Modern Art, Thames and Hudson, 1977

REFERENCES:

1. The Penguin Dictionary of Art and Artists - Peter and Linda Murray - Penguin books 1989.
2. E.H. Gombrich, The Story of Art, Phaidon 2002
3. E.H.Gombrich, Art and Illsuion, Phaidon, 2002
4. Indian Art since the early 1940s- A Search for Identity- Artsists Handicrafts Association of Cholamandal Artists Village, Madras,1974
5. A.K.Coomaraswamy, Fundamentals of Indian Art, Historical Research Documentation Programme, Jaipur, 1985

AR2027 INTERIOR LANDSCAPE L T P/S C
3 0 0 3

AIM:

To sensitize students about the role of nature in restricted environments and to emphasize on the enriching qualities of it in Interiors.

OBJECTIVES:

- To familiarize students with Interior Landscaping and its various functions and factors.
- To develop and strengthen their competence in dealing with analytic, artistic, technical aspects of designing Interior open spaces.

UNIT I INTRODUCTION 6

Introduction to Interior Landscaping. Importance of Landscaping in Interiors. Plant-human relationships - physical, emotional and environmental justification for interior plant-scaping Microclimatic control through landscape design in interiors.

UNIT II ELEMENTS OF INTERIOR LANDSCAPES 12

Hard and Soft landscape elements; Plant materials – classification as Trees, shrubs and groundcovers that can be used in Interiors. Structural aspects of plants as ground level plants, below knee level, knee to eye level, above eyelevel plants. Hard Landscape characteristics,

use and application in landscape design. Water and landforms – applications in Interior landscapes.

UNIT III HISTORY 9

Landscape and garden design in history with emphasis on Interior landscapes. Medieval courtyards and Cloister gardens, Islamic courtyard landscapes- Moorish in Spain (Alhambra and general life) , Mughal in India, Chinese and Japanese gardens. Indian courtyard landscapes – evolution and characteristics.

UNIT IV DESIGN PROCESS 9

Design objectives, considerations and procedures regarding Interior Landscapes. Case studies of various typologies such as residential, commercial, industrial and institutional.

UNIT V ENVIRONMENTAL REQUIREMENTS 9

Providing suitable environments for interior landscaping. Environmental factors limiting plant growth and maintenance indoors - light: intensity, duration, source, effects, modifications. Temperature, humidity, air movement and quality. Water: quality, quantity. Growing media. Space / Volume.

.TOTAL: 45 PERIODS

TEXT BOOKS:

1. Interior Landscaping By Tokuji Furuta, Debra Sievers, Vernon Artman, 1983,Reston Pub. Co
2. Designing the interior Landscaping By Richard L. Austin, 1985, Van Nostrand Reinhold publishers.

REFERENCES:

1. Guide to Interior landscaping by Interior landscape division, 1982, Associated landscape contracters of America.
2. Interior Landscape design by Nelson Hemmer,1991, Mcgraw hill.
3. The indoor garden book by John Brookes, 1986, crown publishers, New York.

AR2023 STRUCTURE AND ARCHITECTURE L T P/S C
3 0 0 3

AIM:

This course is geared towards the integration of contemporary structural design in the form making process of architectural design. It will encourage the student to exercise judgement in areas of structure, form and process.

OBJECTIVES:

- To study evolution of structural systems through history.
- To familiarise the students with concepts of structural design through works of architects/ engineers.
- To study architectural expression through relevant case studied.
- To evaluate the understanding of the relationship between form & structure through a seminar.

UNIT I HISTORY OF STRUCTURAL DESIGN IN THE PRE INDUSTRIAL ERA 9

Development of monolithic and rock cut structures- trabeated construction-arcuate construction-vaults and flying buttresses- tents and masted structures and bridges through ancient and medieval history.

UNIT II HISTORY OF STRUCTURAL DESIGN IN THE POST INDUSTRIAL PERIOD 9

Post Industrial modular construction of large span and suspension structures in steel and concrete- projects of Pier Nuigi Nervi, Maillart, Candella, Buckminster Fuller and Eero Saarinen.

