B.S. Abdur Rahman Crescent Institute of Science & Technology
Deemed to be University u/s 3 of the UGC Act, 1956
GST Road, Vandalur, Chennai 600 048

B.ARCH
SYLLABUS

REGULATIONS: 2016

UNIVERSITY VISION AND MISSION

VISION

B.S. Abdur Rahman Crescent Institute of Science & Technology aspires to be a leader in Education, Training and Research in Engineering, Science, Technology and Management and to play a vital role in the Socio-Economic progress of the Country.

MISSION

- To blossom into an internationally renowned University
- To empower the youth through quality education and to provide professional leadership
- To achieve excellence in all its endeavors to face global challenges
- To provide excellent teaching and research ambience
- To network with global Institutions of Excellence, Business, Industry and Research Organizations
- To contribute to the knowledge base through Scientific enquiry, Applied Research and Innovation.

VISION AND MISSION OF THE DEPARTMENT OF ARCHITECTURE

VISION

Crescent School of Architecture aims to emphasis on Curiosity, Innovation and Discovery in the field of Architecture that will connect with the profession and strives for Global standards through collaborative innovation and passion for enquiry.

MISSION

- To create opportunities for innovative academic experience which brings together academics and professional practice.
- To provide academic climate for students to understand, enquire, reflect, grow and contribute to succeed in a rapidly changing society.
- To pursue excellence in learning through contemporary foundation of liberal learning that celebrates diversity and complexity that instills empowerment on social responsibility.
- To achieve excellence in all its endeavors to face global challenges.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

Bachelor of Architecture curriculum is designed to prepare the graduates having aptitude and knowledge,

1. To enable a successful professional and technical career.
2. To provide high quality education to assume professional roles in architecture by offering sound knowledge in theories and applications in the field of Architecture.
3. Engage in life-long learning to keep themselves abreast of new developments.
4. To grow as a creative problem solvers in architectural industry.
5. To put into practice and inspire high ethical values and technical standards.
6. To evolve a professional capable of vision, innovation and competence keeping in view the human value system.

PROGRAMME OUTCOME (PO):

These outcomes are directly related to the profession of Architecture ,the way in which they are practiced and the knowledge components necessary for such a practice. The following list of outcomes represents the minimum learning outputs expected. The programme will produce graduates who have,

a) Ability to apply creativity, innovations, develop competence in design development towards appropriate technology.

b) Ability to conceptualize and coordinate designs, addressing social, cultural, environmental and technological aspects of architecture.

c) Ability to analyze and apply theoretical knowledge to achieve design solutions.

d) Ability to understand ethical and professional responsibilities.

e) Ability to apply and integrate computer technology in design process and products.

f) Ability to understand real life situation of architectural practice.

g) Ability to apply visual and verbal communication skills at various stages of architectural design and project delivery process.

h) Ability to work collaboratively with teams of architects and various interdisciplinary teams.

i) A commitment to quality with ethical values, timelessness in architecture with continuous improvement.

CURRICULUM AND SYLLABUS FOR B. Arch
(Ten Semesters / Full Time)
CURRICULUM

SEMESTER I					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	ARC B 1101	History of Built Environment – I	3	0	3
2	ARC B 1102	Theory of Architecture	3	0	3
Theory cum Studio					
3	ARC B 1103	Architectural Representations	1	3	3
4	ARC B 1104	Building Materials & Construction - I	2	3	4
5	ARC B 1105	Skill Development – I	1	1	2
Studio					
6	ARC B 1106	Architectural Design Studio – I	0	9	6
7	ARC B 1107	Allied Design Studio - I	1	5	4
			Total Credit		**25**
		SEMESTER II			
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	ARC B 1201	Theory & Principles of Design	3	0	3
2	ARC B 1202	Environmental Studies	3	0	3
3	ARC B 1203	Theory and Design of Structures - I	3	0	3
Theory cum Studio					
5	ARC B 1204	Building Materials & Construction - II	1	4	4
6	ARC B 1205	Skill Development – II	1	1	2
Studio					
6	ARC B 1206	Architectural Design Studio– II	0	12 to 14	6
7	ARC B 1207	Allied Design Studio - II	0	3	4
			Total Credit		**25**

SEMESTER III					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	ARC B 2301	History of Built Environment - II	3	0	3
2	ARC B 2302	Climatic Design	3	0	3
3	ARC B 2303	Theory and Design of Structures - II	3	0	3
Theory cum Studio					
4	ARCB 2304	Building Materials & Construction - III	2	4	4
Studio					
5	ARC B 2306	Architectural Design Studio – III	0	14 to16	8
6	ARC B 2307	Allied Design Studio – III & Computer Graphics	0	3	4
			Total Credit		**25**

SEMESTER IV					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	ARC B 2401	History of Built Environment - III	3	0	3
2	ARC B 2402	Building Services - I	3	0	3
3	ARC B 2403	Structural &Construction Systems –I	3	0	3
4	ARC B 2405	Site Planning &Analysis	3	0	3
Theory cum Studio					
5	ARC B 2404	Building Materials & Construction -IV	2	4	4
Studio					
6	ARC B 2406	Architectural Design Studio – IV	0	14 to 16	8
			Total Credit		**24**

SEMESTER V					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	ARC B 3501	History of Built Environment - IV	3	0	3
2	ARC B 3502	Building Services – II	3	0	3
3	ARC B 3503	Structural &Construction Systems II	3	0	3
4	ARC B XXXX	Elective – I	3	0	3
Theory cum Studio					
5	ARC B 3504	Building Materials & Construction -V	2	4	4
Studio					
6	ARC B 3506	Architectural Design Studio – V	0	16	8
	LEED GA	Stage I (Non Credit Course)			
			Total Credit		**24**
		SEMESTER VI			
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	AR B 3601	Contemporary Built Environment	3	0	3
2	AR B 3602	Structural &Construction Systems III	3	0	3
3	AR B 3603	Estimation and Specification	3	0	3
4	AR B XXXX	Elective – II	3	0	3
Theory cum Studio					
5	AR B 3605	Architectural Acoustics & Detailing	2	4	4
Studio					
6	AR B 3606	Architectural Design – VI	0	16	8
			Total Credit		**24**

SEMESTER VII PRACTICAL TRAINING					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
1	AR B 4701	Practical Training –I	-	-	10
			Total Credit		**10**
		SEMESTER VIII			
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	AR B 4801	Professional Ethics & Practice - I	3	0	3
2	AR B 4802	Advanced Structures	3	0	3
3	AR B 4803	Green & Sustainable Design	3	0	3
4	AR B 4804	Research Methods	3	0	3
5	AR B XXXX	Elective – III	3	0	3
Studio					
6	AR B 4806	Architectural Design -VII	0	16	9
			Total Credit		**24**
		SEMESTER IX			
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	AR B 5901	Professional Ethics & Practice-II	3	0	3
2	AR B 5902	Human Settlement Planning	3	0	3
3	AR B 5903	Urban Design	3	0	3
4	AR B XXXX	Elective -IV	3	0	3
Studio					
5	AR B 5904	Dissertation	3	0	3
6	AR B 5906	Urban Design Studio - VIII	0	16	9
			Total Credit		**24**

SEMESTER X					
S.No	**Course Code**	**Course Name**	**Lecture**	**Studio/ Practical**	**Credit**
Theory					
1	AR B 5101	LEED AP – STAGE II	3	0	3
2	AR B XXXX	Elective -V	3	0	3
Studio					
3	AR B 5106	Architectural Thesis	0	28	14
			Total Credit		**20**

LIST OF ELECTIVES

LIST OF BASIC ELECTIVES:

1. Interior Design (Theory)
2. Art Appreciation
3. Landscape Architecture
4. Energy Efficient Architecture
5. Digital Art
6. Vernacular Architecture

LIST OF ADVANCED ELECTIVES:

1. Urban Housing
2. Architectural Conservation
3. Earthquake resistant Buildings
4. Architectural Management
5. Construction Technology
6. Safety systems and Building Automation

SEMESTER I

ARC B 1101 HISTORY OF BUILT ENVIRONMENT - I 3 0 3

AIM:

To provide knowledge about the development of architecture in India where religion played a major role in the Indian architecture styles apart from the cultural and contextual factors.

OBJECTIVES:

- To enlighten the origin of architecture in India.
- To discover the genesis of aesthetic phenomena with respect to the human needs and aspirations, time, place and culture and other factors.
- To distinguish the differences in various era which includes Ancient India, Buddhist & Jain periods, South & North Indian architecture styles.
- To know the sequence and innovations in architecture over a period of time.
- To study and analyze the architecture production of antiquity.

UNIT: I ANCIENT INDIA 9

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 9

Evolution of Buddhism, Buddhist thought, art and culture - Hinayana and Mahayana Buddhism - Evolution of building typologies- the stupa, vihara and the chaitya hall.

Architectural production during Ashoka's rule - Ashokan Pillar, Sarnath - rock cut caves at Barabar - Sanchi Stupa- Rock cut architecture in Ajanta and Ellora - Viharas at Karli - Rani gumpha, Udaigiri – Takti Bahai, Gandhara.

UNIT: III EVOLUTION OF HINDU TEMPLE ARCHITECTURE 9

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 - Durga temple, Aihole - Virupaksha temples, Pattadakal - Kailasanatha temple, Ellora.

UNIT: IV TEMPLE ARCHITECTURE - SOUTHERN INDIA **9**

Dravidian Order - evolution and form of Gopuram.
Rock cut productions under Pallavas: Shore temple, Mahabalipuram and Kailasanatha temple.
Chola Architecture: Brihadeeswara, Gangaikonda Cholapuram and Darasuram temples – Temple gateways of Madurai
Temple architecture of temple towns: Madurai, Srirangam and Kanchipuram.
Hoysala architecture: Belur and Halebid

UNIT: V TEMPLE ARCHITECTURE - NORTHERN INDIA **9**

Indo-Aryan style: 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 SESSIONS: 45

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. Dasgupta, “History of Indian Philosophy”
7. http://www.greatbuildings.com/gbc-types/styles/hindu.htmlB.Arch31
8. http://ramm.hubpages.com/hub/EVOLUTION-OF-INDIAN-TEMPLE-ARCHITECTURE5.

COURSE OUTCOMES:

- Have a comprehensive knowledge about the development of Aryan and Mauryan civilization and identify different building materials & techniques used by them.
- Have a comprehensive knowledge about the rock cut and stone architecture of Dravidian period and trace later developments in South India.
- Have a comprehensive knowledge about the development of Buddhist architecture.
- Articulate knowledge on the evolution of Hindu temple during the Gupta and Chalukyan period
- Express different plan forms of the Indo Aryan temple with the aid of sketches.

ARC B 1102 THEORY OF ARCHITECTURE 3 0 3

AIM:

To introduce the various facets of architecture and its influencing factors. Thereby, convey the concepts, themes, conception, views of Architectural thought process.

OBJECTIVES:

- To comprehend the concepts of architecture.
- To understand and analyze the principal elements of Architecture.
- To identify and examine the thought process involved in design.

UNIT I INTRODUCTION TO ARCHITECTURE 8

Definitions of Architecture - Origin of Architecture – Architecture as a discipline – Context for architecture as satisfying human needs - Functional, aesthetic and psychological - Outline of components and aspects of architectural form-site, structure, materials, services, use, circulation, expression, character, experience – Introduction to the formal vocabulary of architecture and Gestalt ideas of visual perception.

UNIT II ELEMENTS OF ARCHITECTURE 7

Understanding fundamental elements such as point, line, plane, form and space, shape, pattern, light, color, surface and texture with reference to the evolution of architectural form and space.

UNIT III ELEMENTS OF ARCHITECTURE – FORM 9

Understanding perceptual effects of specific geometric forms such as sphere, cube, pyramid, cylinder and cone and its sections as well as their derivatives with respect to the evolution of architectural form and space.

UNIT IV ELEMENTS OF ARCHITECTURE – SPACE 9

Understanding perceptual effects of specific configuration of architectural spaces – Enclosure – Internal and External, Continuous spaces – Spatial relationship and its types, Spatial organisation: Centralized, Linear, Radial Clustered, Grid – built form and open space relationships.

UNIT V PRINCIPLES OF ARCHITECTURE 12

Understanding fundamental principles such as proportion, scale, balance, symmetry/asymmetry, rhythm, axis, hierarchy, datum, unity, harmony, dominance, climax – Movement with reference to the architectural form and

space – detailed study of relationship between architectural form and circulation – Types of circulation – Building approach and entrance, path configuration and form, path space relationship, orientation.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Francis D.K.Ching, "Architecture-Form, Space and Order", 3rd ed. John Wiley, 2007

REFERENCES :

1. Ching, Frank (Francis D.K.), "Architectural Graphics", Van Nostrand Reinhold, New York 2003, ISBN 0471209066
2. Ching, Frank (Francis D.K.), "Drawing: A Creative Process", Van Nostrand Reinhold, New York 1990.
3. Simon Unwin, "Analysing Architecture", Rouledge, London, 2003.
4. V.S.Pramar, "Design Fundamentals in Architecture", Somaiya Publications Private Ltd.,

COURSE OUTCOMES:

- A thorough understanding on the definition of architecture and the elements of architecture.
- An exposure to the principles of architecture and applications of the same in buildings.
- Recognize the relation between of form and space and translate it into design
- Develop a design vocabulary for the various aspects of aesthetic components in design and actively apply them.

ARC B 1103 ARCHITECTURAL REPRESENTATION 1 3 3

AIM:

To develop the requisite level of proficiency in drawing which is seen as a primary communication tool in the practice of architecture and train the students in the fundamental techniques of Architectural Drawing and Free Hand Drawing. Besides, develop presentation skills, visual expression, representation, imaginative thinking and creativity through hands on working exercises with various mediums and materials.

OBJECTIVES:

- To introduce drafting procedures, graphic codes, symbols and architectural lettering.
- To enable the students learn architectural scales and their application to real objects and drawings.
- To expose the students to different projections like Orthographic, Isometric, axonometric and oblique projections.
- To understand and employ various mediums and technique of representation as it relates to art and architecture.

UNIT I –INTRODUCTION TO ARCHITECTURAL DRAWING 12

Construction of lines, line value, line types, types of lines. Line thickness. Dimension lines. Architectural and stencil lettering in varying heights and thickness and dimensioning. Types of scales, Study of scales, their use in practice and construction of Plain and Diagonal scale. Applications of scales to enlarge or to reduce the objects in drawing.

UNIT II: MEASURED DRAWING 18

Introduction to fundamentals of measured drawing, line value, lettering, drawing representation, format for presentation methods. Understanding of different scales and their uses in practice - Drawings to scale. Technique of measuring buildings and their detailing in terms of construction and ornamentation. Examples of Measured drawing of simple objects: Furniture, Class room plan, Doors, Windows, Entrance Gate, building etc.

NOTE: Exercise shall be aimed at taking the measurement of their class room/ bedroom/living room along with the furniture and drawing it to scale.

UNIT III –ARCHITECTURAL REPESEANTATION & SYMBOLS 10

Architectural representations of trees, hedges, foliage, human figure in different

postures, vehicles, furniture etc. their integration to presentation drawings. Representation of building elements, openings, materials, accessories etc. terminology and abbreviation used in architectural presentation

UNIT IV – SECTIONS OF SOLIDS **15**

Introduction to sections of solids - cube, prism, pyramids, cones, cylinders etc. with relation to architectural drawings and buildings. Identifying the various materials used in architectural construction and their mode of architectural representation – brick, stone, sand, steel, wood, glass, reinforcement.

NOTE: Exercise must be aimed at drawing sections of their measured drawing exercise and representing the architectural materials in their measured drawing exercise.

UNIT V - GRAPHICS **15**

Isometric View: Isometric Views of Objects, building components such as Steps, Canopy etc.

Axonometric view: Axonometric view of objects, interior view of rooms etc. Exercises must involve developing a view of their measured room.

Bird's eye view,& normal eye view for the following:Cityscape, Seascape, Wildscape, Skyscape, Street views and Heritage areas.

Sketching of Historic or new built up structures of Architectural importance using different mediums.

NOTE: Exercises must involve developing a view of a building component.

TOTAL SESSIONS : 60

TEXT BOOKS:

1. I.H.Morris – Geometrical drawing for Art Students. Orient Longman – Madras 1982
2. Albert. O. Halse – Architectural Rendering Techniques McGraw-Hill Book Co. New York 1972.
3. M.S.Kumar, "Engineering drawing", DD Publications, Chennai - 600048- 2005
4. Francis D.K.Ching & Steven P Juroszek, "Design drawing", John Willey & Sons,USA, 1998

REFERENCES:

1. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by American Technical Society, 1966.

2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
4. Alwyn Cranshaw, Learn to paint with Water colours, Acrylic colours, Boats and Harbours, Sketch, Still life, landscapes, William Collins Sons and Co. Ltd., London, 1981.
5. Tokyo Musashino Academy of Art - Introduction to Pencil Drawing, Graphic - Shaw Publishing Co. Ltd., Japan, 1991.
6. Robert S.Oliver, The Complete Sketch, Van Nostrand Reinhold, New York, 1989.
7. http://www.cs.brown.edu
8. http://www.dtcc.edu/ - document, project info – Arch.dwg.

