UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

Syllabus
for
Session 2013-14
(B. Arch.)

Bachelor of Architecture (B.Arch.)

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - I

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 101	ARCHITECTURAL DESIGN - I	1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 HRS.
2	NAR - 102	CONSTRUCTION & MATERIALS - I	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 103	ARCHITECTURAL STRUCTURES - I	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 104	ARCHITECTURAL DRAWING - I	1	0	5	15	35	**50**	50	0	**50**	**100**	6	3 HRS.
5	NAR - 105	ARTS & GRAPHICS - I	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 106	SURVEYING & LEVELING	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
7	NAR - 107	COMMUNICATION SKILLS&TECHNIQUES	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
8	NAR - 108	COMPUTERS	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 109	SOCIOLOGY	1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.
		TOTAL	**11**	**4**	**18**							**950**	**33**	
		GENERAL PROFICIENCY										**50**		
		GRAND TOTAL										**1000**	**33**	

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - II

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 201	ARCHITECTURAL DESIGN - II	1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 HRS.
2	NAR - 202	CONSTRUCTION & MATERIALS - II	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 203	ARCHITECTURAL STRUCTURES - II	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 204	ARCHITECTURAL DRAWING - II	2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.
5	NAR - 205	ARTS & GRAPHICS - II	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 206	ARCHITECTURAL SERVICES - I	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 207	HISTORY OF ARCHITECTURE - I	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 208	RESEARCH - I	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 209	ECOLOGY & ENVIRONMENT	1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.
	TOTAL		**13**	**7**	**13**							**950**	**33**	
	GENERAL PROFICIENCY											**50**		
	GRAND TOTAL											**1000**	**33**	

B. ARCH. SEMESTER – I
NAR – 101, ARCHITECTURAL DESIGN - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 HRS.

OBJECTIVES

- Orientation of students to the profession of architecture.
- Introduction to basic design and the basic understanding of form and space in architecture.

Module-1	**Orientation to the Architecture Profession**	Role of an Architect in the built environment. Building process, Role of other professional in building. A general survey of the changes in habitat in history. Architects act, C.O.A., I.I.A., NASA.
Module-2	**Space and Architecture**	Understanding design as to create for a particular purpose and architectural design as to create space – exercise in terms of simple drawing and sketching of objects available in nature and surroundings. Form created through lines (columns) and planes (volumes), combination thereof.
Module-3	**Form and Transformations**	Additive, Dimensional, Subtractive - exercises primarily through 3-D models of simple geometrics.
Module-4	**Scale in Architecture**	Simple measurement exercises.
Module-5	**Order in Architecture**	Geometrical, Structural, Dimensional, Material, Spatial order - through observation of surroundings as well as simple exercises in 2-D and 3-D. Exercises in order and transformations of form and space.

REFERENCE BOOKS

1. Ching, Francis D. K. “Architecture : Form, Space and Order”, John Wiley and Sons Inc.
2. Lidwell, William, Holden, Kestina, Butler, Jill, “Universal Principles of Design”, Rockport – Publications, Massachussets.

B. ARCH. SEMESTER – I
NAR – 102, CONSTRUCTION & MATERIALS – I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building works.
- To develop skills in understanding the complexities & constrains of brick masonry and joinery in carpentry.
- To familiarize the student with the basic building construction practices on site.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1	**Clay & Clay Products**	Mud including stabilised earth, Burnt Brinks, Brick Tiles, Brick Ballast and Surkhi.
	Stone	Classification, Availability, Characteristics and Uses.
Module-2	**Lime**	Availability, Preparation and Uses
	Cement	Manufacture and Properties.
Module-3	**Sand &Surkhi**	Characteristics, Availability and Uses.
	Mortar	Mud, Lime, Cement.
Module-4	**Concrete**	Lime, Cement.

LIST OF ASSIGNMENTS (Markrt Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit brick kiln/ lime kiln/ cement factory etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5	**Workshop/Construction Yard Practice**	Practicing in construction yard by making the examples of brick masonry works etc.
Module-6	**Site Exposure**	Exposure to building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in masonry works.
2. To construct examples of brick & stone masonry works in construction yard.
3. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1	**Element of Building**	Terminology, Nomenclature of various parts of building from foundation to roof.
Module-2	**Brick Work**	Brick Terminology, Simple Bonds e.g. English bond & Flemish (single and double) bond in brick work for up to two brick thick walls.
Module-3	**Brick Work**	Details at quoins and junctions in English bond and Flemish bond for up to two brick thick walls.
Module-4	**Brick Work**	Details of piers (attached and detached), Buttresses, Lintel and Sill.
Module-5	**Stone Work**	Elementary Stone Masonry, Types of joints. Random, Course and Ashlar Stone Work.
Module-6	**Foundation**	Need, Design criteria, Foundation concrete, Details of simple spread foundations for load bearing walls of various thicknesses up to two brick thick.

CONSTRUCTION PLATES

1. To understand the terminology used in buildings, through face section.
2. To understand square stopped ends of said bonds in brick masonry.
3. To understand L, T and X Junctions of said bonds in brick masonry.
4. To understand of piers (attached and detached), Buttresses, Lintel and Sill.
5. To understand square stopped ends of Random, Course and Ashlar stone masonry.
6. To understand spread foundation for masonry load bearing walls.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian climatic conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
3. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
4. The Construction of Buildings – Barry Volume I, II, III and IV
5. Chudley, Roy, "Construction Technology", Longman, 2005.
6. Building Construction_Mitchell (Elementary and Advanced)
7. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
8. Building Construction-Bindra&Arora.
9. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
10. Building Materials by SC Rangwala: Charotar Pub. House, Anand
11. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill
12. Publishers, New Delhi, 2011.
13. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
14. National Building Code of India (Latest Edition), Bureau of Indian Standards.
15. Engineering Materials-Deshpande.
16. Engineering Material-Roy Chowdary
17. Designing with models – Criss. B. Mills.
18. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
19. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
20. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.
21. Wenninger (Magrus.J.) Spherical Models, Cambridge University Press, 1979

B. ARCH. SEMESTER – I
NAR – 103, ARCHITECTURAL STRUCTURES - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

Module-1	**Simple Stresses and Strains**	Elasticity, Stress, Strain, Types of stresses, Elastic limit, Hook's Law, Modulus of Elasticity, Stresses in Composite Bars. Primary or Linear Strain, Poison's ratio, Shear stress, Principal stresses and strains.
Module-2	**Centre of Gravity**	Definition, Methods of finding out centre of gravity of simple figures, Centre of parallel forces.
Module-3	**Moment of Inertia**	Definition, Important theorems, Calculation of moment of inertia by first principles and its application, Moment of inertia of composite sections.
Module-4	**Elements of Statics**	Simple beams bending, Section modulus, Direct and bending stress. Shear stress in section of beam, Shears centre.
Module-5	**Shear Force and Bending Moments**	Beams shearing force and bending moment, Moment of resistance. Shear force and Bending moment diagrams.