UNIT III CONTEMPORARY STRUCTURAL EXPRESSION THROUGH CASE STUDY – I 9

The select case studies could include

KCR Terminal at Hung Hom, Hong Kong, B3 Offices in Stockley Park , Sainsbury Centre for Visual Art, Renault Centre and Swindon UK by Normal Foster and Standsted Airport Terminal, London, UK by Fosters/Arup

British Pavilion EXPO 1992, Seville, Spain and Waterloo International Terminal by Nicholas Grimshaw

UNIT III CONTEMPORARY STRUCTURAL EXPRESSION THROUGH CASE STUDY – II 8

The select case studies could include

Inmos Microchip Factory, Centre Commercial St. Herbtain, PA Technology, Princeton and Fleetguard, Quimper UK by Richard Rogers

Athens Olympic Stadium and Village, Bridges and Public Bus Stop in St. Gallen , Railway Station, Lyon, France and Stadelhofen Railway station, Zurich Schweiz by Santiago Calatrava

Kansai International Airport, UNESCO Workshop, the Jean-Marie Tjibaou Cultural Center, Menil Museum, Thomson Optronics Factory, IBM Traveling Exhibition Pavilion, Columbus International Exposition, Genoa Italy and Lowara Officers, Montecchio Maggiore Italia by Reno Piano Building Workshop

UNIT V SEMINAR 10

Seminar to present a study of architectural form and structural expression through select cases which will aid understanding of structural philosophy and analysis, building envelope and services and construction sequence.

TOTAL: 45 PERIODS

REFERENCES

1. “Paper Arch” and Japan Pavilion at Expo 2000 in Hannover by Shigeru Ban
2. Greene King Draught Beer Dept and Schlumberger Cambridge Research Centre, UK by Michael Hopkins
3. Design Center, Linz, Austria and Two Family House in Pullach Thomas Herzog
4. King Abdul Aziz International Airport, Haj Terminal by SOM
5. Pavilion of the Future, Expo 92, Seville by Martorell, Bohigas & Mackay (MBM)
6. Daring Harbour Expo Center, Sydney Australia by P. COX
7. Olympic Archery Building by Enric Miralle & Carme Pinos
8. Eagle Rock House by Ian Ritchie
9. Le Grande Arche de La Defense by J O Spreckelsen

AR2071 ENERGY EFFICIENT ARCHITECTURE L T P/S C
3 0 0 3

AIM:

In the face of a crisis of depleting resources the aim is to familiarize the student to the use of new renewable sources of energy in buildings.

OBJECTIVES:

- To inform the need to use renewable sources of energy in view of the depleting resources and climate change.
- To familiarise the students with passive design considerations and passive heating and cooling of buildings and the various methods used.
- To inform about the importance of day lighting and natural ventilation in building design through analysis and case studies.

UNIT I ARCHITECTURE AND ENERGY 9

Solar System and Earth - Renewable Sources of Energy - Global Climates and Architecture in Historic Perspective - Contemporary Trends - Sustainability and Architecture

UNIT II SOLAR PASSIVE ARCHITECTURE 9

Design Considerations involving Site Conditions, Building Orientation, Plan form and Building Envelope - Heat transfer and Thermal Performance of Walls and Roofs

UNIT III PASSIVE HEATING 9

Direct Gain Thermal Storage of Wall and Roof - Roof Radiation Trap - Solarium - Isolated Gain

UNIT IV PASSIVE COOLING 9

Evaporative Cooling - Nocturnal Radiation cooling - Passive Desiccant Cooling - Induced Ventilation - Earth Sheltering - Wind Tower - Earth Air Tunnels

UNIT V DAY LIGHTING AND NATURAL VENTILATION 9

Daylight Factor - Daylight Analysis - Daylight and Shading Devices - Types of Ventilation - Ventilation and Building Design

TOTAL: 45 PERIODS

REQUIRED READING:

1. Manual on Solar Passive Architecture, IIT Mumbai and Mines New Delhi - 1999
2. Arvind Krishnan & Others, Climate Responsive Architecture, A Design Handbook for Energy Efficient Buildings, TATA McGraw Hill Publishing Company Limited, New Delhi, 2001

REFERENCES:

1. Fuller Moore, Environmental Control Systems, McGraw Hill INC, New Delhi - 1993
2. Sophia and Stefan Behling, Solpower, the Evolution of Solar Architecture, Prestel, New York, 1996
3. Givoni .B, Passive and Low Energy Cooling of Buildings, Van Nostrand Reinhold, New York, 1994

ID2072 HISTORY OF FURNITURE DESIGN L T P/S C
3 0 0 3

AIM

To introduce students the ways of analyzing furniture forms and design furnitures forms scientifically based ergonomics.