COURSE OUTCOMES:

- An understanding on the concepts of architectural drawing as well as representation skills are imparted.
- An understanding on the building representation in 2D and 3D among students in addition to preparation of measured drawing.
- To sensitize students to express skills in architecture through art.

ARC B 1104 BUILDING MATERIALS AND CONSTRUCTION- I 2 3 4

AIM:

This course is a combination of lecture & studio classes aimed at developing the students to understand various building materials and its construction techniques.

METHODOLOGY:

The course is visualized as having three essential components,

- A lecture course in materials and methods of construction.
- A construction studio wherein principles and practices shall be applied to the production of meaningful details.
- Site visits to gain knowledge about construction details.

OBJECTIVES:

- To introduce the students to building materials, their properties and application in building construction, along with the construction of some basic components of a building.
- To introduce the different components of a building and its functions.
- To inform the properties, characteristics and use of bamboo, palm, straw, etc. and methods of preservation and treatment.
- To sensitize the students to the use of these naturally occurring materials in the context of creating a green architecture and learn the application by doing relevant details of construction and drawings also.
- To encourage students to study both in classrooms & also at worksite in order to get the practical exposure.

UNIT: I INTRODUCTION TO BUILDING MATERIALS & CONSTRUCTION 12

Introduction to the buildings elements –substructure and superstructure. Understanding the elements and the role of each building element: Foundations, plinths, openings, lintels, roof, and parapet.

Introduction to Building construction drawings and building detail models.

Introduction to the natural materials buildings made up of - rocks, stone, soil, bamboo, straw bales. Understanding their usage.

NOTE: Students must submit a case study example to understand and identify materials used in the building and their method of construction etc.

UNIT: II ROCKS AND STONE **18**

Classification of rocks. Sources, Seasoning, Quarrying of stones, Dressing. Various types of stones used for construction. Characteristics of stones. Common building stones and their uses. Selection of stones. Testing of stones. Various stone finishes like dressing, polishing. Deterioration of stones. Preservation of stones. Durability. Stone veneering, Artificial stones. Stone for wall treatment.

Drawings of types of masonry - random rubble and ashlar.Drawings of stone foundation, lintel, sill, cavity walls, flooring, arches (semi-circular & segmental), corbel.

NOTE: Studio exercises must focus on understanding, identifying and developing working drawings of the usage of stone (Ashlar, rubble etc.,) for building components including detailing of arches, corbels, coping, sills, lintels, corbels, arches, cladding in small scale buildings like classrooms, snack bar and community hall and understanding the same through case studies.

UNIT III SOIL **18**

Sand - properties, uses and bulking of sand. Types of soils, Soil formation, grain size distribution, classification system. Characteristics of core, Principles of Soil Stabilization, Types of Stabilizers, Earth techniques & types, Treatment of soil.
Mud architecture: through the ages, advantages & disadvantages, Requirements and Types of mud wall building and surface protection. Detailing of walls, roofs, flooring and foundations using soils (rammed earth, compressed blocks).

NOTE: Design exercises must focus on using soil for building components including detailing of arches, walls, door and window openings in small scale buildings like classrooms, snack bar and community hall and understanding of the same through case studies.

UNIT: IV BAMBOO **18**

Bamboo – Bamboo as plant classification, species, geographical distribution, Anatomy of Bamboo. Properties, strength, processing, harvesting, working of Bamboo tools – Treatment and preservation of Bamboo and uses of Bamboo.Cane, gate, coir, coconut - Growth, Form, Shape, Leaves, Flowering, Propagation Roofing materials – Thatch, grass, Bamboo, reeds – Basics – Case studies and applications.

NOTE: Design and Construction Techniques using bamboo for building components for small scale buildings like snack bar, tree house including

detailing of doors and windows, arches, barrel walls, weave structures and understanding of the same through case studies

UNIT V: STRAW BALES **9**

Straw as a building material. Physical aspects - Basics, Fire, moisture, insects and pests proof. Plastering straw bale walls, straw bale roof.

NOTE: Design Exercises must focus on using straw bales for building components - foundations systems, Roofing options, plastering, door and window detailing for small scale buildings and understanding of the same through case studies.

TOTAL SESSIONS : 75

TEXT BOOKS:

1. S.C.Rangwala , "Engineering Materials", Charotar Publishing House - Anand 2007
2. Dr.Bala Gopal, "Building Design and Civil Engineering Drawing", Spades Publishers & Distributors, 2008
3. Dr.B.C.Punmia, "Building Construction" Laxmi Publications, 2008.
4. P.C. Varghese, Building Materials, Prentice Hall of India put Ltd New Delhi 110001, 2005.

REFERENCES

1. W.B.Mckay , "Building Construction", Vol. 1,2,3- Longmans U.K 1992.
2. R.J.S.Spencke and D.J.Cook, "Building Materials in Developing Countries", John Wiley and Sons, 1983.
3. HUDCO "All you want to know about soil stabilized mud blocks", HUD Pub., New Delhi, 1989.
4. D Narayanamurty, United Nations Department of Economic and Social Affairs," Use of bamboo and reeds in construction", UNO Publications,1972.
5. http://www.baboo-Flooring.com
6. http://ag.avizona.edu/SWES
7. http://www/angelfite.com/in
8. http://www.idrc.ca/library/documents/104800/chapz-e.html
9. http://www/angelfite.com/inz/granite

COURSE OUTCOMES:

- Students get sensitized about the need for using ecological materials to create green architecture which will adapt itself to the surrounding environment.
- Students learn about materials, uses of materials, properties characteristics, methods of preservation, treatment and methods of construction.
- Students learn about constructing a building using mind, Bamboo, Straw bale, stone through drawing as well as doing a literature or live case study.
- Students are requested to submit drawing plates consisting of plan, elevation and section along with sketches and details showing method of construction.

ARC B 1105 SKILL DEVELOPMENTS – I 1 1 2

AIM:

To supplement additional course work and advance knowledge in the subjects offered in the semester.

OBJECTIVES

- The primary objective of this course is for communication skill development and technical writing.
- The course is aimed at providing the students with language skills which is an inescapable tool for the young technocrats to break geographical boundaries and step into global world.

COURSE CONTENT:

Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours.

UNIT I : INTRODUCTION 6

Skimming, scanning, inferring, predicting and responding to content - Guessing the meaning of words from contexts - Note making and vocabulary extension.

UNIT II: VOCABULARY DEVELOPMENT 6

Listening and understanding recorded, structured talks and classroom lectures - Comprehending the matter - understanding the links between different parts of speech - practice in note taking.

UNIT III: COMMUNICATION 6

Features of an effective speech-Practice in speaking fluently - Dialogue practice- simple social exchanges - short extempore talks.

UNIT IV: COMPREHENSION 6

Effective sentences-cohesive paragraphs - clear and concise writing - Introduction to technical writing-Definition, Description, Instruction - Summary Writing practice.

UNIT V – RESOURCE UTILIZATION 6

Use of library - Role of Bibliography, Table of contents, Index etc.-use of Dictionary.

TOTAL SESSIONS : 30

TEXT BOOKS:

1. Jajatilake, C.I.V. and S. Sivasegaram, “Technical Report Writing”. Tata Mc Graw Hill Publishing Corporation Ltd., New Delhi 1979
2. Sasikumar.V. and P.V. Damija “ “Spoken English”. Tata McGraw Hill Publishing Corporation Ltd., New Delhi, 1997

REFERENCES:

1. “How to Rad Fast and Better”. Reader’s Digest, 1983
2. Stanton Nicky,”Mastering Communicaiton”. Mc Millan Master Series, London, 1996

COURSE OUTCOMES:

- Students get the ability to apply visual and verbal communication skills at various stages of architectural design and project delivery process.
- Students gains self confidence to get into the global world.

ARC B 1106 ARCHITECTURAL DESIGN STUDIO – I 0 9 6

AIM:

To introduce the meaning of "design" and relate it to "architecture" through an understanding of basic elements of architecture, the principles of design and analysis of design elements. Thereby, sensitize students to be more observant to their surroundings and promote it as a basic creative instinct in the students.

OBJECTIVES:

- To understand the elements and principles of Basic Design as the building blocks of creative design through exercises that will develop the originality, expression, skill and creative thinking.
- To enable the understanding of 3 D Composition which will help generation of a form from a two dimensional / abstract idea?
- To enable the understanding of the relationship between design and architecture which focus on understanding a building form analytically.

COURSE OUTLINE:

The course shall be conducted by giving a number of exercises in the form of design studios, seminars and creative workshops that are aimed at teaching the following:

i. Elements and Principles of Visual Composition using point, line, shape.
ii. Exploring color schemes and their application in a visual composition and in Architectural forms and spaces.
iii. Study of texture and schemes of texture both applied and stimulated and their application
iv. Study of linear and Planar forms using simple material like Mount Board, metal foil, box boards, wire string, thermocol etc.
v. Study of Solids and voids to evolve sculptural forms and spaces and explore the play of light and shade and application of color.
vi. Study of fluid and plastic forms using easily mouldable materials like clay,

plaster of paris etc.

vii. Analytical appraisal of building form in terms of visual character, play of light and shade, solids and voids etc.

viii. Application of Basic design through design of simple architectural elements like entrance gates, walls, courtyards, porches, etc.

TOTAL SESSIONS: 200

REQUIRED READINGS

1. Owen Cappleman & Michael Jack Jordon, Foundations in Architecture: An Amotated Anthology of Beginning Design Project, Van Nostrand Reinhold New York, 1993.
2. Charles Wallschlacgerm & Cynthia Busic-Snyder, Basic Visual Concepts and Principles for Artists, Architects and Designers, Mc Graw Hill, New York 1992.

REFERENCES

1. V.S.Pramar, Design fundamentals in Architecture, Somaiya Publications Pvt. Ltd., New Nelhi, 1973.

2. Francis D.K.Ching - Architecture - Form Space and Order Van Nostrand Reinhold Co., (Canaa), 1979.

3. John W.Mills - The Technique of Sculpture, B.T.Batsford Limited, New York - Reinhold Publishing Corporation, London, 1966.

4. Elda Fezei, Henny Moore, Hamlyn, London, New York, Sydney, Toronto, 1972.

5. C.Lawrence Bunchy - Acrylic for Sculpture and Design, 450, West 33rd Street, New York, N.Y.10001, 1972.

COURSE OUTCOMES:

- An understanding of the qualities of different elements as well as their composite fusions.
- An ability to engage and combine the elements of design in spontaneous as well as intentionally in order to create desired qualities and effects.

AR C B 1107 ALLIED DESIGN STUDIO - I 1 5 4

To teach students the schemes/ subjects which are allied to Architectural design studio course. Output from this course will be in the form of projects.

AIM:

This course is aimed to understand the Visual & aesthetic qualities of Art and relating these to Architectural Design situation. Thereby, provide knowledge of various visual arts and its importance. It further aims at developing the freehand drawing and rendering skills in different medium and using it as tool of expressing ideas visually.

OBJECTIVES:

- Development of student's vision regarding 3-D forms (models and sculptures) in different materials for specific themes/expressions to develop creative/ imaginative thinking.
- To develop Visual practices, visual compositions using real world materials Similarity & self-similarity understanding diversity Natural & artificial forms/colors/textures; inherent/applied.
- Develop skills to understanding various tools, processes and material.
- Impart a good foundation in design through hands-on experience in designing simple two dimensional and three dimensional compositions.

NOTE: Exercises involved in Architectural Design studio need to be taken up as part of Allied design studio work wherein the Artist has to guide and teach the students in executing the exercises involved using the required tools and mediums.

UNITI : FUNDAMENTALS 13

Introduction to different instruments, Instrument handling. Tabletop cutting, joining, and shaping Materials and media installations assembly, etc. Introduction to the fundamentals of drawing/ drafting.

UNIT II: ORGANIZATION OF SHAPES 18

Organization of shapes; Family of shapes: developing various shapes from a given geometric shape - working out composition with such developed shapes.

Expressing a given theme combining different geometric shapes; expressing a design/pattern.

UNIT III - REPESEANTATION MEDIUM AND TECHNIQUES 15

Understanding the usage of different media like, water soluble color pencil, pen and ink, oil pastels, dry crayons etc and analyzing various campus buildings designed by internationally famous architects in terms of Depth, light, Shade, Etc.,

Understanding the various techniques in representing Indoor objects – still Life – Furniture, Equipment – Outdoor objects: Natural Forms/ Built Forms.

Understanding variety in Forms. Sketching Human Form: Anatomy and Expressions.

UNITIV: EXPRESSION OF DESIGN 18

Development of geometric pattern by division to express them with the use of colors to expressing a given theme through design exercises.

UNIT V: MODEL MAKING 18

Introduction to various mediums/materials such as POP, wire/ matchstick, soap, clay, wood etc.

Concepts of model making - Additive model; Subtractive model out of a given geometric form. Models with linear members such as match sticks, reeds, etc. to understand geometric form and structure.

TOTAL SESSIONS: 75

TEXT BOOKS :

1. Albert O.Halse, Architectural Rendering. A techniques of contemporary – presentation McGraw Hill Book Company, New York, 1972.
2. Mulick Milind, Water colour, Jyotsna Prakasan, Mumbai 2002.
3. Jim Legitt, "Drawing Shortcuts", John Wiley & sons Inc, 2010.
4. Farey; A. Cyril, Architectural Drawing perspective and Rendering – A Hand Book for students and draftsmen.

REFERENCES:

1. Webb, Frank, "The Artist guide to Composition, "David & Charles, U.K., 1994.
2. Moivahuntly, "The artist drawing book", David & Charles, U.K., 1994.
3. Drawing a Creative Process", Ching Francis, Van Nostrand Reinhold, New York, 1990.
4. Arundell (Jan) Exploring sculpture, Mills and Boon, London/Charles, T. Brand Ford Company, U.S.A.

COURSE OUTCOMES:

- Model making involving basic design principles & exposure to different mediums & materials of models.
- Develop skills to understanding various tools, processes and material.
- To develop visual practices, visual compositions using real world materials Similarity & self-similarity understanding diversity Natural & artificial forms/colors/textures; inherent/applied.

SEMESTER II

ARC B 1201 THEORY AND PRINCIPLES OF DESIGN 3 0 3

AIM:

To provide an understanding of architectural design process and apply the same to the process of architectural design. Thereby, impart knowledge about the various processes in architectural design.

OBJECTIVES:

- To introduce factors that lending meaning to architecture, expression, communication.
- To introduce the aspects of style, character and architectural movements
- To understand the generation of individual meaning in architecture through study of philosophies/theories and exemplary works of architects
- To introduce thorough case studies, tools for representing, analyzing and interpreting architecture.
- To actually learn to represent, analyze and interpret the architectural experience holistically through live case studies.

UNIT I MEANING IN ARCHITECTURE 6

Architecture as a vehicle of expressing, symbolism and communication- Illustrative examples

UNIT II ARCHITECTURAL CHARACTER 9

Ideas of character, style, architectural movement: Illustrative examples across various periods in history.

UNIT III WORKS OF ARCHITECTS 12

Role of individual architects in the generation of architectural form, through study of exemplary works, architectural inspirations, philosophies, ideologies and theories of architects.

UNIT IV ANALYZING ARCHITECTURE 9

Introduction to modes of understanding architecture in totality in terms of the various aspects studied before in the subject – understanding how case studies have used representational, analytic and interpretational tools

UNIT V EXPERIENCING ARCHITECTURE **9**

Understanding architecture in totality in terms of the various aspects studied in this course firsthand experience, analysis and interpretation of building

TOTAL SESSIONS: 45

TEXT BOOKS :

1. Bryan Lawson – How Designers Think – Architectural Press London, 1980.
2. Paul Alan Johnson – Theory of Architecture – concepts, Themes, and Practices.
3. Christopher Alexander – Pattern language – Oxford university press – 2003.

REFERENCES :

1. Christopher Jones – Design Methods
2. Edward De Bona – Lateral Thinking
3. Tom Heath – Methods in Architecture – John Wiley and sons – N.Y. 1984.

COURSE OUTCOMES:

- An understanding the meaning of character and style of buildings with examples.
- An exposure to students on ideologies and philosophies of architectures of contemporary architects through examples.
- An exposure to analysis and experience of architecture through case studies.

ARC B 1202 ENVIRONMENTAL STUDIES 3 0 3

AIM

To sensitize the students to understand the diversities and complexities in natural environments and the need for intervention in the context of global warming and climate change.

OBJECTIVES

- To provide an overview of natural resources, various ecosystems & its characteristics and conservation of biodiversity
- To create an awareness about impact of human activities such as pollution and its consequences.
- To stress the importance of environmental protection and sustainable development.

METHODOLOGY:

Visit to a local area to document environmental asserts-river/ forest/ grassland/ hill/ mountain.