REFERENCE BOOKS

1. Nautiyal B. D., "Introduction to Structural Analysis", B.H.U.
2. Punmia P. C., "Strength of Materials & Mechanics of Structures".
3. Khurmi R. S., "Strength of Materials".
4. Senol Utku , "Elementary Structural Analysis".
5. Rama Armarutham S., "Strength of Materials".

B. ARCH. SEMESTER – I
NAR – 104, ARCHITECTURAL DRAWING - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	5	15	35	**50**	50	0	**50**	**100**	6	3 HRS.

OBJECTIVES

- To familiarize with drawing tools and accessories.
- To give a basic knowledge of good drafting and lettering techniques.
- To develop comprehension and visualization of geometrical forms.
- To familiarize with the concept of enlarging and reducing scales.

SECTION – A, ARCHITECTURAL DRAWING (MANUAL)

Module-1	**Free Hand Drawing and Lettering**	Free hand and mechanical lettering.
Module-2	**Basic Technical Drawing**	Concept and types of line, Division of lines and angles, Drawing polygons, Inscribing and circumscribing circles in polygons, Drawing geometrical curves helix, Conoid etc.
Module-3	**Orthographic Projections**	Definition, Meaning and concept, Planes of Projections, First angle projections, Projection of points, Lines and planes in different positions.
Module-4	**Orthographic Projections**	Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions. Sections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in varying conditions of sectional plane.
Module-5	**Development of Surfaces**	Development of surfaces of cubes, prisms, cylinders, pyramids, cones and spheres.
Module-6	**Solid Geometry**	Construction of section, Intersection and interpenetration of solid.

REFERENCE BOOKS

1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. N.D.Bhatt, Elementary Engineering Drawing (Plane and Solid Geometry), Charotar Publishing House, India
4. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by AmericanTechnical Society, 1966.
5. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964

B. ARCH. SEMESTER – I
NAR – 105, ARTS AND GRAPHICS - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Introduction to art and appreciation of art and its philosophies.
- To familiarization with principles and theories and graphic and architectural composition
- Development of art and graphic skills.

Module-1	**Philosophy of Art**	Relevance of art of life - Art and artist, Art and society, Art and religion, Art and mysticism.
Module-2	**Appreciation of Art**	Painting, Sculpture.
Module-3	**Art in Architecture**	Psychological and emotional aspect of aesthetics.
Module-4	**Theory of Design**	Elements of Design - Line, Direction, Shape, Size and Form.

DRAWING PLATES

1. To develop free hand skills - Drawing lines, Joining points, Drawing curves,
2. To develop comprehension of scale,
3. To understand still life drawing - from Observation
4. To drawing nature - shrubs, trees, grass, plants, flowers, rocks, water.

REFERENCE BOOKS

1. Arnold Dana, “Art History – A Very Short Introduction” , Oxford University Press.
2. Stallabrass, Julian, “Contemporary Art – A Very Short Introduction” , Oxford University Press.

B. ARCH. SEMESTER – I
NAR – 106, SURVEYING & LEVELING

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To develop knowledge and skills related to surveying and levelling principles and practice.

Module-1	**Introduction**	Definition, classification, principles of surveying, Units of measurement, Scale, Signs convention.
Module-2	**Chain Survey**	Instruments used, Types of chain, Instruments for ranging, Setting out angles, Erecting perpendiculars, Selection of station, Methods of taking offset, Obstacles in chaining.
Module-3	**Plane Table Survey**	Plane table and accessories, Methods of plane table survey, Radiation, Intersection, Traversing and resection, Two point and three point problems and their solution.
Module-4	**Levelling**	Definition, Classification, Booking and reduction of levels, Profile & cross section leveling, Errors in leveling.
Module-5	**Theodolite**	Study of instruments, Definition of different terms, Temporary adjustments, Uses, Measuring horizontal and vertical angles, Method of repetition, Extension of lines.
Module-6	**Contouring**	Characteristics of contours, Direct and indirect methods of contouring, Interpolation, Uses of contours, Calculation of area & volume.
Module-7	**Compass Survey**	The prismatic compass, Surveyor compass and its construction and **u**ses, Reduced and whole circle bearing, Magnetic declination, Effect of local attraction.
Module-8	**Traverse Survey**	Introduction and different methods of traversing, Error of closure.
Module-9	**Total Station Survey**	Introduction, Working principle of total station and its use. Use of software for different applications.
Module-10	**Photogrammatery**	Definition, Principles and application of photogrammatery in surveying.

LIST OF ASSIGNMENTS (Field Exercises & Drawings)

1. To find out horizontal distance between two points and plotting the details on lateral side of chain line using chain, tape, ranging rod & cross staff etc.
2. Two point problem & three point problem.
3. Making L-section & Cross section of a profile.
4. Making grids on ground using theodolite & taking spot level &drawing contour lines.
5. Making a regular polygon in field and finding error of closure using different equipment.
6. Preparing topographical map of given area using total station.
7. Study various aerial images.

REFERENCE BOOKS

1. Surveying Volume I & II by Dr. B.C. Punmia
2. Surveying and Leveling (Part – 1) by Kanetkar TP and Kulkarni SV
3. Surveying Volume -1 by Dr. K.R.Arora.

B. ARCH. SEMESTER – I
NAR – 107, COMMUNICATION SKILLS & TECHNIQUES

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To development in students communicative, writing and presentation skills.
- To enable them to record, report analyzes, evaluate and understand architecture, both in its theoretical and practical form.

Module-1	**Revision**	Sentence, Phrase, Clause and parts of speech - Noun-gender, Number case, Pronoun-personal' reflexive, Emphatic, Demonstrative, Indefinite, Distributive, Reciprocal, Adjective, Article, Preposition, Conjunction and Interjection. Vocabulary, Word building and word formation, Phrases and idioms, Proverbs, Reading a dictionary, Using a thesaurus.
Module-2	**Composition and Comprehension**	Essay, Story and letter writing, Summarizing, Comprehension - unseen passages.
Module-3	**Technical Communication**	Objective, Process, Levels and Flow of communication, Communication networks, Visual aids, Group communications.
Module-4	**Effective Presentation Strategies**	Effective speaking, Types of speaking, Presentation with electronic aids.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford UniversityPress, New Delhi.

B. ARCH. SEMESTER – I
NAR – 108, COMPUTERS

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

Module-1 **Introduction**
Introduction to computers and hardware's, General idea about popular operating systems and software, Basics of Internet.