OBJECTIVES:

- To analyse the existing furniture forms as a part of the process of creating new furniture forms based on materials, skills and durability.
- To design furniture from the point of view of storage, transport and maintenance.
- Design of furniture forms as prototypes which can create a difference when one sums of the pieces into a whole composition.
- To understand the factors such as life style, climate, availability of raw materials to make ingenious use of the same to produce innovative furniture forms.
- To obtain an overview of the evolution and background of different styles of furniture for judicious choice of styles in interior.

UNIT I PRINCIPLES AND TYPE OF FURNITURE 9

Principles of furniture design, functional aspects, ergonomics, psychological and biological aspects of design . Parameters for designing various types of furniture such as stools, folding retractable pieces of furniture, Implication of stacking, storage and transportation requirements on the design furniture. Furniture for sitting and storage and sleeping.

UNIT II HISTORIC STYLES IN FURNITURE – RENAISSANCE PERIOD 9

Historical furniture styles and craftsmanship, furniture during renaissance in Italy. Georgian style in England.

UNIT III VICTORIAN STYLE AND INDUSTRIAL REVOLUTION 9

Victorian style, industrialization and its impact on furniture models, in wood, steel, cane and wickes furniture.

UNIT IV EVOLUTION OF MODERN FURNITURE 10

The anatomy of furniture and summary of chairs of different periods in different countries (France, England, U.S.A and other European countries. Emergence of modernism (FL Wright, Mies Van DeroeW, walter Gropius and Bahaus, Alvar Alto etc.

UNIT V CONTEMPORARY FURNITURE 8

Art Deco and Industrial style.

Contemporary design: Residential kitchen, bathrooms, corporate furniture, IT space serving furniture for apartments.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. A History of interior design – John Pile, John Wiley publications (MAA), 2005.
2. The making of interiors – 1987 – 1st edn – Allen Tae – Harper & Row

REFERENCES:

2. Introduction to Indian Architecture – Bindia Thapar – Peripllus Editions.
3. A history of interior design – 2nd edn – 2005 – John Wiley & sons.Inc
4. Nineteenth century Decoration: The Art of interior – 1989 1st edn – Chartotte Gere.

ID2073 CURRENT TRENDS IN INTERIOR DESIGN L T P/S C
3 0 0 3

AIM:

To achieve a disciplined design approach as the single common factor shared by eminent interior designers who are currently involved in numerous projects around the world.

OBJECTIVE:

- To understand interior practise as distinguished by the rigorous application of exacting standards and close attention to detail which is employed at every stage of the project.
- To provide an overall evaluation and to detail the functional criteria as a basis for the development and implementation of the design, project schedule and furnishings, fixture and equipment budgets.
- To understand interior design services and documentation.

UNIT I PLANNING 9

Interior layouts, designs and trends – owner's satisfaction – operators regiments and recommendations.

Provision of services – Project research - Programme and schedule confirmations - Room analysis - Overall space planning

UNIT II CONCEPT 9

To develop preliminary plans, elevations, sections, material and furniture selection and interior sketches.

Identify and establish the basic design directions – current trends

To estimate costs of implementing the interior design concept and coordinating with the purchasing agency.

Servicing provide at this stage shall include - Development of interior design imagery - Presentation of colour and materials - Furniture, Fixtures & Equipment Budget review

UNIT III DESIGN DEVELOPMENT 9

Through the development of sketches and Autocad documentations to provide sufficient information to the Architect, MEP – Mechanical, Electrical and Plumbing consultants to incorporate the interior design information into their construction documents and specifications.

Documents provide at this stage shall include - Furniture plans - Floor covering plans - R.C. plans - Interior elevations - Interior details - Electrical : Mechanical location plans

UNIT IV DESIGN DOCUMENTATION 9

To provide a final set of FF & E -Furniture, Fixtures & Equipment drawings and specifications which provide the basis for bid documents, product samples, shop drawings and purchase orders.