Visit to a local polluted site - Urban/ Rural/ Industrial/ Agricultural. Study of common plants, insects, birds. Study of simple ecosystem-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

UNIT I INTRODUCTION TO OF ENVIRONMENTALSTUDIES 9

Definition, Scope and importance; Need for public awareness

UNIT II RENEWABLE AND NON-RENWABLE RESOURCES 9

Natural resources and associated problems: Forest resources, Water resources: Mineral resources:. Food resources:. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies. Land resources: Role of an individual in conservation of natural resources equitable use of resources for sustainable lifestyles

UNIT III ECOSYSTEMS AND ENVIRONMENTAL POLLUTION 9

Structure and function of an ecosystem Procedures, consumers and decomposers Energy flow in the ecosystem. Ecological succession
Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem:

Causes, effects and control measures of: Air pollution Water pollution Marine pollution, Noise pollution Thermal pollution nuclear pollution

Soil waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: Floods, earthquake, cyclone and landslides.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT 9

From unsustainable to sustainable development urban problems related to energy. Water conservation, rain water harvesting, watershed management. Resettlement and re habitation of people; its problem and concerns. Case studies. Environmental ethics: Issues and possible solutions. Climate changes, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT 9

Population growth, variation among nations. Environment and human health. Human rights. Value education. Role of information Technology in Environment and human health. Case studies.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Miller T.G. Jr., “Environmental Sciences”, Wadsworth Publishing Co. (TB)
2. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T., “Environmental Encyclopedia”, Jaico Publ. House, Mumbai, 2001

REFERENCES:

1. Hawkins.R.E, “Encyclopedia of Indian Natural History”, Bombay Natural History Sdociety, Bombay (R).
2. Heywood, V.H & Watson, R.T. “Global Biodiversity Assesment” Cambridge Univ. Press, 1995
3. McKinney, M.L & Schoch, R.M., “Environmental Science System & Solutions”, Web enhanced edition., 1996
4. Trivedi R.K., “Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards”, Vol I and II, Enviro Media (R).

COURSE OUTCOMES:

- The students would have understood the effects of the existing natural resources and the need for preserving them.
- Knowledge on the functions of several of ecosystems will help the students to design the processes that are eco friendly.
- Knowledge on the different types of pollution will help the young minds to device effective control measures to reduce rate of pollution.
- Educating on the various aspects of population explosion will create awareness on population control for effective utilization of the resources and the need to explore new alternate energy resources for a healthy environment.

ARC B 1203 THEORY AND DESIGN OF STRUCTURES– I 3 0 3

AIM:

To make Students to understand the behavior of structural system, material and geometric properties of structural sections.

OBJECTIVES:

- To study 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 member 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 Stress - strain behaviors of steel and to drive the relationship between elastic constant and solving problems
- To study the structural properties of various material

UNIT I FORCES 9

Definition - Coplanar - Concurrent - Non-Concurrent - Parallel Forces - Triangular and Parallelogram Law of Forces - Equilibrium of Forces - Conditions for Static Equilibrium - Concept of Transfer of Forces in Beams, Cables,-Determinate and indeterminate structures.

UNIT II PLANE TRUSSES 9

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

UNIT III PROPERTIES OF SECTIONS AND SOLIDS 9

Area - Centroid - C.G of Various Sections (Including Cutout Holes) - Moment of Inertia - Parallel & Perpendicular Axis Theorem - Moment of Inertia of Various Sections - Section Modulus.

UNIT IV ELASTIC PROPERTIES 9

Definition -Stress, Strain - Tensile, Compressive & Shear - Linear & Lateral Strain - Poisson's ratio - Stress Strain Curve for Mild Steel & High Tensile Steel - E,K,G and their Relationships - Application to Uniform Section

UNIT V TYPICAL STRUCTURAL MATERIALS & CONTEMPORARY ADVANCEMENT **9**

Introduction to type, Structural properties and Application of: stone - timber - bricks - other metals-concrete - composite - glass – paper

TOTAL SESSIONS: 45

TEXT BOOKS:

1. R.K. Bansal, "A text book on Strength of Materials", Lakshmi Publications, Delhi 1998

REFERENCES:

1. Junnarkar, "Mechanics of Structures" (Vol - I), 21st edition, Charotar publishing house India, 1995
2. Bansal.R.K., "Strength of Materials", Laxmi Publications Pvt Limited, India, 1990.
3. Rajput.R.K., "Strength of Materials", S.Chand &Co, New Delhi, 1996.
4. Punmia.P.C., "Strength of materials and Theory of structures", Vol 1, Laxmi publications, Delhi, 1994.
5. Ramamrutham, "Strength of Materials", Dhanpatrai & Sons, Delhi, 1990.

COURSE OUTCOMES:

- The students would have understood the structural properties of various materials.
- Knowledge on the functions and effects of forces on a body and the concept of equilibrium of the body through exercises.
- An exposure to structural properties and applications of different materials used in the building industry.

ARC B 1204 BUILDING MATERIALS AND CONSTRUCTION – II 1 4 4

AIM:

This course is a combination of lecture & studio classes aimed at developing the students understanding of materials their properties and construction techniques, for appropriate application.

OBJECTIVES:

To expose the students to TIMBER and its construction techniques, and to enable them to represent the different building components through relevant drawings.

METHODOLOGY:

The course is visualized as having three essential components viz..,

- A lecture course in materials and methods of construction
- A construction studio wherein principles and practices shall be applied to the production of meaningful details
- Preparation of working details and drawings
- Site visits to gain knowledge about construction details.

UNIT – I: TIMBER 9

Softwood and Hardwood - Secondary Timber - Physical properties and uses - Defects, Conversion, Seasoning, Decay and preservation of timber - Fire retardant treatment, anti-termite treatment.

UNIT – II TIMBER AND ALIED PRODUCTS 9

Industrial timbers - plywood, block board, particle board, fiber boards. uses - current developments.

Timber board –Plywoods – Block Boards - Particles Boards – Hard Boards - Veneers. Eco Friendly Boards – Eco Boards, Soft Boards, Nuwood, and Laminates

UNIT – III USAGE OF TIMBER AND ALIED PRODUCTS 9

Timber in Doors and Windows - Fully panelled single and double shutter doors of various types and sizes, fully glazed window and ventilators details of joints. Fixed glass and timber louvered windows.Drawings of timber joinery for Windows, doors, ventilators. Timber partitions,

Timber in Floors – Single, double and framed floors with joints between joist with wall plate, joist with beam and sub beam with main beam, strutting of joists, use of templates, for support. Timber Boarded and parquette Floors for gymnasia and dance halls, Wall lining in soft board timber etc. for offices.

Staircases – Trade and riser and relation between them, single, double (Dog legged and open well) Timber staircases - Designed staircase -timber trusses - Lean to - close couple - Kingpost - Queen Pot - Trusses.
timber built-in-furniture - Detailing and fittings for physically handicapped.Exercises involving the above through drawing and case studies.

UNIT – IV PAINTS AND VARNISHES 3

Paints and Varnishes – Composition, properties and uses of ordinary paints.Varnishes and wood preservatives, method of painting of timber.

UNIT – V: BAMBOO 9

Bamboo -plant classification, species & geographical distribution -Bamboo : Anatomy, Properties, strength, working of Bamboo tools - Treatment and preservation of Bamboo and uses of Bamboo. Cane, gate, coir, coconut - Growth, Form, Shape, Leaves, Flowering, Propagation.

TOTAL SESSIONS : 45

TEXT BOOKS:

1. W.B. Mickay, “Building construction Vol 1,2 and 3”, Longmans, UK 2005.
2. R.Chudley, ”Building Construction Handbook”, Elsevier/Butterworth-Heinemann2006.
3. S.C.Rangwala, “Engineering materials”, Charotar Publishing, 2011.
4. S.P.Arora & S.P.Bindra, “Text book of Building Construction”, Ganpat Rai Publications (P) Ltd, New Delhi, 2013
5. B.C. Punmia, “Building Construction”, 2005
6. P.C. Varghese, “Building Materials”, Prentice Hall of India put Ltd New Delhi 110001, 2005

REFERENCES:

1. Don A.Watson, “Construction Materials and Processes”, McGraw Hill Co.,1992.
2. Alanwerth, “Materials”, The Mitchell Pub.Co.Ltd., London,1986.
3. http://www.ibex-ibex-intl.com
4. http://www.inika.com/chitra
5. http://www.routbdge.com
6. http://www.venturaindia.com

COURSE OUTCOMES:

- The students would gain comprehensive knowledge about timber and its allied products with its application in interior and exterior.
- An exposure to thorough details of bamboo and its treatment.
- The students would gain knowledge about paints and varnishes and its application on timber.

ARC B 1205 ILL DEVELOPMENT – II 1 1 2

AIM:

To supplement additional course work and advances knowledge in the subjects offered in that semester.

OBJECTIVES:

- The primary objective of this course is for communication skill development and technical writing. The course is aimed at providing the students with language wherewithal which is an inescapable tool for the young technocrats to break geographical boundaries and step into global world.

COURSE CONTENT:

Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours.

TOTAL SESSIONS: 30

TEXT BOOKS:

1. Eric H. Glendinning & Beverly Holmstrom, "Study reading - A course in reading Skills for academic purposes", Cambridge University Press,1992.
2. John Kirkman, “Good style - writing for science and technology", E&FN Spon, an Imprint of Chapman & Hall, 1992.

REFERENCES:

1. “How to Rad Fast and Better”. Reader’s Digest, 1983
2. Stanton Nicky,”Mastering Communicaiton”. Mc Millan Master Series, London, 1996

COURSE OUTCOMES:

- Students gets the ability to apply visual and verbal communication skills at various stages of architectural design and project delivery process.
- Students gains self confidence to get into the global world.

ARC B 1206 ARCHITECTURAL DESIGN STUDIO- II 0 14 6

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.,24
- function and need: user requirements, anthropometrics, space standards, circulation
- image and symbolism

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

TOTAL SESSIONS: 225

TEXT BOOKS:

1. De. Chiara and Callender, "Time-saver Standards for Building Types", McGraw-Hill Co., New York, 1973.
2. The Handbook of Building Types., NEUFERT ARCHITECTS DATA, New International edition, second international edition. BSP Professional Books.

Oxford (1980) Blackwell scientific Publications.

3. Time - Saver Standards for Architectural Design Data, seventh edition. The reference of architectural fundamentals McGraw hill international edition, architectural series (1998).
4. Ed.By.Quentin Pickard RIBA "The Architects' Hand Book", Bladewell Science Ltd., 2002

REFERENCES:

1. Handbook on Building Construction Practices (Excluding Electrical Work). Bureau of Indian Standards, New Delhi, 1997
2. National Building book of India 2005, Bureau of Indian Standards, New Delhi
3. Macmillan Encyclopedia architects, Vol II, The free press, London, 1982
4. A visual dictionary of Architecture, Francis D.K.Ching, John wiley & Sons, Inc. 1997
5. www.design basics.com/-(on house type - Americans)
6. http://www.geosystems.gatech.edu/ - (on detail design method)
7. http://www.c.s.berkely.edu/ - (on bubble diagram builder with interaction)
8. http://www.plannet.com/resources.htme - (on resource info)

COURSE OUTCOMES:

- Students gets the ability to understand and design small scale building projects.
- They will able to solve the design problem functionally.
- Gain knowledge about the design process and its various faces to solve a design problem.
- Enable to express the ideas in the form of 2D representation and 3D modelling.

ARC B 1207 ALLIED DESIGN STUDIO - II 0 3 4

AIM:

To teach students the schemes/ subjects which are allied to Architectural design studio course. Impart a good foundation in design through hands-on experience in designing simple two dimensional and three dimensional compositions. Output from this course will be in the form of projects.

OBJECTIVES:

- Development of student's vision regarding 3-D forms (models and sculptures) in different materials for specific themes/expressions to develop creative/ imaginative thinking.
- To develop Visual practices, visual compositions using real world materials Similarity & self-similarity understanding diversity Natural & artificial forms/colors/textures; inherent/applied

UNIT I: INTRODUCTION TO MACHINERY TOOLS 40

Building skills studio work culture; instruments, tabletop; cutting, joining, shaping Materials and media installations assembly. Understanding & creating awareness on environmental impacts on the nature by the daily use materials by exploring lateral thinking to use the recycling materials in to usable models and create a new product.

Introduction to carpenter's tools, Wood working machines, use of different kinds of wood, Sawing, Planning and Shaping of wood, Making of selected joinery used in construction work, polishing of wood. Demonstration and practical lesson on soldering, brazing, forging and gas welding. Demonstration of foundry shop practice-introduction to molder's tools, preparation of moulding sand.

Introduction to machine tools with demonstration of cutting, drilling, grinding, slotting, shaping, bending etc. Names and uses of different kinds of fitter's tools and measuring instruments, care and maintenance, practice in chipping, filling, scraping and fitting.

UNIT: II WORKSHOP 35

Basic, design, graphic design, product design, furniture design, model making. Use of hand tools and materials in carpentry, Glass models, masonry and model making involving basic design principles & exposure to different mediums & materials of model - making which involves making three dimensional sculptures involving the basic platonic solids and abstract sculptures using various techniques/ materials such as POP, wire/ matchstick,

soap, clay, etc

TOTAL SESSIONS : 75

TEXT BOOKS:

1. Arundell (Jan), Exploring Sculpture, Mills and Boon, London/Charles T.Branford Company, USA, 1972.
2. John W.Mills, The Technique of Sculpture, B.T.Batsford Ltd., New York Reinhold Publishing Corpn., London, 1966.

REFERENCES:

1. www.design basics.com/-(on house type – Americans)
2. http://www.geosystems.gatech.edu/ - (on detail design method)
3. http://www.c.s.berkely.edu/ - (on bubble diagram builder with interaction)

COURSE OUTCOMES:

- Model making involving basic design principles & exposure to different mediums & materials of models.
- Develop skills to understanding various tools, processes and material.
- To develop visual practices, visual compositions using real world materials Similarity & self-similarity understanding diversity Natural & artificial forms/colors/textures; inherent/applied.

SEMESTER - III

ARC B 2301 HISTORY OF BUILT ENVIRONMENT - II 3 0 3

AIM:

The course outline shall follow a chronological study of architecture as it develops over the following Islamic periods: from Imperial to Mughal Architecture.

OBJECTIVES:

- To understand the different layers of history, i.e. Islamic rule in India.
- To introduce the students in diverse planning of Mosques in chronological order (till contemporary)
- To trace out the changes in history of art, culture and architecture in different states. (Example, provincial style in Gujarat, Malwa, Deccan, etc...)
- To understand the fruition of Historical structures involved in and around India.
- To figure out, the basic concepts involved in city planning, this influenced the modern town planning thus arriving the term "Urbanism" in history. (e.g. FatehpurSikri, Tughlaquabad, Mandu)
- To understand the concepts involved in setting up the Mughal garden (tomb and pleasure gardens) in formal landscape.

UNIT I INTRODUCTION TO ISLAMIC ARCHITECTURE 9

Brief History of Islam in terms of birth, spread across countries and principles - Influences on Islamic Architecture - Evolution of building types in terms of forms and functions - the mosque, the tomb, andMinaret, the madarasa, the palace, the caravanserai, vernacular architecture, the market - important.

UNIT II PRINCIPLES AND ELEMENTS 9

Principles, elements and character of Islamic architecture in terms of structure materials and methods of Construction, elements of decoration, colour, geometry, light - important examples to illustrate development of Islamic architecture.

UNIT III ISLAMIC ARCHITECTURE IN INDIA- DELHI OR IMPERIAL STYLE 9

Brief history of development and classification, different styles and regions.Development of architectural style during the rule of the Slave, Khilji, Tuqlaq, Sayyid and Lodhi Dynasties important examples for each period.

UNIT IV PROVINCIAL STYLE 9

Development of the provincial styles in different regions - Punjab, Jaunpur, Bengal, Gujarat, and Malwa, the Deccan (Bijapur, Golconda, Bidar and Gulbarga) - important examples for each style.

UNIT V MUGHAL STYLE **9**

Development of the Mughal style under the different rulers - Babur, Shershah, Humayun, Akbar, Jahangir, Shahjahan, Aurangazeb - important examples - development of the Mughal garden - important examples.

TOTAL SESSIONS: 45

TEXT BOOK

1. Sir Banister Fletcher, "A History of Architecture", University of London, The Athlone Press 1996, 20th edition.
2. Percy Brown, "Indian Architecture (Buddhist and Hindu Pd.)"- Tarapore Vala and Sons Bombay 1996.
3. Satish Grover, "The Architecture of India (Buddhist and Hindu Period)", CBS Pub., 2003
4. Satish Grover, "Islamic Architecture in India", Edition 2, CBS Publishers & Distributors, 2002.
5. Salvan, George S, "Architectural Character & the History of Architecture", New ladder type curriculum, Edition,
6. Robert Hillenbrand, "Islamic Architecture", Edinburgh University Press, 1994
7. Creswell, K.A.C., "Early Muslim Architecture", Oxford, repr. 1969, and "Early Muslim Architecture II", Oxford, 1940.