Module-2 **MS Office - MS Word**
Create a document that can be used by previous versions of word, Saving Options.
Create a document -
Open a new document and start typing, Start a document from a template, Delete a document, Add a heading, Adjust the spaces between lines or Paragraphs, Insert a page break, Insert a picture or clip art, Insert or create a table, Headers, Footers, and Page numbers, Create a table of contents, Apply themes to Word documents, Add a cover page.
Read documents in Word -
Read a document, Mark up a document, Find or look up words and phrases, Turn on or off - full screen reading view.

Module-3 **MS Office – MS Excel**
Getting Started with Excel -
Create a workbook, Enter data in a worksheet, Format a worksheet, Format numbers in a worksheet, Print a worksheet, Create an Excel table, Filter data by using an auto filter, Sort data by using an auto filter, Apply conditional formatting, Apply data validation, Create a formula, Use a function in a formula, Chart your data, Create a macro, Create a pivot table report, Activate and use an add-in
Keyboard shortcuts in Excel 2010 -
Keyboard access to the ribbon, CTRL combination shortcut keys, Function keys, Other useful shortcut keys.

Module-4 **MS Office – MS Power point**
Create a basic PowerPoint presentation -
Name and create a new presentation, Open a presentation, Save a presentation, Insert a new slide, Add, Rearrange and delete slides, Add text to a slide, Apply a template to your presentation, Apply a theme to add color and style to your presentation, Insert a picture or clip art and insert content or insert a screenshot, Add, Change, or Delete shapes, Create a smart art graphic, Add slide numbers, Page numbers, Date and time, Create a hyperlink, Deliver and distribute your presentation, View a slide show and View your speaker notes privately, while delivering a presentation on multiple monitors, Print out a presentation, Tips for creating an effective presentation.

REFERENCE BOOKS

1. "Microsoft Office – 2013".
2. Dr. Paolo Coletti, "Basic Computer Course Book", Free University of Bolzano Bozen.

B. ARCH. SEMESTER – I
NAR – 109, SOCIOLOGY

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.

OBJECTIVES

- To expose the students to the relationship between man and environment.
- To familiarize the students with basic concepts, theories and issues of Sociology and its relevance to architecture

Module-1	**Introduction**	Story of Sociology, Sociology and Architecture, Basic concepts of society - Group, Community (Rural and Urban), Association, Institution.
Module-2	**Culture and Society**	Concept of culture, Cultural identity, Cultural diversity, Cultural change.
Module-3	**Process of Socialisation**	Types of society. Pre-Modern - Hunter's and Gathers, Pastoral agrarians and Traditional states. Modern. Third world / Traditional Society.
Module-4	**Social Demography**	Population growth, Population subsistence & Migration.
Module-5	**Social Institutions**	Family, Marriage, Religion.
Module-6	**Social Infrastructure**	Education, Health, Recreation.

REFERENCE BOOKS

1. An Introduction to Sociology by Vidya Bhushan and D.R. Suchdeva
2. Sociology: A Systematic Introduction by Harry M. Jhonson
3. Indian Society and Culture – Continuity & Change by Nadeem Husnain
4. Principles of Population Studies by Asha A. Bhende & Tara Kanitkar

B. ARCH. SEMESTER – II
NAR – 201, ARCHITECTURAL DESIGN - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 HRS.

OBJECTIVES

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.

Module-1	**Anthropometrics Studies**	Studies and introduction to human dimensions and functions, Space-activity relationships, Measure drawings of simple living units.
Module-2	**Living Spaces and Building**	Measuring, Drawing and dimensioning of simple building components. Designing for basic functions of human beings, e.g. living, eating, sleeping, cooking etc.
Module-3	**Building Design**	Design of mono-cellular-unit/structure on a level plane, Designing of simple activity spaces, Designing of multiple but simple activity spaces involving primarily horizontal circulation.

SUGGESTED STUDIO EXCERCISES

Small space structures such as Kiosks/Small shops, Milk booths, Bus shelters, Petrol pumps, Gazebo, Florists shop, Entrance gates, Exhibition stalls, ATMs, Chowkidar's hut etc.

REFERENCE BOOKS

1. Ching, Francis D. K. "Architecture : Form, Space and Order", John Wiley and Sons Inc.
2. Lidwell, William, Holden, Kestina, Butler, Jill, "Universal Principles of Design", Rockport – Publications, Massachussets.
3. "Neufert Architect's Data", Blackwell Publishing.
4. Donald Watson and Michael J. Crosbie, "Time – Saver Standards for Architectural Design, Technical Data for Professional Practice", McGRAW - HILL.

B. ARCH. SEMESTER – II
NAR – 202, CONSTRUCTION & MATERIALS – II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To acquaint the students to building materials such as Timber, Reinforced Cement Concrete and Reinforced Brick Work.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1	**Timber**	Classification, Characteristics, Defects, Preservation.
Module-2	**D.P.C**	Asphalt, Bitumen, Synthetic, etc.
Module-3	**Reinforced Cement Concrete**	Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability.
Module-4	**Reinforced Brick Work**	Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit Timber depot/Ready mix concrete plants etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5	**Workshop / Construction Yard Practice**	Practicing in construction yard by making the examples of brick masonry works, Carpentry works, etc.
Module-6	**Site Exposure**	Exposure to building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in masonry and carpentry works.
2. To construct examples of brick masonry works in construction yard.
3. To construct examples of timber joints in workshop and study the various hardware commonly used in doors.
4. To survey construction work on site and submit report

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1	**Brick Work**	Arches in brick and stone, Elementary principles, Centering.
Module-2	**Brick Work**	Corbelling, Coping, String courses, Brick jalis.
Module-3	**Brick Work**	Special Bonds - Rat Trap Bond.
Module-4	**Timber**	Elementary carpentry, Common joints,
Module-5	**Timber**	Details of framed, ledged, braced and batten doors.
Module-6	**D.P.C.**	Horizontal and vertical D.P.C.

CONSTRUCTION PLATES

1. To understand the terminology of arches and the various type of arches in brick.
2. To understand Corbelling, Coping, String Courses, Brick jalis.
3. To understand Special Bonds - Rat Trap Bond.
4. To understand various types of joints in timber.
5. To understand wooden Framed, Ledged, Braced and Batten Door.
6. To understand horizontal and vertical DPC for load bearing walls.

APPROACH

- The students would be familiarized with glossary of vernacular terminology as prevalent in this part of the county
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits to Timber market and Construction sites.
- Knowledge about rates of materials should be given.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – BarryVolume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra&Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Building Materials by SC Rangwala: Charotar Pub. House, Anand
10. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill
11. Publishers, New Delhi, 2011.
12. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
13. National Building Code of India 2005, Bureau of Indian Standards, 2005.
14. Engineering Materials-Deshpande.
15. Engineering Material-Roy Chowdary
16. Designing with models – Criss. B. Mills.
17. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
18. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
19. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.
20. Wenninger (Magrus.J.) Spherical Models, Cambridge University Press, 1979

B. ARCH. SEMESTER – II
NAR – 203, ARCHITECTURAL STRUCTURES - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To understand the basic principles of structural mechanics so that it forms the basis for study of structural design.