Documents provided at this Unit shall includes - Material reference specifications - Fixture detail (Mill work drawings) - Furnishing specifications - Miscellaneous decorations details - Model space documentation

UNIT V BIDDING AND NEGOTIATIONS AND DESIGN IMPLEMENTATION 9

To work with the purchasing agent, contractors and manufacturers in reviewing bids.

Assisting in the negotiations and making reasonable adjustments in order to meet budgets.

Service provided in this Unit shall include - To assist in evaluation of pricing -Documentation of budget requirements and design revisions - Coordination with architects and other consultants - Adjustments due to field variations

To visit the project site and ensure that work is being performed in accordance with design drawings, specifications and design concepts

Service provided at this Unit shall include - To review purchase orders - Review of shop drawings- Review and select art and accessories - To review installations - To review completion punch list - Project wrap up

TOTAL: 45 PERIODS

TEXTBOOKS:

1. Designing Interior's, W. Otie Kilmer and Rosemary 1992 Harcourt Brace Jovanovich
2. Foundations of Interior Design – Slotkis, 2006, Fairchild Books and Visuals

REFERENCES:

1. Interior Design, Jenny Gibbs, 2009, Lawrence King Publications Ltd. UK
2. Interior Architecture Now by Jennifer Hudson 2007, Lawrence King Publisher, UK
3. Room by Room contemporary interiors – Carol Meredith 2000, Rockport Publishing, Inc. USA

ELECTIVE -III

ID 2074 GRAPHICS AND VISUAL COMMUNICATIONS L T P/S C
3 0 0 3

AIM:

This course aims to develop modes of inquiry specific to Visual Media and establish a Critical dialogue through the History and the Theory.

OBJECTIVES:

- To understand visual communication as a tool which not only enhance an environment but also transforms the space.

- To understand the transformation of graphic design because of the new technologies available.
- To study the printing technologies and various materials for printing.

UNIT I INTRODUCTION 6

Introduction to history of visual communication in architecture and interior design. To study graphic design used in various cultures, and religious spaces. To study from history how graphic design is employed to transform spaces in interior design.

UNIT II VISUAL PERCEPTION AND APPLICATIONS 9

Visual perception of forms, patterns and design. Study on geometries by understanding grids in nature and natural forms. Natural form as motifs and its application in various elements and products used in interior spaces. Colour texture and material application.

UNIT III SPACE MAKING ELEMENT 6

Space transformation through graphics – graphics as an element to enhance the interior environment, its application in hard ands soft surfaces. Graphics for various function such as commercial, institutional, entertainment etc. Graphic and communication systems. Letter forms, calligraphy, typology, signage system, information organization display boards, poster, book layout etc.

UNIT IV ENVIRONMENTAL GRAPHICS 10

Graphics as an element which could transform space. Graphics as space organizing elements, providing information, messages and also as a link of coordinating various design elements. Audio – visuals and graphic techniques.

UNIT V PRODUCTION 14

To study various forms of output available for graphic design ranging from hard to soft surfaces such as Vinyl, flux board, glass etc. Audio – visuals and new graphic techniques like video and other projection, printing technologies available. Plotting, manipulation, variation and their visuals evaluated by computer modeling and outputs.

Exercises---Signage for Hotels,Museums,

Signages in innovative materials

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Bob Gordon and Maggie Gordon – Digital Graphic Design –Thames & Hudson.
2. Louise Bowen Ballinger – Perspective Space and Design –Van Nostrand Reinhold Company.

REFERENCES :

1. Fred A Stitt – System Graphics – Mcgraw Hill Book Company
2. Robert Girard – Colour and Composition – Van Nostrand Reinhold company
3. Mark Von Wodtke, Mind over media: Creative thinking skills for electronics media Mcgraw Hill, New York, 1993.

ID 2075 VERNACULAR AND INDIAN STYLES OF INTERIOR DÉCOR L T P/S C
3 0 0 3

AIM:
To understand the various indigenous arts and crafts of India, their symbolism and application in the Indian vernacular architecture and the emergence of hybrid styles with the synthesis of Indian and the Western.

OBJECTIVES:
- To familiarize with traditional Indian folk art forms and crafts that adorn Indian vernacular architecture
- To look at its application and exuberance in the palatial mansions in different regions of the country.
- To analyze the various influences that led to the creation of hybrid interiors through the synthesis of the Indian with the western and modern styles.