REFERENCES

1. Yatin Bandya, "Concepts of Space in Traditional Indian Arch", Mapin, 2005.
2. Mitchell, George (1996) "The Hindu Temple, University of Chicago Press.
3. Spiro Kostof , "A History of Architecture : Setting and Rituals", Oxford University Press, London, 2005 (digitized - 2007).
4. Pier Luigi Nervi, "History of World Architecture Series". Harry N.Abrame Inc. Publication, New York, 1972.
5. Meaning in Western Architecture - Christian Norberg-Schulz-Rizzoli, New York, 1974.
6. http://www.islamicart.com/pages/archcrea/index.htm
7. http://libraries.mit.edu/rvc/aka/agakhan/index.html
8. http://www.greatbuildings.com//types/styles/islamic.html
9. http://www.ets.uidaho.edu/arch499/nonwest/Islam1.html
10. http://indiagateway.com/culture/architecture.html

COURSE OUTCOMES:

The students should be able to:

- Identify and discuss the finer points and nuances of Islamic architecture and its influence on the development of Architectural sciences and styles.
- Provide an understanding on the various styles and the ruler patrons who influenced the development of this style of architecture.
- Realize the techniques and wonders behind various Islamic architectural and landscaping elements and principles and re-interpret them in today's context.
- Discuss the impact of colonialism and the wealth of architectural legacy the period introduced in India
- Critically evaluate historical principles and methods and impart that learning to create informed and relevant current architectural solutions that are meaningful and rooted in our historic and traditional knowledge and wealth.

ARC B 2302 CLIMATIC DESIGN 3 0 3

AIM:

To enable the understanding of the technical basis of the environment that 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 of buildings
- To expose the students to the various design strategies for building in different types of climatic zones.

UNIT I CLIMATE AND HUMAN COMFORT 9

Factors that determine climate of a place - Components of Climate - Climate classifications for building designers in tropics - Climate characteristics. Human body heat balance – Body heat balance - Effects of climatic factors on human body heat loss - Effective temperature - & Comfort zone, Human thermal comfort - Thermal comfort factors and indices.

UNIT II DESIGN OF SOLAR SHADING DEVICES 9

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 - Layout planning for air movement – Wind rose- Wind shadow- Ventilation controls and their applications in buildings- Thermally induced air currents. 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. Analysis of case studies, vernacular expression.

TOTAL SESSIONS: 45

TEXT BOOKS:

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

REFERENCES:

1. Martin Evans, "Housing Climate and Comfort", Architectural Press, London, 1980
2. B. Givoni, Man, "Climate and Architecture", Architectural Sciences Series - Applied Science Publishers Ltd., London, 1981
3. B. Givoni, "Passive and Low Energy Cooling of building", Van Nortrand Reinhold New York, USA, 1994
4. Galloe, Salam and Sayigh A.M.M., "Architecture, Comfort and Energy", Elsevier Science Ltd., Oxford, U.K, 1998

COURSE OUTCOMES:

- Have a broad knowledge of climate and human and building interactions with details regarding the movement of the sun and its effect.
- Be aware of the physics of heat transfer through materials and building elements.
- Be familiar with the dynamics of air-movements in and around buildings.
- Be able to place this specialized knowledge in the context of the design of buildings and the wider subject
- Be able to critically evaluate the wider implications of how human beings interact with their environment
- To be able to think in an innovative and creative way
- Be able to address particular practical issues such as designing of shading devices based on sun path diagram.

ARC B 2303 THEORYAND DESIGN OF STRUCTURES- II 3 0 3

AIM:

To sensitize the students to understand the diversities and complexities in natural environments and the need for intervention in the context of global warming and climate change.

OBJECTIVES

- Understanding of basic theories and principles of structural analysis
- Understanding of properties of materials relevant to structural analysis.
- Understanding of behavior of structural elements under various conditions.

SESSIONAL WORK : • Testing of various materials such as brick cement, sand etc. in the workshop. • Seminars on soils, foundations and frame structures and documentation of the same. • Plates on soil aspects.

UNIT I. BEHAVIOUR OF STRUCTURAL ELEMENTS 9

Understanding and identifications of location of forces, bending moment and bending stress in fixed beams, over hanging beams, continuous beams, portal frames etc

Deflection in simply supported beams and cantilevers with distributed and point loads. Columns and struts-short and long columns, slenderness ratio etc. Combined bending and direct stresses , axial and eccentric loads effect of eccentricity, e. g. masonry wall , chimney.

Fixed beams simple support and fixed support, advantages and disadvantages. Determination of positive and negative bending moments in fixed beams. (confine the loading to point and UDL covering full span only).

Continuous beams – negative and positive bending moments in continuous beams covering two or more spans of uniform section and simple loading by moment distribution method. Symmetrical Portal frames.Strain Energy.

UNIT II. FOUNDATION DESIGN - SOIL ASPECTS 9

Importance of the subject.Types of soils and their properties. • Methods of compaction and consolidation.

Void ratio, porosity, bulk density, moisture content, degree of saturation, liquid

limit, plastic limit. Etc.Test for assessing load bearing capacity of soil.

Soil properties and characteristics relevant to the design of foundations.Criteria for selection of foundation type for different soil conditions. Effect of water level , settlement of soil.Failure of foundation systems.Improvement of soil properties. • Design procedure for simple load bearing foundations.

UNIT III PLANE TRUSSES **9**

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

UNIT IV TYPICAL STRUCTURAL MATERIALS & CONTEMPORARY ADVANCEMENT **9**

Introduction to type, Structural properties and Application of: stone - timber - bricks - other metals-concrete - composite - glass – paper.

TOTAL SESSIONS: 45

TEXT BOOKS:

2. R.K. Bansal, "A text book on Strength of Materials", Lakshmi Publications, Delhi 1998

REFERENCES:

6. Junnarkar, "Mechanics of Structures" (Vol - I), 21st edition, Charotar publishing house India, 1995
7. Bansal.R.K., "Strength of Materials", Laxmi Publications Pvt Limited, India, 1990.
8. Rajput.R.K., "Strength of Materials", S.Chand &Co, New Delhi, 1996.
9. Punmia.P.C., "Strength of materials and Theory of structures", Vol 1, Laxmi publications, Delhi, 1994.
10. Ramamrutham, "Strength of Materials", Dhanpatrai & Sons, Delhi, 1990.

COURSE OUTCOMES:

- Study the effect of action of forces on a body and the concept of equilibrium of the body through exercises
- Study the Stress - strain behaviors of steel and to drive the relationship between elastic constant and solving problems
- Study the structural properties of various material

ARC B 2304 BUILDING MATERIALS AND CONSTRUCTION – II 2 4 4

AIM:

The course is designed to facilitate the students with construction practices pertaining to Concrete, for appropriate application.

OBJECTIVES:

- To develop an awareness about the various ingredients and composition in concrete.
- To understand the importance and use concrete in construction, through drawings.
- To expose the students to the importance and use of concrete in the modern Construction industry.
- To familiarize the students with the modern building products and their application through drawings.

UNIT I CONCRETE TECHNOLOGY 15

Cement - Composition, strength, properties, manufacture, test and types. Sand - Composition, strength, properties, manufacture, M-Sand test and types.

UNIT II COARSE AGGREGATE 15

Coarse aggregate - Composition, strength, properties, Extraction, test and types. Water - cement ratio, workability, curing, water-proofing, guniting, Special concrete, Manufacture, contruction of formwork, Integration of steel in concrete, Joints in concrete, Concrete finishes.

UNIT III TYPES OF CONCRETE AGGREGATES & CONCRETE 15

Lightweight aggregate , High density concrete , Aerated Concrete, No-Fines Concrete, Polymer concrete, Reinforced Cement Concrete, Pre-Stressed Concrete, Ready - mixed & under water concreting - Exercise involving the same.

UNIT IV CONCRETE IN CONSTRUCTION 15

Framed Structures, Foundations, Footings, Concrete Floors,Walls&Partitions,Concrete lintels, Arches, Sunshades, Concrete Slabs, Concrete beams &Columns, Concrete Staircases - Historical overview, sculptural

UNIT V R. C. C. CONSTRUCTION 15

Frame construction, advantages over load bearing construction, study of column grid, detailing of R. C. C. work with reinforcement for slabs, beams, columns, footing, staircases (ordinary and spiral).

TOTAL SESSIONS: 75

TEXT BOOKS:

1. Dr.B.C.Punmia, "Building Construction", Firewall Media , 2005.
2. Francis D.K.Ching, "Building Construction Illustrated" ,John Wiley & Sons Inc, 2002.
3. T.D Ahuja and G.S. Birdie, "Fundamentals of Building Construction", Dhanpat Rai Publishing Company Pvt. Ltd., New Delhi, 1996
4. R.M. Davis, "Plastics in Building Construction", Battersea College of Technology, Blackie, London, 1966
5. Barry, "Introduction to Construction of Buildings" Vol. 3, Blackwell Publishing Ltd., Oxford, 2005

REFERENCES:

1. W.B.Mckay , "Building Construction", Vol. 1,2,3- Longmans U.K 1992.
2. S.C.Rangwala, "Engineering Materials", Charotar Publishing House, India, 1997.
3. Alan Banc, "Stairs, Steps and Ramps", Butter worth Heinemann Ltd., 1996
4. M.S.Shetty, "Concrete Technology-Theory and Practice", S.Chand & Co. Ltd., New Delhi, 2005.
5. W.B.Mckay , "Building Construction" , Longmans, UK, 1981
6. Economy/companies/construction/concrete/materials
7. http://www.easyads.co.2a/yellow/india/construct
8. http://www.concrete.t.v-tokyo.ac.ip
9. www.larsentoubro.com
10. www.dalmiacement.com/index.html

COURSE OUTCOMES:

- The students will able to design medium and large span low rise structure, of RCC
- They can design RCC stair case of appropriate form and structural system.
- Incorporate structural glazing /curtain wall in the architectural design of buildings.

ARC B 2306 ARCHITECTURAL DESIGN III 0 16 8

AIM:

The aim of the course is to emphasis and evolves the methodology for architectural design with reference to the previous knowledge of function and aesthetics. The design should highlight clear approach to the design with concept, Analysis, Synthesis and clarity of details (like barrier free design considerations), along with architectural expression with use of appropriate graphic presentation techniques.

OBJECTIVES:

- To foster understanding about land and landforms and the elements of built space.
- Experimentation with shapes and forms to evolve sensitivity to built volumes.
- Focus on studying patterns in horizontal circulation in built areas, with creativity.

CONTENT:

The projects would address the study of built form and its relationship to the site, surroundings and climatic setting. Design proposals to address sensitivity to climatic and physical settings. The design problem would induce students to experiment with built and open spaces.

Design of a simple building for public activity in a non urban setting, or a situation without urban regulatory controls.

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:

Residential buildings, Institutional buildings: banks, nursery or primary schools, primary health centers etc.

TOTAL SESSIONS: 225

TEXT BOOKS:

1. Joseph De Chiara, Julius Panero, Martin Zelnik, "Time Saver Standards for Interior Design and Space Planning", McGraw Hill, 2001.
2. Ernst, "Neuferts Architects Data", Blackwell, 2002
3. Ramsey et al, "Architectural Graphic Standards", Wiley 2000

REFERENCES:

1. De Chiara and Callender,"Time Saver Standards Building Types", McGraw Hill Co., 2ND Edition, 1980.
2. Andrew Alpern, "Handbook of Specialty Elements in Architecture", McGraw Hill Book Co., 1982.
3. Mark Karlen, "Space Planning Basics", John Wiley & Sons Inc, 2009.

COURSE OUTCOMES:

- Students gets the ability to understand and design small and medium scale building projects.
- They will able to solve the design problem functionally and aesthetically.
- Gain knowledge about the design process and its various faces to solve a design problem.
- Solve design solution and present in the form of drawing.
- Enable to express the ideas in the form of 2D representation and 3D modelling.

ARC B 2307 ALLIED DESIGN STUDIO - III &COMPUTER GRAPHICS 0 3 4

AIM:

To teach students the schemes/ subjects which are allied to Architectural design studio course. Also to impart a good foundation in design through hands-on experience in designing simple two dimensional and three dimensional compositions. Output from this course will be in the form of projects.

OBJECTIVES:

- Development of student's vision regarding 3-D forms (models and sculptures) in different materials for specific themes/expressions to develop creative/ imaginative thinking.

To intricuse to the students basics of computer education. Sessional work shall consist of presenting a design programme / projects done under graphics II on CAD

UNIT – 1 **30**

It deals with computer fundamentals which are necessary to be efficient with the computer. It deals with basic word processing and spread sheet function with emphasis on application like generation of letters, preparation of report etc. The course then goes on to teach graphic application other than CAD for fast and attractive presentation of themes and ideas.

UNIT - II **30**

Fundamental understanding of the computers to be expose to the extensively technical subject of the CAD. It is expected that the student before going to the second stage would have gone through fundamentals of the Architectural course.. They are now ready to embarge on a more detailed study on the intricacies of architectural. They are expected to apply their basic knowledge and convert same in to a creative output. At this stage visualization of their design is much easier and would help them to identify various error that may have possibly crept in.

UNIT – III **15**

3 D Design and design concept on this software.

TOTAL SESSIONS: 75

TEXT BOOKS:

1. Sham Tickoo, "Autocad 2009; A Problem Solving Approach" Autodesk Press; 1

edition (July 18, 2008)

2. Sham Tickoo, "3D Max Design, 2009: A tutorial Approach", CADCIM Technologies (November 15, 2008)

REFERENCES:

1. AutoCAD reference manual - Autodesk UNC, 1998.
2. AutoCAD architectural users guide - Autodesk Inc., 1998.
3. Elements of Architecture, Rob Krier , Van Nostrand Rein Hold
4. Architectural colour, Pokter
5. Form and Function and Design, Paul Jacquess Grills
6. Principles of three dimensional design , Wang Wucius , Van Nostrand Rein Hold
7. Principles of Two dimensional design, Wang Wucius, Van nostrand Rein hold.
8. Access by design, George A. Covington & Bruce Hannan , Van Nostrand Rein hold 1996.
9. Design through Discovery, Majore Elliot Bevin, Half Rinehart and Wintan, Newyork 1977.
10. Visual thinking for Architects & Engineers , Ron Kasprisin & James Pettinari - Van Nostrand Rein Hold 1995.
11. http://www.sln.fi.edu/-Computer drafting
12. http://www.ccollege.hccs.cc.tx.us/-Comp.graphic

COURSE OUTCOMES:

The students should be able to:

- Work on systems with ease of the software understanding the performance of the hardware relatively.
- Create architectural drawings required for their presentations with precision and accuracy. Revising them without spending much time.
- Work at large scale of drawings in terms of Size or complexity in details or levels of a built form.
- Create independent 3d from or convert 2d diagram in to 3d form.

SEMESTER - IV

ARC B 2401 HISTORY OF BUILT ENVIRONMENT - III 3 0 3

AIM:

The course outlines the planning, construction, function and aesthetics of historical buildings and an appreciation of architectural style as a product of the time, place and culture in the western world which creates knowledge about the art & architecture of the European, & Middle eastern cultures, which have served as the cradle of human civilization is a prime requisite for a student of architecture.

OBJECTIVES:

- To understand the evolution of Medieval history with respect to place and culture.
- To analyse the basic planning of churches (basilican and centralized concept)
- To trace out the changes in history of art, culture and architecture in different countries.(say example, Gothic ,Romanesque architecture in Italy,France and England)
- To explore, and recognise from key examples, the principal architectural styles applied to the design of churches and cathedrals in Italy.
- To study and understand how art aimed at discussing philosophical themes, social, and aesthetic currents.

UNIT I EARLY CHRISTIAN - BYZANTINE ARCHITECTURE 9

Birth and spread of Christianity - early Christian worship. Evolution of church forms. Development of the dome &pendentive in Byzantium.

Typical Church planning - 1.Basilican concept: St. Clement, Rome; St. Peters Rome, - 2.Centralized plan concept: S, Vitale, Ravenna; S. Hagia Sophia, Constantinople; St. Marks, Venice.

UNIT II MEDIEVAL ARCHITECTUIRE - ROMANESQUE 9

Formation of guilds - Factors influencing Romanesque architecture - Outline of architecture character in Italy, France and England -Examples: Pisa group, Italy; Abbaye aux Hommes, Caen; Tower of London.

UNIT III GOTHIC ARCHITECTURE 9

French gothic - Religious and social influences - Evolution of vaulting and development of structural systems -Outline of Architectural character - Examples: Notre Dame, Paris.

English gothic -Development of English gothic vaulting - Outline of Architectural

character in England and Italy - Examples: Westminister Abbey, Hampton Court Palace, London; Doges Palace, Venice; Milan Cathedral.

UNIT IV RENAISSANCE ARCHITECTURE 9

Italian Renaissance - The idea of rebirth and revival of art - Outline of the Architecture during the early Renaissance, High Renaissance and Baroque Periods - Features of a typical Renaissance palace, eg. Palazzo Ricardi.