Module-1	**Stresses in Trusses**	Definitions, Forces in members, Analytical method, Method of sections, Graphical method, Link polygon.
Module-2	**Torsional Stress**	Simple cases.
Module-3	**Plain Concrete**	Concrete mix, Curing and strength of concrete, Effect of temperature, Shrinkage, Fatigue.
Module-4	**Deflection of Beams**	Double Integration, Moment area, Method consistent deformation.
Module-5	**Column**	Definition, End conditions, Buckling and critical loads, Slenderness ratio, Various column theories.

REFERENCE BOOKS

1. Nautiyal B. D., “Introduction to Structural Analysis”, B.H.U.
2. Punmia P. C., “Strength of Materials & Mechanics of Structures”.
3. Khurmi R. S., “Strength of Materials”.
4. Senol Utku , “Elementary Structural Analysis”.
5. Rama Armarutham S., “Strength of Materials”.

B. ARCH. SEMESTER – II
NAR – 204, ARCHITECTURAL DRAWING - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.

OBJECTIVES

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To develop perception and presentation of simple architectural forms and buildings.
- To develop or upgrade an understanding about AutoCAD 2D, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

SECTION – A, ARCHITECTURAL DRAWING (MANUAL)

Module-1	**Metric Drawing**	Introduction, Types, Uses and advantages, Isometric, Axonometric and Pictorial view.
Module-2	**Metric Drawing**	Metric drawing and projection and their dimensioning.
Module-3	**Metric Drawing**	Metric of plane figures composed of straight lines.
Module-4	**Metric Drawing**	Metric of circles.
Module-5	**Metric Drawing**	Metric of simple and complex blocks.
Module-6	**Perspective Drawing**	Introduction, Purpose and use, Differences with metric projections, Anatomy of a perspective – cone of vision, Station point, Picture plane, Eye level, Horizon line, Ground line, Vanishing point, etc., Types of perspective - One point, Two points, and Three point perspectives.
Module-7	**Perspective Drawing**	One Point Perspective - Perspectives of simple and complex box blocks.
Module-8	**Perspective Drawing**	One Point Perspective - Perspective of simple curved surface.
Module-9	**Perspective Drawing**	One Point Perspective - Perspective of simple household furniture items.
Module-10	**Perspective Drawing**	Two Point Perspective - Perspectives of simple and complex box blocks.
Module-11	**Perspective Drawing**	Two Point Perspective - Perspective of simple curved surface.
Module-12	**Perspective Drawing**	Two Point Perspective - Perspective of simple household furniture items.

SECTION – B, ARCHITECTURAL DRAWING (COMPUTER)

Module-1	**Exploring the Interface**	Installation and launching autocad, Using Application menus, Using ribbons, Expanding panels, Understanding flyouts, Pick point in the drawing area, Saving a file and working with multiple files.
Module-2	**Creating your First Drawing**	Starting from scratch, Understanding paper area, Unit, Scale, Planes, Using the UCS icon, Design templates, Types and use of 2D Drafting tools, Dimensioning, 2D keyboard commands.
Module-3	**Organisation of Drawing**	2D isometric views, Materials and textures, Reference other drawing files, Link and embed data (OLE), Work with data in other formats and exporting 2D drawings to various software, Extract data from drawings and spread sheets, Access external databases.
Module-4	**Effective Presentation**	Layer management, Plotting and publishing the drawing in modal space and paper space.

REFERENCE BOOKS

1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. N.D.Bhatt, Elementary Engineering Drawing (Plane and Solid Geometry), Charotar Publishing House, India
4.. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by AmericanTechnical Society, 1966.
5. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964
6. Introducing AutoCAD and AutoCAD LT - GeorgeOmura
7. Mastering AutoCAD - GeorgeOmura
8. AutoCAD 2013 and AutoCAD LT 2013 “BIBLE” - Ellen Finkelstein

B. ARCH. SEMESTER – II
NAR – 205, ARTS AND GRAPHICS - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition
- Development of art and graphic skills.

SECTION – A, ARTS AND GRAPHICS

Module-1	**Philosophy of Art**	Renaissance - Giotto, Leonardo da vinci, Michael Angelo. Baroque – Rambrandt. Realism –Rodin, Ingres. Impressionism – Monet, Renoir,Gauguin, Van gaugh, Fauvism – Matisse.
Module-2	**Philosophy of Art**	Cubism – Picasso, Henry Moore, Duchamp. Expressionism Paul klee, Chagall Surrealism- Dali
Module-3	**Theory of Design**	Unity, Elements of Unity, Texture, Colour, Tone Direction, Proportion, Form and shape, Solids and Voids.
Module-4	**Theory of Design**	Aspects of Unity- Dominance, Harmony, Proportion, Rhythm, Vitality.

DRAWING PLATES

1. To develop free hand skills - Drawing People, Furniture, Fabric and Transport from imitation, observation recapitulation.
2. To develop Rendering Techniques – Texture of materials and finishes, using equipment's like transfers and airbrush.
3. To develop Rendering Techniques – rendering architectural drawings.

SECTION – B, PHOTOGRAPHY

Module-1	**Introduction to Photography**	Development of photography, Historical background, Different types of cameras.
Module-2	**Photography Techniques**	Lighting techniques, Digital photography with DSLR.

LIST OF ASSIGNMENTS (Field Exercises & Drawings)

1. To understand the techniques of photographing various subjects - Landscape, Portrait, and Building etc.

REFERENCE BOOKS

1. Arnold Dana, "Art History – A Very Short Introduction" , Oxford University Press.
2. Stallabrass, Julian, "Contemporary Art – A Very Short Introduction" , Oxford University Press.

B. ARCH. SEMESTER – II
NAR – 206, ARCHITECTURAL SERVICES – I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To understand the basic principles of water supply and sanitation.
- To make them enable to draw the piping system (pipe above ground and underground) for different types of buildings.
- To familiarize the student with plumbing bye laws as per BIS.

SECTION – A, WATER SUPPLY

Module-1 Water Supply

Need to protect water supply, Requirements of water supply to different types of buildings.
Sources of water supply, Quantity and quality of water.
Conveyance and distribution of water, Overhead tank, Underground tanks, Pipe appurtenances.
Hot and cold water supply system in a low rise and high rise buildings. Distribution system in campus, Pipes their size, Jointing and different fittings.