UNIT I INDIAN FOLK ART AND SYMBOLISM 4
Wall and Floor paintings of the various regions in India- art forms such as the Madhubani; Kalamkari; Warli; etc. motifs, their symbolism and application.

UNIT II TRADITIONAL CRAFTS OF INDIA 6
Textile traditions of the various regions in India- Batik; Ikat; Kantha; Dhurries; Zardhozi; etc. - Paper mache and clay work of Rajasthan- Cane, bamboo, ratan and palm work: furniture and accessories- Metal and brass ware accessories- Mirrored Embroidery, Leatherwork and Patchwork of Kutch and Gujarat.

UNIT III VERNACULAR FORMS AND DÉCOR 4
Mud houses of Rajasthan and forms of décor- granaries- motifs and symbolism; Nomadic huts in the Kutch region- Rabari hut; Domestic interiors of hill houses in Ladakh, Leh, Srinagar- Upholstery, Drapery and Wood craft; House boats of Kerala; Painted huts of Orissa.

UNIT IV PALATIAL MANSIONS AND INTERIOR DÉCOR 8
Treatment of walls floors and roofs in the Haveli Mansions of Gujarat, Mansions of the Bohra Muslims and the Haveli mansions of Rajasthan- Stone and wood craft- miniature paintings- lithographs- Shekawati furniture- other interior accessories.
Stone and wood craft, floor tiles, furniture and other art forms and accessories in the palatial mansions of Chettinad.
Tharavads of Kerala - Woodcraft and furniture

UNIT V COLONIAL AND MODERN INFLUENCES 8
Surface Decoration, ornamentation, furniture, furnishings and accessories used in the forts and palaces
Synthesis of Art Deco and Indian Style in the Umaid Bhavan Palace, Jodhpur; Juna Mahal, Dungarpur, Chandra Mahal, Jaipur.
Beaux Arts Palace: Chettinad House, Madras.
Victorian, Baroque and Rococo influences on the Goan house; Indo Portuguese house- Casa de Braganza

TOTAL: 45 PERIODS

TEXT BOOKS:
1. Angelika Taschen, Ed. Indian Interiors; TASCHEN;

2. Suzanne Slesin and Stafford Cliff; Indian Style; Clarkson and Potter Inc. Publishers, NY; 1990

REFERENCES:

1. Anuradha Kapoor; Indian Heritage hotels- Legacy of Splendour;
2. Nanditha Krishna; Arts and crafts of Tamilnadu; Mapin Pub. Pvt. Ltd. TN; 1992
3. Dr. Sarayu Doshi; Ed. The Impulse to Adorn; Marg Publications; 1982

ID 2076 MULTI MEDIA DESIGN TOOLS FOR INTERIOR DESIGN L T P/S C
3 0 0 3

AIM:

This course aims to introduce the digital art to the students through series of sessions of demonstration of software and projects. To engage students with media in the specific Context and Design fundamentals which in turn provide the understandings required across the Medium

OBJECTIVES:

- To understand computer graphics as bits and pixels and tools to edit the same.
- To analyze interior projects using digital techniques.
- To generate patterns, forms and spaces using computer aided tools.

UNIT I VIDEO EDITING, IMAGE EDITING & VECTOR EDITING 6

Tools: Importing avis and mpegs, sequencing, cutting trimming, decrease and increase the speed of the movie, filters, transitions, output settings, saving the output with the help of video editing software like ADOBE PREMIERE. Image editing (pixel image types) using tools, Vector characters, bizer and grip editing, transform, fill types, text formatting, colour overlays, etc in ADOBE PHOTOSHOP

Tools for translating ideas, generation and visualization of concepts, 3DS MAX and Rhino.

Integration of concept and design context, refining Auto CAD

Generation of scale model, materials, walkthrough visualization in real world scale, REVIT and 3DS MAX.

How to choose printer, RGB or CMYK.

UNIT II LEARNING FROM THEORY / HISTORY 6

Project: To identify a building from Contemporary architecture and study Proportioning system, Geometrical, Biological system, Stylist study and explaining them through presentation

Tools: Softwares like 3Dmax, Photoshop and Director could be explored.