Study of the contribution of the following architects: Brunelleschi, Michaelangelo, Andrea Palladio, Example - St. Peter Rome,Villacapra in Vicenza

UNIT V FRENCH AND ENGLISH RENAISSANCE 9

Architectural character in the classical & Rococo period - Example - Chateau de Chambord, Louvre,Paris -Domestic British architecture- Study of the works Sir Christopher Wren,& Inigo Jones, Example - St. Paul's Cathedral, London. Banqueting House, Whitehall.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Sir Banister Fletcher's a History of Architecture, Authors :Sir Banister Fletcher, Dan Cruickshank.
2. Early Christian and Byzantine Architecture by Richard Krautheimer
3. Gothic Architecture,Volume 19 of Pelican History of Art,Yale University Press Pelican History of Art, AuthorPaul Frank Edition2.
4. Renaissance Architecture: The Great Ages of World Architecture,Author Bates Lowry Publisher Literary Licensing, LLC, 2011
5. Renaissance Paris: Architecture and Growth, 1475-1600, By David Thomson.

REFERENCES:

1. Yatin Bandya, "Concepts of Space in Traditional Indian Arch", Mapin, 2005.
2. Mitchell, George (1996) "The Hindu Temple, University of Chicago Press.
3. Spiro Kostof , "A History of Architecture : Setting and Rituals", Oxford University Press, London, 2005 (digitized - 2007).
4. Pier Luigi Nervi, "History of World Architecture Series". Harry N.Abrame Inc. Publication, New York, 1972.
5. Meaning in Western Architecture - Christian Norberg-Schulz-Rizzoli, New York, 1974.

COURSE OUTCOMES:

- The students can articulate knowledge on the construction of religious and civic

buildings with grammar.

- They have a comprehensive knowledge about the development of Gothic Period in France and express the synthesis of aesthetics and structure with the aid of sketches.
- They can articulate knowledge on the architectural character of Gothic style of buildings in Europe and express them with sketches of plans, elevations and sections.
- They have a comprehensive knowledge about the philosophy of Renaissance and how they influenced architecture in England and France.

ARC B 2402 BUILDING SERVICES - I 3 0 3

AIM:

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

OBJECTIVE:

- Introduction to fundamentals of all types of services required in a building.
- Learning about various equipment and fittings available in the market.
- Preparing basic design layout of various services and typical details.

SESSIONAL WORK : • Application of above studies in preparing design layout and details, in the design done in current term

UNIT I WATER SUPPLY, DRAINAGE AND SANITATION 9

Pipes and fittings, materials, size and classification. • Different types of taps, toilet and kitchen fittings. • Connection of lines to fittings.

Under ground, overhead and internal storage tanks and supply lines. • Pumping mechanisms.

Design layout of water supply for a residence and apartment block, and calculation of supply requirements based on standards.

Introduction to sanitation and its importance. • Planning and layout of sanitary fittings in residences. • Drainage system for residences. • Waste water drainage-traps of various types details and use.

Rain water disposal and roof drain. • Sewers details of construction , inspection chambers, trap chambers. • Septic tanks.

UNIT II ELECTRICAL SERVICES 9

General distribution of electric power in towns and cities. • Electrical wiring system – different materials employed and methods of wiring. • Different electrical gadgets and fittings.

Switch board, distribution board, mains, fuse, meter, circuit breaker etc. • Single phase and Three phase distribution and circuits. • Basic electrical

layout for a residence.

Earthing for electricity appliances. • Electrical installations for services such as air-conditioning systems, lifts, escalators, pumps etc.

Artificial lighting , design principles, illumination levels.Types of lamps and fittings used. • Application of lighting system for shops, showrooms, offices, lecture halls, class rooms, stage, auditoriums etc.

UNIT III RENEWABLE ENERGY 9

Solar Energy - Solar panels, Photovoltaic cells, Conversion of solar energy into electricity Advantages and disadvantages of solar energy, Active solar heating, Passive solar heating, Passive cooling techniques in buildings, Status of solar energy in India.

Wind Energy - Conversion of wind energy into electricity, Uses of wind energy, Status of wind energy in India.

UNIT IV ELEVATORS & ESCALATORS AND CHUTES 9

Types of Lifts - Basic dimension, Traffic analysis, Round trip time, lift pit, machine room, types, lift operation, arrangement of lifts, quality & quantity of service

Escalators - basic dimension, Characteristics, arrangement and disposition- Conveyors and Walkways, Chutes.

UNIT V SPACE PLANNING 9

Space requirements - Detail of a Septic tank and sump, Rain water harvesting, Toilet detail, Kitchen plumbing details - Terrace drainage,Drainage layout of a building.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Handbook for Buildinsg Engineers in Metric Systems, NBC, New Delhi, 1998.
2. Philips Lighting in Architectural Design, McGraw Hill, New York, 1998.
3. R.G.Hopkinson and J.D.Kay, The Lighting of Buildings, Faber and Faber, London, 1998
4. Hopkinson, R.G., "Architectural Physics - Lighting", London. 1998
5. Basic Electrical Engineering, V.K.Mehta, S.Chand and Company Ltd., New Delhi, 1998.

6. G.M. Fair, J.C. Geyer and D.Okin, "Water and Waste water engineering", Volume II, John Wiley & Sons, Inc. New York, 1968

REFERENCES:

1. "Manual on sewerage and sewerage treatment", CPHEEO - Ministry of works and housing, New Delhi, 1980.
2. S.C.Rangwala, "Water supply and sanitary engineering", Charotar publishing house, Anand, Lecture notes compiled by Chaman.L.Gupta, 1989
3. G.S. Birdie & J.S. Birdie, "Water Supply and Sanitary Engineering".

COURSE OUTCOMES:

- The students may exposed to electrical services and power distribution system inside & outside buildings.
- They get to know about importance of lighting in both indoor & outdoor spaces.
- The students obtain knowledge about various vertical transportation systems.
- It enlighten the importance of services in space planning.
- The students were trained to do electrical and plumbing layouts for the buildings.

ARC B 2403 STRUCTURAL AND CONSTRUCTION SYSTEMS - I 3 0 3

AIM:

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.

OBJECTIVE:

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

UNIT I SHEAR FORCE & BENDING MOMENTS 9

Definition - Relation between Loading, Shear Force & Bending Moment - Simply Supported and, Cantilever Beams Subjected to Concentrated, UDL, and their Combinations.

UNIT II STRESSES IN BEAMS 9

Theory of simple bending - Bending and shear stress distribution - strength of sections - stress distribution diagrams

UNIT III DEFLECTION OF BEAMS 9

Slope and deflection at a section - Double Integration and Macaulay's method for simply supported & cantilever beams with distributed and point loads

UNIT IV THEORY OF COLUMNS 9

Short - Long Column - Euler's Method & its Limitations - Derivation of Euler's Formula - Slenderness ratio - Rankin's formula for column, effect of eccentric loading.

UNIT VSTATICALLY INDETERMINATE BEAMS 9

Introduction - Determination of degree of statically in determinacy for beams and frames - concept of Analysis (No problems)

TOTAL SESSIONS: 45

TEXT BOOKS:

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.

COURSE OUTCOMES:

- The students learn about shear stress force and bending moment.
- They may also understand the behavior of long and short columns
- The students study to find the load bearing capacity of beams and columns in a building .

ARC B 2405 SITE PLANNING AND ANALYSIS 3 0 3

AIM:

To provide an understanding of site as an element of design, its characteristics, issues and challenges, and integrate design at various scales.

Objectives

- Sensitize the students about various types of surveys, instruments used and details of survey records.
- To understand the complex relationship between topography, hydrology, vegetation and climate.
- To enable the understanding of Contour, slope analysis, grading and topography as key factors.
- To enable and analysis of site through various techniques that influences design
- Understanding of survey and analysis for effective application in large scale campus and planning projects.

UNIT I INTRODUCTION 9

Definition of plot, site, land and region as per Act - units of measurements linear and superficial scales - reconnaissance survey - importance - Field survey - revenue records - Equipments used like compass, plane table, (Theory only)

UNIT II SITE ANALYSIS 9

Importance of site Analysis - On site and off site factors - Natural - cultural and aesthetic factors, - topography, hydrology, soils, vegetation, climate, surface drainage, accessibility, size and shape, infrastructure availability - sources of water supply - means of disposal - site analysis diagram.

UNIT III GRADING AND MICRO CLIMATE 9

Contours, intervals and layers - slope analysis, watersheds, - grading process - grading criteria - consideration for function and aesthetics.

Definition of micro climate - contributory factors - land forms, vegetation, water bodies, density of built environment as modifiers.

UNIT IV DETAILED ANALYSIS 9

Hydrology and irrigation system - Soils and bearing capacity aesthetic and visual characteristics - sieve maps - matrix analysis - composite analysis - sewage and storm water disposal.

UNIT 5 PLANNING AND LAYOUT **9**

Traffic on to and from site - vehicular and pedestrian circulation - hierarchical distribution of road network - road widths and carrying capacity - PCU - turning radii - intersections geometry - parking lay out - campus and regional levels.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. KEVIN LYNCH, "SITE PLANNING", MIT PRESS, CAMBRIDGE MA, 1987.
2. B.C. Punmiya, "Surveying", Vol-I, Standard Book, 1983.
3. UDPFI, guidelines, T and C.P.O, New Delhi, 2005.

REFERENCES:

1. Joseph De. Chiarra and Lee Coppleman, Planning Design Criteria Van Nostrand Reinhold Co., New York
2. Beer R, Environmental Planning for Site Development, Turner, Landscape Planning and Environmental Impact Design.

COURSE OUTCOMES:

- The students gain the knowledge about the usage and principles of various surveying instruments.
- They can understand the complex relationship between topography, hydrology, vegetation and climate.
- They can easily analysis the site through various techniques that influences design.

ARC B 2404 BUILDING TECHNOLOGY - IV 2 4 4

AIM:

To enable the students understand that Ferrous, Non-Ferrous metals and glass are equally important in construction industry by studying their properties, applications, uses and current trends in terms of theory and through drawings, sketches and field visits.

OBJECTIVES:

- To comprehend the progressive achievements from cast- iron to steel by identifying the types, properties and current developments from cast-iron to steel. (Theory)
- To understand in detail through working drawings, the types of sections in steel joints' application in foundation, columns, beams and trusses and basic on concept of space frames.
- To comprehend how Non - Ferrous metals are used in construction industry by learning their properties and applications. (Theory)
- To understand in detail through working drawings, the various types of aluminum doors, windows, ventilators, partitions and roofing system as applied in construction industry.
- To recognize through basic theoretical knowledge the composition of glass, manufacturing, types and application in construction industry.

UNIT I NON FERROUS METALS 9

Introduction AluminIum and AluminIum Alloys brief study on properties and uses Aluminum products extrusions, foils, castings, sheets, etc. brief study of other non ferrous metals like copper, bronze, brass, tin and lead, properties and uses current developments.

UNIT II CONSTRUCTION USING NON FERROUS METALS 9

Aluminum doors - Openable, Sliding, Pivoted. Aluminum windows - Openable, Sliding, Fixed, Pivoted.

Aluminum ventilators - Top hung, Bottom hung, Pivoted, Louvered, and Fixed.

Aluminum partitions, False ceiling, Handrails

Aluminum roofing - North-light glazing bar, Aluminum roofing sheets.

Use of other nonferrous metals like copper, bronze, brass, etc. in architectural construction.

UNIT III GLASS **9**

Brief study on structural glazing, Glass façade, unitized glazing, Frameless glasses – Spider glazing, Fin glazing, Glass canopy, Glass Entrance doors, Partitions, Staircases, etc., Curtain Walls – Curtain walls in glass, aluminum, precast concrete units etc. for buildings like laboratories, offices, cinemas etc. Patent Glazing - Patent glazing for skylights, lanterns, north light trusses etc

UNIT IV PLASTIC PRODUCTS **9**

Primary plastic building products -for walls, partitions and roofs - design and construction details.Secondary building products- for windows, doors, roof lights, domes, and handrails- design and construction details. UPVC doors & windows.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. W.B. Mckay,"Building Construction", Vol.1, 2, 3, Longmans, U.K.,1981.
2. B.C.Punmia, "Building Construction", Lakshmi Publications Pvt. Ltd., N.Delhi.

REFERENCES:

1. Don A.Watson, "Construction Materials and Processes", McGraw Hill Co., 1972.
2. Alanwerth, "Materials", The Mitchell Pub. Co. Ltd., London,1986.
3. R.Chudleu, "Building Construction Handbook", British Library Cataloguing in Publication Data, London, 1990.
4. S.C. Rangawala, "Engineering Materials", Charotar Pub. House, Anand, 1997.

COURSE OUTCOMES:

- The students understand the properties and uses of ferrous and non ferrous materials.
- They aware of the progressive achievements of glass, plastics,, aluminium , its

application in construction industry and present developments.

- They can learn the drafting and representation details of aluminium doors, windows, roofing and its uses in building industry.
- They can gain the knowledge of glass, plastics details and its uses in building industry.

ARC B 2406 ARCHITECTURAL DESIGN STUDIO IV 0 16 8

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)

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 SESSIONS: 225

TEXT BOOKS:

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

COURSE OUTCOMES:

- Students gets the ability to understand and design large scale building projects.
- They will able to solve the design problem functionally and aesthetically.
- Gain knowledge about the design process and its various faces to solve a design problem in horizontal and vertical manner.
- Enable to express the ideas in the form of 2D representation and 3D modelling.

SEMESTER - V

ARC B 3501 HISTORY OF BUILT ENVIRONMENT - IV 3 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. To expose to students the knowledge about impact of industrialization, invention of new materials, revolutionary thinking and philosophies of architects, emerging schools of thought, and contributions made by architects.

OBJECTIVES:

- To study modern architecture as evolving from specific aspects of movements like Arts & Crafts Movement, Art Nouveau Movement, and the pioneers of the movement.
- Discuss and independently reflect on the concept of various other philosophies like futurism, expressionism, brutalism, constructivism, and the pioneers of these philosophies through study of selected works of them.
- To acquaint students to understand the Bauhaus school of thought, contributions by leading architects like Le Corbusier, Mies Van -der - Rohe, Alvar Aalto etc through study of selected examples.
- 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 - Analysis of case studies.

UNIT I LEADING TO A NEW ARCHITECTURE 9

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 9

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 9

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 9

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 9

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 SESSIONS: 45

TEXT BOOKS:

1. Kenneth Frampton, "Modern Architecture: A Critical History", Thames & Hudson, London, 1994
2. Catherine Slessor ,"Contemporary Architecture", Images Publishing, 2003.
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. Xiangbiao Zhao, "Global Architecture", Hong Kong Scientific and cultural Publishing - 2008.
4. Sigfried Giedion, "Space Time and Architecture: The Growth of a New Tradition", Harvard University Press, 1978.

COURSE OUTCOMES:

- Students gain knowledge about different concept of various other

philosophies like futurism, expressionism, brutalism, constructivism, and the pioneers of these philosophies through study of selected works of them.

- They obtain overall understanding of the architectural developments in India influenced by colonial rule - Analysis of case studies.
- They also gain comprehensive knowledge of modern architecture using many movements.

ARC B 3502 BUILDING SERVICES - II 3 0 3

AIM:

The course is designed to facilitate the students with building services that supports the functioning of a building in the area of air conditioning and fire safety systems.

OBJECTIVES:

- To introduce the students to the various concepts of air conditioning.
- To expose the students to the indoor & outdoor components in air conditioning.
- To understand the importance and functioning of fire safety systems.
- To enlighten the importance of services in space planning.

UNIT I INTRODUCTION TO AIR CONDITIONING 9

Introduction to A/C conditions - basic of refrigeration systems - components of refrigeration system - compressor, condenser - control devices, evaporator - filters cooling tower - Vapour compression cycle - Concepts of cooling, , transmission heat load - internal heat gain - concepts of zoning - room air distribution - types of outlets.

UNIT II AIR CONDITIONING SYSTEMS AND ITS APPLICATIONS 9

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 FIRE SAFETY: DESIGN AND GENERAL GUIDELINES 9

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 IV FIRE DETECTION AND FIRE FIGHTING INSTALLATION 9

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.

UNIT V SPACE PLANNING & FACILITY MANAGEMENT 9

Space requirements -Space planning for various air conditioning components both indoor & outdoor units. space requirements for the different fire fighting equipments.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Steve Doty & Wayne C. Turner, (2009), "Energy Management Handbook", Seventh Edition, The Fairmont Pres, USA.
2. Ibrahim Dincer & Marc. A. Roren, (2007), "Exergy - Energy, Environment and Sustainable Development", Elsevier, USA.
3. William H.Severns and Julian R.Fellows, Air-conditioning and Refrigeration, John Wiley and Sons, London, 1988.