SECTION – B, SANITATION

Module-2 Sanitary Engineering

Purpose and principles of sanitation, Collection and conveyance of waste matter.
Quantity and Quality of refuse, Design and construction of sewer's and sewer appurtenances.
Garbage and sewage disposal.
Roof and surface water drainage. Rain water storage and water harvesting principles and methods.
Sanitary appliances, Traps their variety, Pipes and joints, Sanitary pipes works below and above ground level.

SECTION – C, APPLICATION

Module-3 Plumbing & Sanitary Drawing

The plumbing and sanitary system for individual spaces e.g. kitchen, toilet, wash area, utility etc.
The plumbing and sanitary system for a residence.

REFERENCE BOOKS

1. The construction of building by Barry-vol.-5
2. Water supply and Sanitation by Charanjit Shah
3. Water supply & sanitary Engineering by S.C.Rangawala
4. Water supply & sanitary Engineering by S. K.Hussain

B. ARCH. SEMESTER – II
NAR – 207, HISTORY OF ARCHITECTURE – I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To inform about the development of architecture in the ancient western world and the cultural and contextual determinants that produced that architecture.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the prehistoric world and in ancient Egypt, West Asia, Greece and Rome.

Module-1	**Prehistoric Age**	Introducing concepts of culture and civilization - Paleolithic and Neolithic culture - art forms and evolution of shelter - megaliths - agricultural revolution and its impact on culture and civilization with examples from Carnac and Stonehenge.
Module-2	**Birth of Civilization**	In reference to the Asia-minor region with nascent cities like Jericho, Catalhoyuk, and Hattasus etc.
Module-3	**Ancient River Valley Civilizations: Egypt**	Landscape and culture of Ancient Egypt- history - religious and funerary beliefs and practices - monumentality tomb architecture: evolution of the pyramid from the mastaba – Great Pyramid of Cheops, Gizeh etc.
Module-4	**Ancient River Valley Civilizations: Egypt**	Temple architecture: mortuary temples and cult temples - Temple of Ammon Ra, Karnak, Khons - Temple of Abu Simbel (Rock Cut) etc.
Module-5	**Ancient River Valley Civilizations: Mesopotamia**	Urbanization in the fertile crescent - Sumerian, Babylonian, Assyrian and Persian culture, Evolution of city-states and their character, law and writing , theocracy and architecture - Ninveh, Khorsahbad, Marie, Babylon etc.
Module-6	**Ancient River Valley Civilizations: Mesopotamia**	Evolution of the ziggurat - Ziggurat of Ur, Urnamu etc., Evolution of the palaces - Palace of Sargon, Khorsabad - Palace at Persepolis.
Module-7	**Ancient Civilizations: Aegean**	With reference to cities in Aegean like Troy, Sparta, Mycenae, which formed the basic of Greek civilization?
Module-8	**Classicial Period: Greece**	Orders in architecture: Doric, Ionic, Corinthian - optical illusions in architecture, Domestic architecture; Public Buildings: Agora, Stoas, Theaters, Bouletrion and Stadias.
Module-9	**Classicial Period: Greece**	Greek temple: evolution and classification - Parthenon and Erecthion, Geometry and symmetry of individual buildings and their relationship with others based on different organizing principles and conditions of site.
Module-10	**Classical Period: Rome**	Roman history: Republic and Empire- Roman religion and the Roman temple - Roman character - lifestyle, Roman urban planning - art and architecture as imperial propaganda: forums and basilicas.
Module-11	**Classical Period: Rome**	Orders in architecture: Tuscan and Composite, Domestic architecture – structural forms, materials and techniques of construction.
Module-12	**Classical Period: Rome**	Rome: Forum Romanum and other Imperial forums, Enclosure and manipulation of space: Pantheon - Public buildings: Colloseum, Circus Maximus, Thermae of Caraculla.

REFERENCE BOOKS

1. Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress, 1996.
2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London, 1985.
3. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994
4. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams,
5. Inc.Pub., New York, 1972.

6. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,
7. London, 1986.
8. Gosta,E.Samdstrp, Man the Builder, Mc.Graw Hill Book Company, New York, 1970.
9. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962
10. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.

B. ARCH. SEMESTER – II
NAR – 208, RESEARCH - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Understanding basic principles of any research with special reference to architectural research and applications.

Module-1	**Introduction**	Importance of architectural research and writing.
Module-2	**Technical Writing**	Language, Impersonal and formal language, Elements of style, Techniques.
Module-3	**Book Reviews**	Basics of reviewing a book.

LIST OF ASSIGNMENTS

1. Review of an architectural book/books prescribed by subject teacher.
2. Report on ongoing architectural project.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, “Technical Communications – Principles and Practices”, Oxford UniversityPress, New Delhi.

B. ARCH. SEMESTER – II
NAR – 209, ECOLOGY & ENVIRONMENT

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.

OBJECTIVES

- To inform about the fundamentals related to Ecosystem.
- To develop understanding of the Environment and Environmental issues, their causes and mitigation measures.
- Finally, the application of ecological and environmental principles and guidelines to their architecture/planning projects.

Module-1	**Introduction**	Definition and origin of ecology, Basic concepts of ecology, Major divisions of ecology, Definition of environment, Interaction among ecological factors – light & temperature, precipitation, humidity, gases/wind, topography.
Module-2	**Soil – Edafic Factors**	Definition of soil, Formation of soil, Soil profile, Classification, Soil complex, Soil depletion, degradation and conservation.
Module-3	**Water Regimes**	Water in nature, Water balance problem, Surface / ground water, Sources of water pollution, Ground water pollution, Marine pollution, Prevention / control of pollution, Conservation & management.
Module-4	**Biotic Factors**	Concept of species, Plants – Propagation, Animals – Extinction, Human population dynamics, Ecological succession, Ecosystem development, Climate concept, formation of biomes.
Module-5	**Ecosystem**	Kinds of ecosystem – natural and artificial, Structure, function and energy flow of ecosystem.
Module-6	**Air Pollution**	Kinds of air pollution, Sources of air pollutants, Effects – Depletion of Ozone, Acid Rain, Prevention & control of air – pollution, Noise pollution
Module-7	**Global Environmental Issues**	Global warming & climate change, Loss of bio-diversity, Desertification, Deforestation,

REFERENCE BOOKS

1. Sharma P.D., "Ecology and Environment", Rastogi Publications, Meerut, India.
2. Perlman, D. and Miclder, J., "Practical Ecology for Planners Developers and Citizens", Island Press.
3. Platt, R.H., "The Ecological City: Preserving and Restoring Urban Bio diversity", N.Y.Academy of Sciences.
4. Register, R., "Ecocities: Building cities in balance with Nature", New Society Publishers.
5. Todd, N.J. and Todd, J., "Principles of Ecological Designs", North Atlantic Book.
6. Paolo, S., "Arcology: The City in the Image of Man", Rev. Edn. MIT Press
7. Voula, M., "Sustainable Development, Energy and the city: A Civilization of Concepts and Actions",Elsevier.