UNIT III PATTERNS THROUGH SCRIPTING 6

Project: Create 2d interactive patterns using basic scripting in Flash/Director.

Tools: Scripting in software like Flash/ Director could be explored

UNIT IV SOUND EDITING 6

Project: Create forms/ patterns synchronized to sound file, through this relationship between sound and forms/ patterns will be explored

Tools: Software like fruity loops and sound forge could be explored

UNIT V SPACE GENERATION 6

Project: Students would identify a metaphor (literature, movies, and music albums) and create spaces using the same. The proposal must be discussed with course faculty prior to presentation.

Tools: Importing files using standard and linking options. Using scripts and behaviors, understanding stage, cast and time line, using cast library, Tweening, using swf movie, presentation using voice over and presentation demos, creating auto run Cd-rooms.

TOTAL: 45 PERIODS.

TEXT BOOKS:

1. M.E. Morris, and R.J. Hinrichs, Web Page Design, Prentice Hall, 1996.
2. Mark Von Wodtke, Mind over Media : Creative Thinking Skills for Electronic Media, McGraw-hill, New York, 1993

REFERENCES:

1. Photoshop 7 Bible Professional Edition, Wiley John & Son INC, New York, DekeMcClelland,
2. Flash Web Design, The Art of Motion Graph, Curtis Hillman, New Riders Publishing, Indianapolis, IN. U.S.A, 2000

ELECTIVE-IV

ID 2077 RESTORATION OF HERITAGE BUILDINGS L T P/S C
3 0 0 3

AIM:

To integrate and innovate the heritage elements into the contemporary living style.

OBJECTIVES:

- To identify the basic “period elements” that bestow character to interiors.
- To learn and create a compendium of interior vocabulary of each period / region..
- To understand the socio – cultural manifestations in the interiors of heritage building and spaces and look for adaptive re use of such elements.
- To develop source book of heritage conservation practices in various parts of the world.
- Organisational mechanism that would facilitate conservation and perpetuation of elements heritage interiors.

UNIT I CONSERVATION OF INTERIORS 6

Definition of conservation, preservation and what is restoration and what constitutes conservation of interiors. The need for a movement for identifying and conserving historical and cultural reflections of Interiors of past. Establishing the links between various facts of Interiors for posterity.

UNIT II HISTORICAL INTERIORS 6

Origin and resolution of Interior vocabulary through historical periods. Identification of Heritage elements. Public Atriums, Temple precincts, pols, Havelies, mohallahs, palace interiors and court halls.

UNIT III SOCIO – CULTURAL MANIFESTATION IN CONTEMPORARY USE 6

Life style, social references, attitude and methods of construction. Workmanship and techniques adopted and implementation tools employed. Reinventing the materials and workmanship for creative adaptation for contemporary use.

UNIT IV CONSERVATION PRACTICE 6

Case studies and research on success and failure of conservation attempts. The role of public and private persons in converting the conservation exercise as a productive exercise. The recreation of the treasures of interiors of the past. Conservation of ethnic elements of the region. Finding the roots.

UNIT V CONSERVATION ORGANIZATIONAL MECHANISM 6

Role of organizations and government in facilitating conservation of efforts. Financial and technical supports from national and international organisations: UNDP, UNESCO, INTACH. Heritage Acts and legislation in our country. Identifying and innovating new vocabulary for conservation elements.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Interior pedestrian spaces Michael Bednar – B.T. Batsford Ltd. London 1990.
2. A History of Architectural Conservation – Jukka Jokilehto – Elsevier Butter worth – Heinemann – 1999.

REFERENCES:

1. Handbook of contemporary urban life – An Examination of urbanisation, social organization, and metropolitan politics – David street – Jossey Bass publishers, 1978.
2. Consevation and Development in Historic Towns & Cities – Pamela World – Orid Press Ltd.
3. Planning for Conservation – Kain Roger – St. Martin, N.Y, 1981.

ID 2078 THEATER / FILM SET DESIGN L T P/S C

3 0 0 3

AIM:

This course investigates factors involved in designing a set for movie and set design in theatre.