REFERENCES:

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" published by Bureau of Indian Standard, 1983
3. A.F.C. Sherratt, "Air conditioning and Energy conservation", The Architectural Press, London, 1980
4. Andrew H Buchanan, "Design for fire safety", John Wiley & Sons Ltd., New York.

COURSE OUTCOMES:

- The students are exposed to the various concepts of air conditioning.
- Students understands the concept of building automation, safety, security and controls systems integrated to building managements systems.
- They can able to learn the use of energy in construction industry, explore energy conservation and energy efficient techniques in current trend.
  Impart knowledge on fire safety, security and fire fighting system

ARC B 3503 STRUCTURAL AND CONSTRUCTION SYSTEMS - II 3 0 3

AIM:

To facilitate the design of Reinforced concrete beams, slabs, column, and foundations by limit state method.

OBJECTIVE:

- To study the limit state design of beams
- To study the limit state design of slabs
- To study the limit state design of columns
- To study the limit state design of foundations
- To study R.C.C Arches

UNIT I LIMIT STATE DESIGN OF BEAMS 9

Concept of Elastic method, Ultimate load method and limit state method - Advantages of limit state method over other methods

Estimation of loads on beams - transfer of load from slab to beam - design of singly, doubly reinforced - design of simply supported beams - Design of continuous beams using codal coefficients - detailing - use of SP - 16 for the design.

UNIT II LIMIT STATE DESIGN OF SLABS 9

Behavior of one way slab and two way- design of one way slab and two way slab by direct design method as per BIS code.

UNIT III LIMIT STATE DESIGN OF COLUMNS 9

Estimation of loads on columns - load transfer from slab and beams to columns - long and short columns - rectangular and circular columns - columns subjected to uni-axial and bi-axial bending - design of columns using column interaction diagrams - use of SP - 16 - detailing.

UNIT IV LIMIT STATE DESIGN OF FOUNDATION 9

Types of R.C.C. foundation - individual, combined, strip footing - Design of individual column footings - Rectangular sloped footing - design of combined footings.

UNIT V R.C.C ARCHES 9

R.C.C Arches - Introduction, types & Analysis of Two & three Hinged Arches - Introduction to shells &Folded plates - structural Action

TOTAL SESSIONS: 45

TEXT BOOKS:

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.

COURSE OUTCOMES:

- The students would have understood the different types of limit state design of beams and columns.
- Knowledge on the functions and effects of limit state design of slabs and foundation.
- An exposure to structural properties and applications of R.C.C arches used in the building industry.

ARC B 3504 BUILDING CONSTRUCTION AND TECHNOLOGY - V 2 4 4

AIM:

To study the various materials and construction techniques used for moisture protection, thermal protection, sound protection and protective finishes in buildings.

OBJECTIVES:

- To learn and apply the knowledge of materials and techniques for Moisture control in producing construction details for moisture protection of basements, roofs, plinths and terraces.
- To identify the different types of swimming pools and producing construction details with various fixtures for swimming pools
- To understand and apply the knowledge of materials and techniques for Thermal protection in producing construction details for thermal protection of spaces in various climatic zones.
- To understand and apply the knowledge of materials and techniques for Sound protection in producing construction details for acoustic protection of spaces in auditoriums, recording studios and theatres.
- To discern and analyze various protective and decorative coatings applied in buildings concentrating on current developments,

UNIT I MOISTURE PROTECTION 15

Introduction about damp proofing & water proofing - causes & effects of dampness - types of dampness - Various materials used for damp proofing & water proofing - Various methods of damp proofing - Drawings of construction detail and applications of damp & water proofing under various situations - Basement floors, terraces etc. Types of pools, Construction Details

UNIT II THERMAL PROTECTION 15

Introduction about thermal insulation - Heat transfer and heat gain by materials - vapour barrier- Commonly used insulation materials in buildings - Drawings of construction details and material applications of floors, walls and roofs in various situations - e.g. Cold storage, Air conditioned office spaces

UNIT III SOUND PROTECTION 15

Introduction about sound protection - basic forms of absorbents - types of absorbent materials, properties and uses, Commonly used sound insulation materials in buildings - Drawings of construction details and material applications of floors, walls and roofs in various situations - e.g. Conference hall, Auditoriums, Recording studios

15

UNIT IV PROTECTIVE

Paints - ingredients, types, applications, properties and uses in buildings - painting on different surfaces - defects of painting - special purpose paints - bituminous, luminous, fire retardant and resisting paints - properties,

UNIT V DECORATIVE COATINGS **15**

uses and applications of varnishes, lacquers and wall putty- Current development and specifications - Introduction, different types, properties, uses and applications of shellac - properties, uses and applications polyurethane, enamel, plastic acrylic emulsion.

TOTAL SESSIONS: 75

TEXT BOOKS:

1. Francis.D.K.Ching. Building Construction Illustrated (II ed.). New Jersey: John Wiley & Sons - 2008.
2. Lyons, A. Materials for Architects and Builders. Butterworth Heinemann Ltd - 2010.
3. P.C.Varghese. Building Materials. New Delhi: Prentice-Hall of India Pvt Ltd. 2005.
4. Punmia, B., Jain, A. K., & Jain, A. K. Building Construction. New Delhi: Firewall Media. 2005.

REFERENCES:

1. D.K.Doran, "Construction Materials Reference Book", Oxford: Butterworth Heinemann Ltd. 1995.
2. Simmons, H. L. "Olin's Construction: Principles, Materials and Methods", New Jersey: John Wiley & Sons. Inc. 2011.

COURSE OUTCOMES:

- Understand present practices and materials for damp & water proofing including in basements, swimming pools, terraces etc.
- Understand the causes for heat gain & heat loss how effectively the insulation helps in keeping the comfortable heat levels in buildings.
- Understand major defects and possible rectification is understood. The commonly used acoustic treatments with the thrust on recording studio & auditorium
  Recognize to differentiate various types of decorative coatings and its properties

ARC B 3506 ARCHITECTURAL DESIGN V 0 16 8

AIM:

At the intermediate stage to graduate the student further on design of buildings involving technology, structural clarity and Building Services in terms of lighting, ventilation, Movement, fire safety, security, water supply, sewage etc. and to make them hands on in computer presentation skills.

OBJECTIVES:

- To make the student understand the complexity, functioning and salient features of the Design project through organizing field visit, train them to document and present the findings.

DESIGN STUDIO

Small complexes - concept of multi planning and circulation analysis - grouping of buildings

Involving services integration, Design and detailing for movement of physically handicapped and

Elderly persons within and around buildings.

Examples: office buildings such as Bank corporate offices, BPO Centers, School of Management, film institute, Art Centre, Museums.

TOTAL SESSIONS: 225

TEXT BOOKS:

1. S. Macmillan, "Designing Better Buildings" . Routledge, 2003.
2. Digital Workflows in Architecture: Design - Assembly - Industry / Scott Marble-2012
3. Masterpieces: Office Architecture + Design Lara Menzel - 2009
4. National Building Code and Bureau of Indian standard publications.2005
5. De. Chiara and Callender, "Time-saver Standards for Building Types", McGraw-Hill Co., New York, 1973.
6. The Handbook of Building Types., NEUFERT ARCHITECTS DATA, New International edition, second international edition. BSP Professional Books. Oxford (1980) Blackwell scientific Publications.
7. Time - Saver Standards for Architectural Design Data, seventh edition. The reference of architectural fundamentals McGraw hill international edition, architectural series (1998).
8. Ed.By.Quentin Pickard RIBA "The Architects' Hand Book", Bladewell Science Ltd., 2002

REFERENCES:

1. Digital workflows in architecture: Design - Assembly - Industry / Scott Marble
2. http://www.archdaily.com/category/institutional-architecture/
3. http://www.thehub.net.au/%7Emorrisqc/architext
4. http://www.archinet.co.uk/
5. http://archinform.de/start.en.htm

COURSE OUTCOMES:

- Work on multi planning and mass problems involving building technology
- Use computer for drawing and presentation skills using appropriate software.

They will able to solve the design problem functionally

SEMESTER - VI

AR B 3601 CONTEMPORARY BUILT ENVIRONMENT 3 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 in India from the end of colonial rule to the contemporary period.

OBJECTIVES:

1. To study the different postmodern directions in architecture and the evolution of new approaches.
2. To appreciate contemporary architectural trends.
3. To comprehend the ideas and philosophies of architects and architectural styles.
4. To understand the emerging architectural trends through the works of pioneering architects and to explore about alternative building technology practiced by various architects.
5. Lectures and site visits to acquaint students with sites and buildings in relevance to the course taught.

UNIT I INTRODUCTION 9

A brief introduction in critiquing Modernism, Conditions of Post Modernity, Various Post Modern directions / movements in architecture in different parts of the Western world and their role in defining Modern architecture such as Post Modernity, Impressionism, Expressionism, Art Nouveau, Surrealism, Abstract Expressionism, Cubism etc.

UNIT IITRENDS IN CONTEMPORARY BUILT ENVIRONMENT 9

Trends in Contemporary Architecture – Introduction and brief understanding and appreciation and comparison of contemporary trends in Indian and Western Architecture focusing on understandings, appreciations, ideas and directions through examples – a broad spectrum

UNIT III DEVELOPMENTS IN CONTEMPORARY ARCHITECTURE 9

Contemporary Architecture to be studied as development of built forms and ornamentation, structural solutions, construction methods, plan and building façade organization in relation to aesthetic/religious/social philosophy and environmental factors. The study can focus on the general trends and or with specific examples of relevance.

UNIT IVCONTEMPORARY TRENDS IN INDIA 9

Trends in Architecture in India after Independence.Influence of Le Corbusier and Louis.I. Khan. Studies of the ideas and works of B.V. Doshi, Charles Correa, Raj Rewal, J.A.Stein, AchyutKanvinde, AnantRaje, Uttam Jain, Hasmukh Patel, Laurie Baker, Chandravarkar& Thacker, Hafeez Contractor, Nari Gandhi, ShirishBeri, Romi Khosla, RanjitSabiki, Anil Laul, Shashi Bhooshan, Jaisim, Bimal Patel etc

UNIT V CONTEMPORARY DIRECTIONS IN OTHER PARTS OF THE COUNTRY 9

Studies of the ideas and works of Robert Stern, Charles Moore, GoefferyBawa, Michael Graves, Richard Meyer, Aldo Rossi, Frank Gehry, Rob Krier, Hassan Fathy, Renzo Piano, Richard Rogers, Norman Foster, Tado Ando etc

Note:

The architectural styles and buildings to be discussed in context of their period, geographical/climatic conditions, economic and political conditions, social and religious customs, construction and technology, building material and structure.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Bill Risebero, "Modern Architecture and Design", MIT Press ,1985.
2. Kenneth Frampton, "Modern Architecture: A Critical History", Tahmes and Hudson, London, 1994.
3. James Steele, "The Complete Architecture of Balakrishna Doshi", Thames and Hudson,1998.
4. "McMillan's Encyclopedia of Architecture" ,Macmillan Publications,1990.

REFERENCES:

- Thomas Metcalf, "An Imperial Vision", Oxford University Press,2002.
- Manfredo Taferi/Franceso dal co., "Modern Architecture", Faber and Faber/Electa, 1986.
- Sigfried Giedion, "Space Time and Architecture: The Growth of a New Tradition", Havard University Press, 1978.
- Aldo Rossi, "The Architecture of the City", MIT Press, Massachusetts, 1982.
- Charles Jencks, "The Language of Post Modern Architecture", Rizzoli, 1984.
- Christopher Alexander, "Pattern Language", Oxford University Press, 1977.
- Jon Lang,Madhavi Desai , "Architecture & Independence - India 1880 to 1980" paper

bags,Oxford India 1997.

- Derek Avery, "Modern Architecture", Chaucer Press ,London , 2003.
- Robert Venturi, Complexity and Contradiction in Architecture, 1977.
- Michael Hays ed., Architecture Theory since 1968, CBA, 1999
- William Jr. Curtis, Balkrishna Doshi, An Architecture for India, Rizzoli
- Brian Brace Taylor, Geoffrey Bawa, Thames & Hudson

COURSE OUTCOMES:

- Obtain considerable knowledge on the progress of architectural philosophies globally over the past century and discuss current trends and theories knowledgably.
- Independently research trends in architecture and form critical opinions on differing ideologies and schools of thought.

  Understanding of the architectural community developments in the country after independence and sharing a common vision of architectural thoughts that shared by numerous notable architects

AR B 3602 STRUCTURAL AND CONSTRUCTION SYSTEMS III 3 0 3

AIM:

To enable the design of timber and steel structural member in a building

OBJECTIVE:

- To Introduce the design of various timber components in a buildings
- To enable the understanding of types and efficiency and strength, advantage and disadvantage of rivet and welded joints in steel.
- To enable the design of tension member and column, in a building under various condition

UNIT I TIMBER STRUCTURES - BEAMS, COLUMNS AND ROOF TRUSSES 9

Properties, strength and types of timber used as structural components in timber construction - Permissible stresses in timber -. Types of Timber Roof Trusses used for small spans.

UNIT II STEEL STRUCTURES 9

Introduction Properties of Indian standard rolled steel section - Use of IS 800 and steel tables - Permissible and stresses in tension, compression and shear. Connections: Welded and riveted connections - Types of failure

UNIT III TENSION MEMBERS 9

Steel structures - Tension members - Design of single angle and double angle sections in tension

UNIT IV COMPRESSION MEMBER 9

Steel structures - compression members - Design of compression members - Slenderness ratio - Design of simple and compound sections - Design of lacings and battens.

UNIT V BEAMS 9

Principal beams - allowable stresses - General specifications - Design of laterally supported beams.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Ramachandra .S, "Design of steel structures" Vol. I, Standard publication, New Delhi, 1992
2. Vazirani .V.N, and Ratwani .M.M, "Steel structures", Khanna Publications, New

Delhi,1995

REFERENCES:

1. Arya. A.S, Ajamani .J.L, "Design of Steel Structures", Nem Chand and Bros, Roorkee, 1999
2. Duggal, "Design of Steel structures", Tata McGraw Hill Company, New Delhi, 2000
3. Lin. T.R, and Scalzi .J.B, "Design of Steel structures", Bressler Weley Eastern Pvt. Ltd., New Delhi, 1960
4. Dayaratnam. P, "Design of Steel Structures", Wheelers Publishing Company Co. Ltd, 1990
5. "Handbook of Typified Designs for Structures" with steel roof trusses, SP 38 (S&T) - 1987, BIS, New Delhi

COURSE OUTCOMES:

- The students learn the properties of structural components of timber and its uses in construction industry.
- Understand the need for steel structure, and the concept of abstract and detailed Design of steel Structure.
- Calculate the stability of tension and compression members.
- Design steel column and beams for the various Support Condition with suitable bearing loads.

AR B 3603 ESTIMATION AND SPECIFICATION 3 0 3

AIM

- To equip students with the necessary technical knowledge for calculating estimates with specifications and costing for varoius scale projects.

OBJECTIVE

- To enable understanding of methods of preparation of estimates and assesment of quantities.
- To enable writing and understanding of specification for different building typologies.
- A holistic understanding of costing and budgeting of design projects.
- Small scale projects to be undertaken to understand costing principles and terms.
- Final costingexercise to be carried out where students can undertake the costing of their studio design project

UNIT I SPECIFICATIONS 9

Necessity of specification, importance of specification, - How to write specification, - Types ofSpecification, -Principles of Specification writing, - Important aspects of the design of specification– sources of information – Classification of Specification.

UNIT I SPECIFICATION WRITING 9

Brief Specification for 1 st class, 2nd class, 3rd class building. Detailed specification for earthworkexcavation, plain cement concrete, Reinforced concrete, first class and second class brickwork,Damp proof course, ceramic tiles/marble flooring and dadoo, woodwork for doors, windowsframes and shutters, cement plastering, painting & weathering course in terrace.

UNIT III ESTIMATION 9

Types & purpose, Approximate estimate of buildings – Bill of quality, factors to be considered, -principles of measurement and billing, contingencies, measurement of basic materials like brick,wood, concrete and unit of measurement for various items of work – abstract of an estimate.

UNIT IVDETAILED ESTIMATE 9

Deriving detailed quantity estimates for various items of work of a building. Like earthworkexcavation, brick work, plain cement concrete, Reinforced cement concrete works, wood work,iron works, plastering, painting, flooring, weathering course for a single storied building.

UNIT V CURRENT TRENDS 9

Methods of contracting and its link to specification drafting - the Business Environment and thestructure in practice.Valuation, depreciation and its implications – Case studies.

TOTAL SESSIONS: 45

TEXT BOOKS:

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

REFERENCE BOOKS:

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

COURSE OUTCOMES:

- Understand the need for estimation, and the concept of abstract and detailed estimates.
- Prepare BOQ and know to control cost and budget within the norms and standards. Acquaint themselves about the various financial agencies and institutions

AR B 3605 ARCHITECTURAL ACOUSTICS AND DETAILING 2 4 4

AIM:

The course is designed to facilitate practical knowledge to the students to integrate sound control in relation to building functions and as a determinant of built form with emphasis on the application to architecture.