UTTAR PRADESH TECHNICAL UNIVERSITY
LUCKNOW

SYLLABUS

Bachelor of Architecture

2nd Year (III & IV Semester)

(Effective from Session 2013-2014)

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - III

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 301	ARCHITECTURAL DESIGN - III	1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 + 3 HRS.
2	NAR - 302	CONSTRUCTION & MATERIALS - III	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 303	ARCHITECTURAL STRUCTURES - III	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 304	ARCHITECTURAL DRAWING - III	2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.
5	NAR - 305	ARTS & GRAPHICS - III	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 306	ARCHITECTURAL SERVICES - II	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 307	HISTORY OF ARCHITECTURE - II	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 308	RESEARCH - II	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 309	CLIMATOLOGY	1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.
		HUMAN VALUES & PROFESSIONAL ETHICS	2	0	0	15	10	**25**	50	0	**50**	**75***		2 HRS.
		TOTAL	**15**	**7**	**13**							**950**	**33**	
		GENERAL PROFICIENCY										**50**		
		GRAND TOTAL										**1000**	**33**	

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - IV

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 401	ARCHITECTURAL DESIGN - IV	1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 + 3 HRS.
2	NAR - 402	CONSTRUCTION & MATERIALS - IV	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 403	ARCHITECTURAL STRUCTURES - IV	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 404	ARCHITECTURAL DRAWING - IV	2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.
5	NAR - 405	ARTS & GRAPHICS - IV	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 406	ARCHITECTURAL SERVICES - III	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 407	HISTORY OF ARCHITECTURE - III	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 408	RESEARCH - III	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 409	BUILDING ECONOMICS	1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.
		CYBER LAWS	2	0	0	15	10	**25**	50	0	**50**	**75***	-	2 HRS.
		TOTAL	**15**	**7**	**13**							**950**	**33**	
		GENERAL PROFICIENCY										**50**		
		GRAND TOTAL										**1000**	**33**	

B. ARCH. SEMESTER – III
NAR – 301, ARCHITECTURAL DESIGN - III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 + 3 HRS.

OBJECTIVES

- To familiarize students with a simplest residential unit.
- Understanding the use of traditional indigenous materials & construction systems in basic building forms.
- Comprehension of arrangement / organization of spatially/ functionally similar units resulting in varied outdoor spaces.
- To assimilate the modifying spatial qualities of indoor & outdoor spaces due to varying configurations.

Module-1	**Study**	Lecture on concept of vernacular & lessons to be learnt. Detailed study of a vernacular settlement remarkable for its spatial quality, material, and construction technology usage should be characteristic for that region.
Module-2	**Analysis**	Lectures on Elements of Space making like Floor, Wall, Door, Window, Column, Stairs, and Roof. Analysis of the selected settlement in light of their spatial roles and consequently the design considerations. Lectures on the spatial attributes of the resultant open & built of the vernacular and lessons to be learnt from the study & their juxtaposition. Analysis of the selected settlement with relationship to human scale, activity, space & form & other parameters pertaining to spatial aspects.
Module-3	**Design & Application through Case Studies**	Lecture on interpreting spatial configuration for specific design programme. Configuration / array of multiple repetitive units of preferably on single floor organized on basis of functional, geometric and visual order.

SUGGESTED STUDIO EXCERCISES

1. Detailed drawings for the settlements.
2. Analysis drawings on basis of selected parameters underlining lessons learnt.
3. Design of buildings like Residence, Panchayat bhawan, Ashrams, Hostels, Tourist Cottages, Primary School etc.
4. Study tours to relevant rural/urban destinations for primary documentation.

REFERENCE BOOKS

1. Ching, Francis D.K. Form Space & Order.
2. Rappoport, Amos. House Form & Culture.
3. Oliver, Paul. Shelter & Form.
4. Fathy, Hasan. Natural energy & vernacular architecture.
5. Housing projects by Geoffery Bawa, Charles Correa, B.V. Doshi among others.

B. ARCH. SEMESTER – III
NAR – 302, CONSTRUCTION & MATERIALS – III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To acquaint the students to building materials such as Roof Coverings, Floorings, Variety of glasses Ceramics, and Hardware.
- ` To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1	**Roof Coverings (Conventional)**	Clay Tiles (Country, Allahabad, Mangalore tiles etc.), Stone Slating, Shingles, Thatch.
Module-2	**Floor & Floor Finishes**	Brick, Cement Concrete, Stone, Terrazzo, Chequered Tile, Ceramic Tile, Vitrified Tiles, Wooden.
Module-3	**Glass & Ceramics**	Glass - Translucent, Transparent and Special glasses, Glass bricks. Ceramics - Terracotta, Faience, Fireclay, Stoneware, Earthware, Vitreous China, Porcelain.
Module-4	**Hardware**	Hinges, Handles, Knobs, Bolts, L-drops, Locks, Stoppers, Stays, Silencers, Chain guards, Closers, Catchers, Knockers etc. in various materials. Patch fittings for glazed shutters.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit tile, glass, ceramic, hardware etc. factories for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5	**Workshop/Construction Yard Practice**	Practicing in construction yard / workshop by making the examples of reinforced brickwork, variety of flooring, fixing of dado, timbering of shallow trenches etc. and door samples.
Module-6	**Site Exposure**	Exposure to building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in floor finishing works.
2. To study the various tools, equipments used in glass works.
3. To construct examples of reinforced brickwork and variety of flooring in construction yard. Also, preparation of scaled model of door in workshop.
4. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1	**Reinforced Brickwork**	Reinforced brick piers, lintels, slabs and projections.
Module-2	**Door (Timber)**	Types and details of Panelled door shutters and Mosquito proof door shutter.
Module-3	**Window / Ventilator (Timber)**	Types of Windows / Ventilators and details of glazed window and ventilator shutters and frames.
Module-4	**Floor / Skirting**	Complete process of laying of floor and skirting - Brick, Cement Concrete, Mosaic and Terrazzo floors.
Module-5	**Floor / Dado**	Laying and fixing of Stone slabs, Chequered Tile, Ceramic tiles, Vitrified tiles and Wooden (parquet and plank) on sub floors and walls.
Module-6	**Temporary Timbering**	Timbering of shallow trenches.