OBJECTIVES:

- To study element that makes an image.
- To study theory of art direction
- To analyze the process of creating a set

UNIT I THEATRE TECHNOLOGY 9

The technology emphasis will introduce students to different physical theatre forms in practical settings (proscenium, thrust, arena, and flexible extended stages), standard stage equipment, and methods of staging plays. Basic practices in set construction, stage lighting and sound for the theatre will be explored.

UNIT II ELEMENT OF A SET 9

Elements of Image Making – stagecraft, Make Up, Hair, Accessories, Props, Design of Space – Element of Form, Colour, Light, Sound, Time, Character, Graphic, Location, Text, etc,

UNIT III THEORY OF ART DIRECTION 9

Drawing and Design Theory for Art Direction, Relations between Scene vs Characters, Scene vs Painting, Scene vs Script, Scene vs Drama

UNIT IV PROCESS OF DESIGNING AND CREATING A SET 9

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

UNIT V ANALYSIS AND CRITICISM 9

The student is required to do directed research – the student would be required to select a particular drama/movie like Metropolis, The Fountainhead, Blade Runner, The Matrix etc. the student is required to analyze the set design of the movie with rest to the script, setting of the movie and present a paper.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. The Dramatic Imagination Theatre Arts Books – Anouilh, Jean. Antigone
2. Film Architecture: Set Designs from "Metropolis" to "Blade Runner" by Dietrich Neumann (1997)

REFERENCES:

1. Architecture & Film (Architectural Design Profile, No 112) by Maggie Toy (2000)
2. Architecture + Film II (Architectural Design) by Bob Fear (2000)
3. Harry Nystorm, Creativity and Innovation – John Wiley & Sons, 1979.

ID 2079 PRODUCT DESIGN L T P/S C

3 0 0 3

AIM:

This course aims to introduce basics of product development process to the students. To engage students in a specific context and design fundamentals.

OBJECTIVES:

- To shift their perspective from large sized artifacts to small artifacts and understand the factors involved in designing those artifacts.
- To study various materials available, its advantages and disadvantages in using them for products as well as interiors.

UNIT I ORIENTATION 9

Communication – Model Making, Free Hand Drawing, Technical Drawing - a Engineering Convention for Products, Product Photography - basic of photographic equipments and Rendering - representation of concepts and detailed designs.

UNIT II MATERIALS AND TECHNOLOGY 9

Experience of physically working with various materials and comprehending their “physical” characteristics. General forms of materials available commercially. Material working

technologies and processes. Ferrous and non ferrous metals plastics, wood, board, composites, alloys, paints & coatings, finishes, treatments, hardening, stone and glass.
An overview of the relationship between technological progress and design issues, through an analysis of current technological trends and their effects on culture, society and industrial production.

UNIT III DESIGN STUDIES AND CRITICISM 9

The objective is to look at the myriad forms of past and contemporary artistic expression. Through the examination of film, music, photography, painting, sculpture and dance.
The student is required to do directed research – the student would be required to select a particular subject or product. He/she then defines a specific narrow topic and the objective of the paper. He/she would pursue readings and discussions till he/she develops a personal perspective to inform or comment upon the topic would then write a paper.

UNIT IV WORKSHOP 9

Scale project – abridge course that enables student architects – interior designers of buildings to shift their perspective from large sized artefacts to small artefacts using their existing methodologies of design and processes of decision making

- Concept of human interface, object man interaction
- Ergonomics – basic principles, anthropometry, scale models, and testing.

Techniques of exploring unfamiliar perspectives, brainstorming, and other established strategies of idea generation.

UNIT V PROJECT 9

Design of an object from the perspective of individual expression and design intervention. Total design, Information collection, existing product analysis, market research, Development of Brief, Concept generation as an audit of possibilities. Ergonomics studies, cost analysis, value engineering, product improvement.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Harry B. Watton – New Product Planning – Prentice – Hall Inc (1992).
2. P.N. Khandwalla – Fourth eye (Excellence through Creativity) – Wheeler Publishing, Allahabad, (1992).
3. I.P.R. Bulletins, TIFAC, New Delhi, (1996) (1997) (1998) (1999) (2000).

REFERENCES:

1. William C. Miller - The Creative Edge, Addison - Wesley Pub. Co., New York, 1997.
2. Harry Nystrom - Creativity and Innovation - John wiley & sons (1979).
3. Brian Twiss – Managing Technological Innovation – Pitmar Publishing Limited (1992).