OBJECTIVE:

- To understand the science behind acoustical design.
- To expose students to understand noise control and sound transmission and absorption.
- To familiarize the students with the basic principles of acoustic design for spaces and building types.
- To provide practical exposure through case studies and working drawings.
- To develop the knowledge and skill required for understanding acoustics in buildings and its integration with architectural design.

UNIT I INTRODUCTION TO ACOUSTICS 15

Nature of sound, Transverse and longitudinal waves, Simple Harmonic motion, wave characteristics, properties of sound, behavior of sound in enclosures, reflection of sound, echoes, dispersion, sound shadows

UNIT II SOUND TRANSMISSION 15

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 absorptionco-efficient.

UNIT III NOISE CONTROL AND SOUND ABSORBTION 15

Types of noises, transmission of noise. Noise reduction: Sound isolation, transmission loss TL, TL for walls, sound leaks indoors, noise reduction between rooms, Construction details for noise reduction. Noise reduction and built form, Noise reduction through landscapes elements, landuse planning for noise control.

UNIT IVACOUSTICAL CONSIDERATIONS 15

Acoustical Considerations and design criteria - Site selection, shape, volume,treatment

for interior surfaces, basic principles in designing reinforcement systems for different building types. Walls/partitions, floors/ceilings, window/doors, insulating fittings andgadjets,machine mountingand insulation of machinery.

UNIT V ACOUSTICS AND BUILDING DESIGN 15

Acoustic design process for different types of buildings. Detailed acoustic design for different building typologies – Small, Large Public areas and Outdoor complex areas in relations the design project dealt in Architectural Design VI. Case studies of relevant building with a report containing drawings and calculations of reverberation time etc needs to be carried out.

TOTAL SESSIONS: 75

TEXT BOOKS:

1. David Eagan "Concepts in Architectural Acoustics".
2. Neufert Architects'Data Third Edition.

REFERENCES:

1. Frederick .S, "Building Engineering and systems Design", Merritt James Ambrose.
2. Dr.V.Narasimhan, " An Introduction to Building Physics", Kabeer Printing Works, Chennai-5, 1974.

COURSE OUTCOMES:

- The students are exposed to the basics of acoustics and it relation with the buildings and its integration with architectural design.
- Able to work on acoustical Design brief for design project dealt in Architectural Design VI like Lecture Halls, Classrooms, Conference room, Theatres and Auditoriums.

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AR B 3606 ARCHITECTURAL DESIGNSTUDIO VI 0 16 8

AIM:

To explore the design and form of building typologies that are the result of pressure on urban lands with a thrust on issues like urban land economics, technology and ecology.

OBJECTIVES:

- To create an awareness with regard to the design of green buildings and sustainable architecture.
- To inculcate the importance of services integration and construction in spatial planning in the context of design of High-rise buildings and service intensive buildings.
- To highlight on the importance of High rise buildings as elements of identity in urban areas and urban design principles that govern their design.
- To explore computer aided presentation techniques involving 2D and 3D drawings, walk through and models as required.
  - **CONTENT:**
  -
  - Scale and Complexity: Advanced and complex problems involving large scale Multi-storeyed buildings and complexes for Residential/ Commercial/ Institutional/ Mixed-Use in an urban context with focus on visual characteristics, service integration and sustainable practices.

AREAS OF FOCUS/ ISSUES:

- Sustainable building practices, green issues, alternative energy
- Intelligent building techniques and service integration
- Architectural Detailing
- Advanced building practices

TYPOLOGY/ PROJECT:

Office building, multi-use centre, convention center, multiplex, corporate complex, health care and hospitality building, etc.

TOTAL SESSIONS: 225

TEXT BOOKS:

1. De. Chiara and Callender, "Time-saver Standards for Building Types", McGraw-Hill Co., New York, 1973.
2. The Handbook of Building Types., NEUFERT ARCHITECTS DATA, New International edition, second international edition. BSP Professional Books. Oxford (1980)

Blackwell scientific Publications.

3. Time - Saver Standards for Architectural Design Data, seventh edition. The reference of architectural fundamentals McGraw hill international edition, architectural series (1998).
4. Ed.By.Quentin Pickard RIBA "The Architects' Hand Book", Bladewell Science Ltd., 2002

REFERENCES:

1. Handbook on Building Construction Practices (Excluding Electrical Work). Bureau of Indian Standards, New Delhi, 1997
2. National Building book of India 2005, Bureau of Indian Standards, New Delhi
3. Macmillan Encyclopedia architects, Vol II, The free press, London, 1982
4. A visual dictionary of Architecture, Francis D.K.Ching, John wiley & Sons, Inc. 1997

COURSE OUTCOMES:

- Work on multi planning and mass problems involving building technology
  Use computer for drawing and presentation skills using appropriate software

SEMESTER - VII

AR B 4701 PRACTICAL TRAINING (July to November) 10 Credits

AIM:

To provide adequate knowledge on the practice of Architectural Profession to learn the administration, managerial and professional skills and demonstrate the same in future architectural design study.

OBJECTIVES:

The training in seventh semester focusses on learning the relationship between theoretical knowledge and Practical realisation through works of renowned architects. It lays emphasis on understanding the evolution of project from conception, design development, design approval from local body, and planning authorities, preparation of details, tendering and implementation at site.

The architect / firm / institution may train the student on the following:

- Study of Nationally, Internationally famous architects of contemporary period and analyzing the relationship between their philosophy and design to be evaluated by the architect / firm.
- Preparation of drawings for approval of local body and planning authority, procedures, norms and standards.
- Detailed working drawings & service Drawings, BOQ, contract & tender document for various building components and elements.
- Understanding materials and specification recommended by the architect for a project.
- Learning the importance, procedures, and safety regulation during site inspection from the architect at site.
- Develop ability to understand and interpret drawings and clarifications required at site.
- Discussion with clients & other consultants.
- Any other input that the architect/firm/ institutions feel necessary.

Note:

The progress of training shall be assessed internally through monthly confidential reports (in the prescribed format) from the employer and a portfolio of work done by the student through an (external) Viva - Voce examinations.

TOTAL SESSIONS: 100 Days

COURSE OUTCOMES:

The students should be able to:

- Know what is happening in the field or in actual practice
- Go to various construction sites, learn and experience
- Understand the system of working and management in the office.
  The choice of the place of training shall be Architectural Firms, Organizations, Development Authorities, etc. which are headed by architects.

SEMESTER - VIII

AR B 4801 PROFESSIONAL ETHICS & PRACTICE - I 3 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 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.

UNIT I INTRODUCTION TO THE ARCHITECTURAL PROFESSION

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

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

Mode of engaging an architect - Comprehensive services, partial services and specialized 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

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 **9**

Copy rights and patenting - (provisions of copy right acts in India and abroad, cop 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 SESSIONS: 45

REQUIRED READING:

1. Architects Act 1972 and Amendments , upto 2002.
2. David chapel, "The Architect in Practice" , Wiley,Blackwell Pub, 2010.
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.

COURSE OUTCOMES:

- Get a proper understanding of the role played by an architect. Various types services that an architect can provide to this society
- Role of COA with regards to architect fees for different types of services will enable the students to understand the architect/client and contractor relationship.
- The important role played by the COA & IIA in the matters of conducting competitions.
- The important acts and building bylaws gives a guidance for proper built environment and value of the heritage building.
  The urban art commissions are functioning well at Delhi and other important cities in India for better architectural control and thereby preserving the importance of heritage valued building

AR B 4802 ADVANCED STRUCTURES 3 0 3

AIM:

To impart knowledge on the recent and advanced concepts / developments in structural forms and systems

OBJECTIVES:

- To understand the recent developments in structural forms.
- To increase the student's ability to identify the structural forms suitable for architectural expression.
- The students are expected to analyze and understand the nature of stresses that are developed in the major elements of advanced types of structures.

UNIT I THEORY BEHIND STRUCTURAL FORMS 9

Construction and form, Structure and Form Equilibrium under simple tension or compression, the catenary and the arch, the simply supported beam, the domical shell.

UNIT II STRUCTURE AND ARCHITECTURE 9

Relation between structure and architecture, Geometry of form and structural function, Aesthetic theories of the expression of structural function in architectural form.

UNIT IIISTRUCTURAL ELEMENTS 9

Structural elements: Beams and slabs Arches and catenaries; vaults, domes and curved membranes; Trusses, Portal frames and space frames

UNIT IVSTRUCTURAL SYSTEMS I 9

Structural Systems: single and double layer grids; braced domes, ribbed domes, plate type domes, Network domes, Lamella domes, Geodesic domes, Grid domes. Braced and folded structures

UNIT VSTRUCTURAL SYSTEMS II 9

Space frames: Folded plates, shells, cyclonical shells, Hyperbolic paraboloids,

freeforms. Cable structures: Simply curved suspended roofs, combination of cables and struts.

TOTAL SESSIONS: 45

TEXTBOOKS

1. Sinha .N.C and Roy .S.K, *Fundamentals of Reinforced Concrete*, S.Chand & Co. Ltd., New Delhi, 2001
2. Ramamruthm .S and Narayanan .R, *Reinforced Concrete Structures*, Dhanpat Rai Publications, New Delhi,1997
3. Bryan Stafford and Alex Coull, *Tall Building Structures, Analysis and Design* John Wiley & Sons, New York, 1991

REFERENCE BOOKS

1. Bandyopadhyay .J.N, Thin Shell *Structures Classical and Modern Analysis*, New Age International Publishers, New Delhi, 1998 Ramaswamy .G.S, *Design of Construction of Concrete* Shell Roofs, McGraw Hill Publishing Company, New York, 1986
2. Krishna Raju .N, *Pre Stressed Concrete*, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1988
3. Taranath .B.S, *Structural Analysis and Design of Tall Buildings*, McGraw Hill, New York, 1988.
4. Frei Otto - Tensile structures Volume 1, Pneumatic structures, Volume 2, cable structures .The MIT press, London.2008
5. Tall Building structures - Analysis & Design - Bryan Stafford smith. John wiley.
6. Structural system for tall buildings - Council on tall buildings and urban habitat - Mc GrawHill.2007
7. Pneumatic structures, Thomas Herzog - Crosby Lockwood staples, London.
8. Maintenance and Rehabilitation of RC structures by Derison Allen, Longman Publication limited, 2001.

COURSE OUTCOMES:

- The students get familiar with the basic concepts and developments in advanced structures.
- They can also learn about the structural elements in different forms of arches vaults, domes and its expression in architectural form.

  To introduce the basic concepts of Space Frames, Shells and folded plates and cable structures

AR B 4803 GREEN AND SUSTAINABLE DESIGN 3 0 3

AIM:

The course focuses on developing an understanding regarding environmental sustainability and environmentally responsible green buildings. It addresses the design concerns in architecture to develop resource-efficient buildings that have minimum adverse impact on the natural environment

OBJECTIVES:

- To understand the importance of environmentally and ecologically sensitive architecture
- To integrate sustainable planning and building principles in architectural design.
- To get introduced to agencies that work for green and sustainable architectural developments.

UNIT I INTRODUTION 9

Concepts of sustainability, Sustainable Development, Green field development: Brown field development, Principles of conservation - synergy with nature, Sustainable planning & Design, Sustainable approach to site planning and design - site inventories-relationships between site factors - development impacts from one area of the site on the other areas, Intro to Environmental Design & Planning. Sick Building Syndrome

UNIT II SUSTAINABLE CONSTRUCTION 9

Sustainable Construction, Three Dimensions. Properties, Uses and Examples of - Primary, secondary and Tertiary Sustainable Materials, Techniques of sustainable construction - technologies and design synthesis and construction methods: solar water heating panels; photovoltaic cells etc.

UNIT IIIRECYCLING AND REUSE 9

Reuse - Waste prevention, Pre building, Post building stages, Construction and Demolition recycling- Conservation of natural and building resources- types of wastes. Sourcing and recycling of building materials. Elimination of waste and minimize pollution - various Decomposing methods -environmental monitoring and testing during construction- Design facility within social and environmental thresholds-Case study of local natural body that is polluted and suitable design system to rehabilitate the same.

UNIT IV BUILDING INFRASTRUCTURE **9**

Active Energy Systems in buildings, Utilities andservices,building automation. Electro-mechanical systems, lifts and transportation, captivepower plant and equipment, operation & maintenance

UNIT V RATING SYSTEMS **9**

Introduction to building rating systems: building auditing, points system,components, and weight age, agencies and institutions like -LEED, BREEAM, Green Star, HQE Rating system, IGBC, GBC, TERI GRIHA etc, and Discussion of green buildings in the contexts with case examples.

TOTAL SESSIONS: 45

TEXT BOOKS

1. Bose B.C., "Integrated approach to sustainable Development". Publishers: Rajat Publications, Delhi, 2007
2. Laurie Baker's, "Chamoli Earthquake hand book", Publishers: Costford, centre of science and technology for rura development, 2000.

REFERENCES:

1. Fuller Moore, "Environmental control systems Heating, Cooling, Lighting". Publisher MC.Graw Hill, Newyork, 1992
2. Caring A.Langston Grace K.C.Ding, "Sustainable practices in built environment", 2nd Edition, Publishers: Butterworth-Heinmann Linacre House Jordanhill Oxford, 2001
3. Trivedi.R.N. Environmental Sciences, Publishers:Anmol Publications Pvt Ltd, New Delhi, 1997

COURSE OUTCOMES:

- The students are exposed to integrate sustainable planning and building principles in architectural design.
- Have a comprehensive knowledge on the evolution and impact of environmental aspects and sustainable issues.
- Be equipped to handle the architectural design process from the studies, analysis, interpretation and design in accordance to the case studies done on the green building concepts.
- Have a knowledge on the Government policies and actions towards the Sustainable society and the latest technologies involved in the Building process

  Have knowledge on the organic and sustainable Building materials used in the design and execution

AR B 4804 RESEARCH METHODS 3 0 3

AIM:

The course provides students with a framework to understand some emerging concepts in architecture and projects of design complexity and equip the student with adequate architectural research methods for the realization of dissertation writing and thesis concept. During the course of study, the subject of the thesis is developed and the project articulated.

OBJECTIVES:

- To impart knowledge to students, on the tools and methods needed to handle a design project of reasonable complexity individually
- The skills required to collect, assimilate and synthesis data relevant to handle a research topics and design thesis project independently.

UNIT I INTRODUTION 9

Introduction to research methods, Types of research, Difference between design studio, dissertation and design thesis, Selection of topics for dissertation, architectural design thesis. Research topicsbased on building typologies, preparation of synopsis, Methodology of research

UNIT II RESEARCH IN ARCHITECTURE 9

Emerging concepts in architecture due changes in social, economic, technological variables. Review of design projects related to real world instances and relevant to community at large. Review of projects of design complexity, involving themes, subthemes and architectural expression.

UNIT IIITOOLS AND METHODS 9

Scientific methods of research with special emphasis on architectural research methods. Architectural enquiry visual, observations, questionnaire formats of enquiry, Literature Review and case studies. Data analysis techniques interpretation of data.

UNIT IV PRESENTATION 9

Formats for presentation of data, case studies and analysis. Formats for presentation of thesis design- media appropriate in the architectural profession such as two dimensional drawing, physical models, three dimensional computer models.

UNIT V REPORT WRITING 9

Techniques in report writing, presentation of contextualinformation relevant to interpretation of the data collected and design; reportingthe design development from concept to design solution, explain the relation ofthe design to existing knowledge on the topic in the form of coherently writtenreport.

TOTAL SESSIONS: 45

TEXT BOOK:

1. Linda N. Groat and David Wang, "Architectural Research Methods",2nd Edition. Publishers: John Wikey & Sons.,Inc.,Hoboken, New Jersey.

REFERENCES:

1. http://rp.design.umn.edu/resources/documents/ArchGraphStand15.pdf
2. Robert Sommer & Barbara Sommer (2002) A Practical Guide to Behavioral Research: Tools and Techniques. New York: The Oxford University Press.
3. John W. Creswell (2003) Research Design: Qualitative, Quantitative, and Mixed Method Approaches. 2nd Edition. Thousand Oaks, CA: Sage Publications.

COURSE OUTCOMES:

- The students have a comprehensive knowledge on the tools and methods of research and provide a way to frame the reports in a proper way.
- They gain knowledge to present their research and contents in a professional way. They also secure lots of skills required to collect, assimilate and synthesis data relevant to handle a research topics and design thesis project independently

AR B 4806 ARCHITECTURAL DESIGN- VII 0 16 9

AIM:

To enable the students to design large scale building projects in an urban environment with emphasis on advanced building services and systems, urban development regulations, building by-laws and architectural controls.

OBJECTIVES:

- To develop skills for comprehensive understanding and dealing with Architecture of a group of buildings, inter connected with elements of urban design.
- Resolution of project to integrate complexity of urban dimensions and architectural language.
- Methods of space programming, analysis, evaluation of design criteria and concepts for large projects.