CONSTRUCTION PLATES

1. To understand Reinforced brick piers, lintels, slabs and projections.
2. To understand variety of Panelled door shutters and their details in timber.
3. To understand Mosquito proof door shutter and its details in timber and jaali.
4. To understand variety of windows & ventilators and the details of window frame and glazed shutter in timber and glass.
5. To understand laying of above mentioned floors and fixing of above tiles on floors and walls.
6. To understand Timbering of shallow trenches in various soil types.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian climatic conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – Barry Volume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra&Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Mitchell's Structure & Fabric-II
10. Don A.Watson, Construction Materials and Processes, McGraw Hill Co.
11. Building Materials by SC Rangwala: Charotar Pub. House, Anand
12. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill Publishers, New Delhi, 2011.
13. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
14. National Building Code of India (Latest Edition), Bureau of Indian Standards.
15. Engineering Materials-Deshpande.
16. Engineering Material-Roy Chowdary
17. Designing with models – Criss. B. Mills.
18. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
19. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
20. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.

B. ARCH. SEMESTER – III
NAR – 303, ARCHITECTURAL STRUCTURES - III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To understand the analysis of indeterminate structures and their application in structural design and analysis.

Module-1	**Fixed & Continuous Beams and Portal Frames**	Introduction, Analysis of continuous beams and portal frames, Reactions at the supports, Effects of sinking of supports.
Module-2	**Fixed & Continuous Beams and Portal Frames (continued)**	Analysis of continuous beams and portal frames by 3M equation, Slope deflection method, Moment distribution method, Consistent deformation method.
Module-3	**Elastic Theorems & Energy Principals**	Introduction, Potential energy, General principles, Principles of superposition.

REFERENCE BOOKS

1. Nautiyal B. D., “Introduction to Structural Analysis”, B.H.U.
2. Punmia P. C., “Strength of Materials & Mechanics of Structures”.
3. Khurmi R. S., “Strength of Materials”.
4. Senol Utku , “Elementary Structural Analysis”.
5. Rama Armarutham S., “Strength of Materials”.
6. C.K. Wang, “Theory of Structures”.

B. ARCH. SEMESTER – III
NAR – 304, ARCHITECTURAL DRAWING - III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.

OBJECTIVES

- To develop greater perception of complex Architectural forms and buildings.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop or upgrade an understanding about AutoCAD 3D, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

SECTION – A, ARCHITECTURAL DRAWING (MANUAL)

Module-1 Shades and Shadows
Values in Shades and shadows.
Constructing plan shadows (point, line and plane).
Constructing shadows in elevations (point, line and plane).
Short – cut methods for Constructing shadows.
Presentation techniques in Sciography.

Module-2 Presentation
Introduction to different textures and finishes in plan and elevation.
Graphical representation of furniture, automobiles, human figure etc. in plans and elevation and 3-Dimension.
Preparation of presentation drawings of small buildings, through Plans, Elevation, Section, Site plan etc., using various rendering techniques and media, incorporating sciography for creating three dimensioned effect.

SECTION – B, ARCHITECTURAL DRAWING (COMPUTER)

Module-1 Work with 3D Models
Launching AutoCAD 3D, Using application menus, Create 3D models, Modify 3D solids and surfaces , Create sections and 2D drawings from 3D models.

Module-2 Setting Up and Using the 3D Drafting Tool
Types of 3D drafting tools, 3D keyboard commands, Materials and textures, Reference other drawing files, Link and embed data (OLE), Work with data in other formats and exporting 3D model to various software's.

Module-3 Using and Exploring 3D Models
Specify 3D views, Define a 3D view with a camera, Create preview animations, Create motion path animations, Creating a simple 3D mesh, Editing faces and edges, Creating mesh surfaces, Converting meshes to solids, Editing surfaces.

Module-4 Effective Presentation
Layer management, Exporting 3D to work in other software. Plotting and publishing the drawing in modal space and paper space.

REFERENCE BOOKS

1. Bernard Alkins - 147, Architectural Rendering, Walter Foster Art Books, 1986.
2. Francis Ching, Architectural Graphics, Van Nostrand and Reinhold Company, NY 1975
3. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
4. Introducing AutoCAD and AutoCAD LT - George Omura
5. Mastering AutoCAD – George Omura
6. AutoCAD 2013 and AutoCAD LT 2013 "BIBLE" - Ellen Finkelstein

B. ARCH. SEMESTER – III
NAR – 305, ARTS AND GRAPHICS - III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To develop an appreciation of Indian Arts & Crafts among the Students.
- To strengthen the skill of architectural rendering.
- To develop the skills to design smaller elements of building.

SECTION – A, ARTS AND GRAPHICS

Module-1 **History of Indian Art** Lectures on outline History of Indian Art, from earliest times to Mauryan Period.

Module-2 **History of Indian Art** Gupta Period to Mughal Period.

Module-3 **History of Indian Art** Company Style (British Period).

SECTION – B, DESIGN

Module-4 **Design of various objects** Designing of gate, grill, railing, jaali, in suitable materials.

DRAWING PLATES

1. Rendering in different media, works of masters of Modern Architecture.
2. Rendering of interior and exterior perspectives of students own design projects.
3. Enlargement and rendering in Ink the Indian Decorative Motifs.
4. Designing and drawing of gate, grill, railing, jaali, in suitable materials.

LIST OF ASSIGNMENTS (Field Exercises & Workshop Activities)

1. To understand the techniques of fabrication and fixing details of gate, grill, railing, jaali, in suitable materials.

REFERENCE BOOKS

1. ABC of Indian Art- J.F.BLACKER.
2. A concise History of Indian Art - ROY C. CRAVEN.
3. Maurya and Post Maurya Art- NIHAR RANJAN RAY
4. The Story of Indian Art- S.K. Bhattacharya

B. ARCH. SEMESTER – III
NAR – 306, ARCHITECTURAL SERVICES – II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To understand the basic principles of physics of electricity and light.
- To make them enable to draw the electrical layout with appropriate cross section of wires and illuminance calculations for residences.
- To know the characteristics and applications of the different types of modern lamps and luminaires.
- To familiarize the student with electrical bye laws as per NEC/BIS.

SECTION – A, ELECTRICAL

Module-1 Electrical

Introduction –

Terminology and architectural symbols (as per NBC/NEC) for electric installations in buildings.

Need to generate and save electricity, transmission and distribution of electricity (single and three phases), procuring service connection.

Familiarization to various lighting accessories, wires and cables, metering, distribution panels / boards etc. for single and three phase supply.

Guidelines for installation of fittings.

Design of simple electrical circuits –

Introduction to simple light and fan circuits.

System of connection of appliances and accessories e.g. series and parallel connection, joint box system, looping-in system.

Systems of wiring –

Basic considerations.

Various types of internal wiring systems e.g. cleat, casing and capping, batten and conduit (surface & concealed).

Protection of electrical installation and human life –

Basic considerations.

Protection against excess current, short circuit earth fault and protection against electric shock.

Introduction to various types of protection devices e.g. switches, fuses and circuit breakers.