CONTENT:

Detailed study of methodology for design conception, development and detailing – with special emphasis on site planning, services, HVAC systems and architectural detailing

AREA OF FOCUS / ISSUES:

- Design problem shall consider the above and planning shall deal with the masses in relation to conservation of spaces, transportation and multiple activities.

- Design must establish linkages with urban structure, urban continuity, movement structure, landscaping, people and vehicular movement's system design, economics, architectural aesthetics and details.

TYPOLOGY/ PROJECT-

Railway Station, Inter State / Regional Bus Terminus, Airport, Star Category Hotel, Sports Stadium, Large scale Exhibitions etc.

TOTAL SESSIONS: 225

TEXT BOOKS:

5. De. Chiara and Callender, "Time-saver Standards for Building Types", McGraw-Hill Co.,

New York, 1973.

6. The Handbook of Building Types., NEUFERT ARCHITECTS DATA, New International edition, second international edition. BSP Professional Books. Oxford (1980) Blackwell scientific Publications.

7. Ed.By.Quentin Pickard RIBA "The Architects' Hand Book", Bladewell Science Ltd., 2002

REFERENCES:

1. S. Macmillan, 'Designing better buildings' - Routledge,2003

2. Handbook on Building Construction Practices (Excluding Electrical Work). Bureau of Indian Standards, New Delhi, 1997

3. National Building book of India 2005, Bureau of Indian Standards, New Delhi

COURSE OUTCOMES:

- Design advanced and complex problem comprising of group and multi stories structures and infrastructures.
- Use computer for drawing and presentation skills using appropriate software.
  Have solve the design problems in functional and aesthetical way

SEMESTER IX

AR B 5901 PROFESSIONAL ETHICS PRACTICE - II 3 0 3

AIM:

To expose the students to advanced issues concerning architectural practice such as Tendering, Contracting including alternative practices in project execution, Arbitration and Project management and to enable them to understand the implications of globalisation on architectural practice.

OBJECTIVES:

- To further the students understanding of the professional practice.
- To enable the students to grasp the advanced issues concerning professional practice such as tendering, contracting including alternative practices in project execution, arbitration and project management.
- To expose the students to the implications of globalisation on professional practice with particular reference to WTO and GATS.
- To expose the students on some of the important legislations concerning architectural practice in India as well as International laws.

CONTENT:

UNIT I TENDER 9

Types of Tenders-Open and closed tenders-Conditions of tender-Tender documents-Tender notice-Concept of EMD-Submission of tender-Tender scrutiny-Tender analysis Recommendations- E tendering (advantages, procedure, conditions).

UNIT II CONTRACT & ARBITRATION 9

Contents of Contract document (Articles of Agreement, Terms and Conditions of Contract, Important clauses - Appendix) - Arbitration (Definition, Advantages of arbitration, Sole and joint arbitrators, Role of umpires, Award, Conduct of arbitration proceedings) - Arbitration clause in contract agreement (role of architect, excepted matters) - case studies.

UNIT III NEW TRENDS IN PROJECT FORMULATION AND EXECUTION 9

Turn key offer (Expression of interest, Request for Proposal Document, Conditions for inviting turnkey offer, finalisation of the bidder) - Current practices in Project execution [Build operate and Transfer (BOT), Build Operate Lease and Transfer (BOLT) and Build Operate and Own (BOO) and others - case studies.

UNIT IV IMPLICATIONS OF GLOBALISATION IN ARCHITECTURAL PRACTICE 9

Globalisation (meaning, advantages) - WTO and GATS and their relevance to architectural profession in India - Pre-requisites for Indian architects to work in other countries - Preparedness and infrastructure requirements for global practice - Entry of foreign architects in India (views for and against) - Information Technology and its impact on architectural practice.

UNIT V EMERGING SPECIALISATIONS FOR AN ARCHITECT 9

Construction management (Role, function, and responsibilities of a construction manager) -Project management (Concept, Objectives, Planning, Scheduling, Controlling and Role and Responsibilities of project manager) - Suitability of architect as construction / project manager -Programme evaluation review Techniques (event, activity, dummy network rules, graphical guidelines for network - PERT network).

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Ar. V.S. Apte, "Architectural Practice and Procedure", Padmaja Bhide, Pune, 2008.
2. Architects Act 1972.
3. Dr. B.C. Punmiya and K.K. Khandelwal , "Project Planning and Control with PERT / CPM", Laxmi Publications, New Delhi, 1987.
4. Arbitration Act.
5. WTO and GATT guidelines.

REFERENCES:

1. Architects Act 1972.
2. Publications of Handbook on Professional practice by IIA. - 2003
3. Publications of Council of Architecture-Architects (Professional conduct) Regulations 2005. Architectural Competition guidelines
4. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984

COURSE OUTCOMES:

- Understand the properly and its implications to the owner of the property
- The issues regarding tenders architects and client role towards the contract.
- The role played by various agencies within the contractual clauses. Duties of sub

contractor payments, etc.

- Disputes between client and contractor areas of disputes likely to arise - Arbitral award to be final & binding.
  Learn about the laws regarding environment along with the building norms which are already available

AR B 5902 HUMAN SETTLEMENT PLANNING 3 0 3

AIM:

To familiarize with the evolution, pattern of human settlements & the process for the improvement of human living environment and also its relevance in architecture

OBJECTIVES:

- To enable the students to comprehend the evolution of settlements, its elements & classifications.
- To understand the various levels of planning, planning principles & the process over a period of time
- To outline the scope and content of Urban planning, Urban renewal and Regional planning and the various plans to be prepared.
- To enable students to understand how planning activities are regulated in the state at various levels.

UNIT IINTRODUCTION TO THE CONCEPT OF HUMAN SETTLEMENTS 9

Elements of human settlements context and contain - Meaning and Examples - Nature, Man, Society, shells and Network: Their sub elements, characteristics, functionaries / potentials, major aspects in spatial planning.
Classification of human settlements: Classification based on population, functions, locations, Municipal status.

UNIT II FORMS OF HUMAN SETTLEMENTS 9

Growth and decay of human settlements: Factors influencing the growth and decay, History of settlement studies (Ancient Classical, medieval, Renaissance industrial) Structure and Form of Human settlements - Linear, Non-linear & circular, examples and their functional characteristics of Indian and European towns and cities.

UNIT III PLANNING CONCEPTS 9

Contribution to planning thoughts & their relevance to Indian planning practice - Patric Geddes, Ebenezer Howard, CA Perry, Le Corbusier, Doxiadis - Principles and concepts with case studies.

UNIT IV URBAN AND REGIONAL PLANNING 9

Aim, objective, scope and content of Regional plan, Master plan, zonal plan, planned unit development (PUD) and urban renewal plan - Redevelopment, rehabilitation and conservation - Case - studies.

UNIT V LOCAL GOVERNANCE **9**

Objectives, Functions, Responsibilities and Organizational structure of: (i) Village Panchayats (ii) Municipalities (iii) Corporations and (iv) Urban Development Authorities.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. C.L.Doxiadis, Ekistics, "An Introduction to the Science of Human Settlements", Hutchinson, London, 1968.
2. Gallion Arthur B & Eisna Simon, "The Urban Pattern: City Planning and Housing", Cbs, 2005.
3. John Ratchiffe, An Introduction to Town and Country Planning, Random House.

REFERENCES:

1. L.R. Kadiyali, "Traffic Engineering and Transport Planning", Khanna Publishers, New. Delhi, 2000.
2. Government of India, "Report of the National Commission on Urbanisation", 1988.
3. Andro D.Thomas, "Housing and Urban Renewal", George Allen and Unwin, Sydney, 1986.
4. Rodwin, Lloyd, "Shelter, Settlements and Development" (Hemel Hempstead, United Kingdom, Unwin Hyman Ltd.), 1987.
5. Ministry of Urban Affairs and Employment, Government of India, New Delhi, 'Urban Development Plans: Formulation & Implementation' - Guidelines - 1996.
6. Madras Metropolitan Development Authority, 'Master Plan for Madras Metropolitan Area, Second Master Plan - 1995
7. Centre for Human Settlements, Anna University, Chennai 'Development Plan for Uthokottai Taluk, Cheyyur Taluk, 1999.
8. http://www.jadavpur.edu/academics/centers_human.htm
9. http://www.virtualref.com/uncrd/558.htm
10. http://www.unescap.org/huset/m_land/index.htm
11. http://www.esa.un.org/subindex/prviewsites.asp?termcode=GH.05
12. http://www.abuildnet.com
13. http://www.buildernews.com/

COURSE OUTCOMES:

- Have a comprehensive knowledge about the history of human settlements
- Have a complete knowledge about the various planning thoughts proposed by the scholars and its successful effects
- Understand and analysis the various housing conditions of the people and the road geometries of our cities.
- Understanding the scope and content of Urban planning, Urban renewal and Regional planning and the various plans to be prepared.
- Look at the role and activities of the various nodal agencies who regulate the city growth in our state.
  Examine the various futuristic models proposed by the scholars at present

AR B 5903 URBAN DESIGN 3 0 3

AIM:

The overall aim of the course is to help students formulate an understanding of the urban forms and spaces. City planning history and theory will be examined. The contemporary needs of the society and the role of spaces will be dealt along with the need for design development and control.

OBJECTIVE:

To understand the fundamental concepts and theories of urban design and apply them in their design projects.

UNIT I INTRODUCTION- EVOLUTION AND UNDERTANDING OF THE CONCEPT OF URBAN DESIGN 9

Evolution of urban design as a discipline – Need for urban design –different realms attacched to urban design- urban design theories and key personalities and there contribution to urban design (Gordon Cullen and Kevin Lynch)

UNIT II ELEMENTS AND APPROCHES OF URBAN DESIGN 9

Urban scale, Mass and Space; Understanding components of urban fabric; Making a Visual survey; Understanding the various urban spaces in the city and their hierarchy. Special focus on streets; Expressive quality of built forms, spaces in public domain

UNIT III CONCEPTS AND TECHNIQUES IN URBAN DESIGN 9

Concets and theories of William H whyte ;spacemaking and placemaking concepts of GHEL architects (case study : Copenhagen) .understandinf different terms involved in urban Design. Current trends in urban design

UNIT IV RENEWAL, REDEVELOPMENT AND FORMULATING URBAN DESIGN POLICIES 9

Understanding urban renewal and the need for it, Scope, challenge and Implementation methods; Public participation; Townscape policies and urban design guidelines for new developments- Case studies. A brief Analysis of urban spaces in history - in the Western world (Greek, Roman, Medieval and Renaissance towns) and the Eastern world (Vedic, temple towns, medieval and Islamic towns) ; Relevance of the historical concepts in the present context ; Critical analysis of some Indian cities like New Delhi, Chandigarh etc

UNIT V URBAN DESIGN EXERCISE 9

Conducting an urban design survey, Analysis of data, Formulating urban design guidelines and drawings for an area - practical problem solving. The first part of the urban design project could deal with the Identification and documentation of areas such as riverfronts, beach fronts, market areas, bazaars or commercial & residential districts with, its surrounding areas. And second part would be to solve and provide appropriate and relevant solutions for the same.

TOTAL SESSIONS: 45

TEXT BOOKS:

1. Gordon Cullen, "The Concise townscape", The Architectural press
2. Kevin Lynch, "Image of the city"
3. Cliff Moughtin, "Urban design - Ornament and decoration", Bath Press
4. Cliff Moughtin, "Urban design - street and square", Bath Press
5. Paul Zucker , "Town and square"
6. Arthur B Gallion, "The urban pattern", CBS publishers
7. Raymond J Curran , "Architecture and the urban experience", Van Nostrand Reinhold Company
8. Christopher Alexander, "Pattern language"
9. Christopher Alexander, "The timeless way of building"

REFERENCE READINGS:

1. Rangwala, "Town Planning", Charotar publishing house
2. David Gosling, "Concepts of Urban design ", Academy editions
3. Spiro Kostof, "City shaped" , Bulfinch Press
4. Paul D. Speriregon, "Architecture of town and cities", The MIT press
5. Johnathan Barnet, "An introduction to Urban design", Harper& Row Publishers
6. Arthur B. Gallion and Simon Eisner, "The Urban Pattern - City planning and Design", Van Nostrand Reinhold Company.

COURSE OUTCOMES:

- Have a comprehensive knowledge on the evolution of urban planning and its relation today.

  Be equipped to handle the urban design studio project at a town/city, region level from the studies, analysis, interpretation and design in accordance to the jurisprudence

AR B 5904 DISSERTATION 3 0 3

AIM:

The overall aim of the course is to prepare the students for formal report writing systematically on a particular topic related to architecture.

OBJECTIVE:

- To Widen and enrich the literature pertaining to the topic of interest
- To Prepare for their thesis

CONTENT:

As a fully, comprehensively, learnedly written essay is considered as a prelude to Architectural Thesis in the tenth semester. The course offers an opportunity to relook at architecture either as a subject or profession. Concentrating on an issue of interest to the student as it relates to built environment, dissertation is primarily textual.

Alternatively the topic may consider philosophy and contribution of an architect, historical perspectives, typological changes in material, technology, essays and writings of architects, design process, development and others. Dissertation involves a field of observation, reflection of thoughts, abstraction and exposition of ideas. The Dissertation should state its objectives, followed by exhaustive documentation, arguments and may result in a hypothesis.

Students shall submit a proposal in about 1500 words (5 To 6 pages). Stating the topic to be explored and the scope. At the end of the semester (Eighth) a well written report is to be submitted which is about 15,000 words in the prescribed format. The student must be able to present and defend during evaluation.

TOTAL SESSIONS: 90

TEXT BOOKS:

1. Ian Border, Kurt Rueiden, the Dissertation, an Architectural students Hand Book, - Architectural press - 2000.

REFERENCES :

1. Linda grand and David Wang, Architectural Research Method - John Wiley Sons, 2002.

COURSE OUTCOMES:

- Impart indepth knowledge on selected topics on their interest through wide literature study.
- Focus and orient for the thesis

AR B 5906 URBAN DESIGN STUDIO 0 16 9

AIM:

To delve into the perpetuity and dynamics of urban form with a gist on the interrelationships between the disciplines of architecture and the art of creating and shaping cities and towns

OBJECTIVES:

- To understand the psychological process and aspects of the urban environment as well as their interrelationships.
- To figure out larger scale groups of buildings, streets and public spaces, etc. to make the urban areas functional, attractive, and sustainable.
- To understand urban design as a tool for making connections between people and places, movement and urban form, nature and the built fabric.
- To take design decisions in a comprehensive manner understanding their implications in the larger context.

CONTENT:

Scale and Complexity: projects involving the urban context and architecture in the urban context with an emphasis on understanding interdependencies and formulating appropriate design directions.

AREAS OF FOCUS/ ISSUES:

- exploration of relationship between building and larger context
- contemporary processes in design
- appropriate architecture
- addressing issues in urban areas - transportation, sustainability, heritage, sprawl, place making, identity, collective memory
- Mixed use programming

Typology/ project: those involving large scale urban interventions as well as large scale projects which have impact on the urban context- revitalization and renewal of urban fragments, evolving guidelines for heritage areas, adaptive reuse, urban waterfront development, transportation nodes, new communities, multi-use urban complexes.

TOTAL SESSIONS: 225

TEXT BOOKS:

1. S. Macmillan, "Designing Better Buildings" . Routledge, 2003.
2. Digital Workflows in Architecture: Design - Assembly - Industry / Scott Marble- 2012

3. Masterpieces: Office Architecture + Design Lara Menzel - 2009
4. National Building Code and Bureau of Indian standard publications.2005

REFERENCES:

Digital Workflows in Architecture: Design - Assembly - Industry / Scott Marble

1. http://www.archdaily.com/category/institutional-architecture/
2. http://www.thehub.net.au/%7Emorrisqc/architext
3. http://www.archinet.co.uk/
4. http://archinform.de/start.en.htm

COURSE OUTCOMES:

- The students can able to design larger scale groups of buildings, streets and public spaces, etc. to make the urban areas functional, attractive, and sustainable.
- They also understand the psychological process and aspects of the urban environment as well as their interrelationships.

Use computer for drawing and presentation skills using appropriate software

SEMESTER - X

AR B 5106 ARCHITECTURAL THESIS 0 28 14

AIM:

The overall aim of the thesis is to test whether a student has acquired the requisite skill and competence in architecture before becoming a fully fledged architect.

OBJECTIVE:

The entire 5 years of architectural design crown in the thesis Project to arouse 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 design, contemporary design processes, urban design including urban-infill, rural settlements,environmental design, conservation and heritage precincts, landscape design, housing and topics related to construction technology. However, the specific thrust should be architectural design of built environment.

METHOD OF SUBMISSION

The Thesis Project shall be submitted in the form of portfolio of drawings, project report in prescribed format, models, slides and soft copy reports.

TOTAL SESSIONS: 364

TEXT BOOKS & REFERENCES:

As per requirement of Topic and as suggested by the supervisor of Thesis.

COURSE OUTCOMES:

- The students can handle large scale design problems
- Manage the profession at ease.
  The students can able to come out with comprehensive design solutions