Need for earthing of domestic fittings and appliances, earthing and its relation with soil resistivity, earth electrodes, earth wires.

Load assessment and selection of appropriate cross section of the conductor.

SECTION – B, ILLUMINATION

Module-2 Illumination

Introduction –

Terminology and unit.

Light and its characteristics – scattering, propagation, transmission, reflection, absorption, refraction and dispersion of light. Electromagnetic spectrum and visible radiation.

Illumination –

Types of illumination schemes e.g. Ambient, Task, Focal and Decorative etc. lighting.

Design considerations for illumination Schemes.

Methods for lighting calculation – Watts per square meter, Light flux and Point to point method.

Sources of light (Electrical) –

Familiarization and understanding of electrical sources of light e.g.

		Thermal radiators - Incandescent, Halogen. Discharge lamps – Low pressure (fluorescent, compact fluorescent, sodium, cold cathode neon), High pressure (mercury, metal halide, sodium). New technologies - LED, Fiberoptics. **Luminaries –** Types of Luminaries – Indirect, Semi-indirect, General diffusing, Semi-direct and Direct.

SECTION – C, APPLICATION

Module-3	**Electrical Drawing**	The understanding of electrical needs for individual spaces e.g. Living room, Dining room, Bed room, Kitchen, Toilet, Staircases, and Corridors etc. The electrical layout drawing for a residence.
Module-4	**Field / Market Surveys**	Familiarization to types of electrical luminaries available in market, manufactured by various brands e.g. Recessed mounted luminaries, Spot / Projectors, Surface mounted luminaries, Decorative luminaries, Pendant luminaries, Free-floor-standing luminaries, Up lights, Trunking lighting systems, Down Lights.

REFERENCE BOOKS

1. National Building Code of India.
2. National Electrical Code.
3. Raina K.B. & Bhattacharya S.K., Electrical Design estimating and costing, New Age International (P) Limited, New Delhi, 2004.
4. Rudiger Ganslandt & Harald Hofmann, Handbook of Lighting Design, Druckhaus Maack, Lüdenscheid, 1992.
5. Kevin Kelly& Kevin O'Connell, Interior Lighting Design - A Student's Guide.

B. ARCH. SEMESTER – III
NAR – 307, HISTORY OF ARCHITECTURE – II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To inform about the development of Indian architecture and its contextual and traditional aspects.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in various aspects of Hindu architecture.
- To comprehend and analyze spatial character, scale, and structure through historical and traditional built heritage.
- To comprehend and relate to the theoretical basis of historical and traditional Hindu architecture.

Module-1	**Indus Valley civilization**	Town planning principles, cultural ethos, economy exemplified with examples from Mohenjodaro and Harappa.
Module-2	**The Aryan civilization**	With its emphasis on the Vedic town plan, its motifs and patterns. The brick altars and their significance.
Module-3	**Buddhist Architecture**	Typology of lats, eddicts, stupas, viharas, and chaityas, both in rock-cut or otherwise. The techniques used for rock-cut spaces and free standing built masses. The spatial and functional connotations.
Module-4	**Buddhist Theory**	The Buddhist philosophy and its imprint in built space.
Module-5	**Hindu Architecture-Indo-Aryan**	The evolution of the temple form, evolution of the shikhara in north India. The three schools of architecture—the Gujarat, the Khajuraho, and the Orrisan styles. Comparison in spatial attributes, scale and detail.
Module-6	**Hindu Architecture-Dravidian**	The evolution of the vimana and the contributions of the Chalukyas, the Pallavas, the Pandyas and the Cholas. The contributions of the Nayaks to the temple cities. The city morphology, spatial diversity and planning criteria.
Module-7	**Hindu Theory**	Hindu philosophy and its imprint in temples/traditional houses and other built structures. Mandala and the geometric grid in temple plans. The proportional theory in temple elevation.
Module-8	**Jain Architecture**	The temple cities of Palitana, Mount Abu and Girnar.
Module-9	**Jain Theory**	The Jain philosophy and its imprint in built form. The Jain mandalas.
Module-10	**Measured Drawing**	Measured Drawing of a historical precinct.

REFERENCE BOOKS

1. Stella Kramrisch, The Hindu temple, Volume 1 & 2, Motilal Banarsidass Publications, 1996.
2. Percy Brown, Indian Architecture (Buddhist and Hindu period), D.B.Taraporewala Sons & co Pvt. Ltd. 1965
3. Volwahsen, Andreas, Living Architecture
4. Satish Grover, The Architecture of India- Volume 2, Vikas, 1980.
5. Henri Stierlin, Anne Stierlin, Hindu India: from Khajuraho to the temple city of Madurai, Taschen, 1998.
6. James Fergusson, History of Indian & Eastern Architecture, 2007
7. C. Batley, Design Development of Indian Architecture, John murray, London, 1934.
8. A. Cunningham, Archaelogical Survey of India, Vol. I – XXIII, Simla, Calcutta, 1903-30.
9. M. Edwards, Indian temples & Palaces, Paul Hamlyn, London.
10. Christopher Tadgell, Indian & South Asia: The Buddhist & Hindu Tradition, Ellipses, 1998.
11. Surendra sahai, Indian architecture, Prakash books, 2006.
12. Ernest Binfield Havell, Indian Architecture, J. Murray, 1913.
13. Benjamin Rowland, The Art & Architecture of India: Buddhist, hindu, jain. Penguin books, 1953.
14. K.V,Soundra Rajan, Indian Temple Styles: the personality of Hindu Architecture.
15. Giles Henry Rupert Tillotson (ed.), Paradigms of Indian architecture: Space & Time in Representation & Design, Psychology Press, 1998.
16. Adam hardy, Indian temple Architecture- form & transformation, Abhivav Publications, 1995.

B. ARCH. SEMESTER – III
NAR – 308, RESEARCH - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Understanding basic principles of any research with special reference to architectural research and applications.

Module-1	**Introduction**	Aspects of Analysis of an Architectural project
Module-2	**Technical Writing**	Critical Appreciation of a Project: Analyzing on the basis of site, Built Form and Space, Spatial Organization, Materials and Techniques, Elements and Special Characteristics, Activity Pattern.
Module-3	**Book Reviews**	Review of Book with presentation of the précis.

LIST OF ASSIGNMENTS

1. Review of an architectural book/books prescribed by subject teacher.
2. Report on ongoing architectural project.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford UniversityPress, New Delhi.
2. Fundamentals of Design

B. ARCH. SEMESTER – III
NAR – 309, CLIMATOLOGY

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.

OBJECTIVES

- Acquainting the students with human thermal comfort as an essential function of a building, its analysis & use in Architecture.
- To familiarize students with the elements constituting climate and their role in creating responsive designs.
- Understanding the characteristics of varied tropical climates and expected responses of buildings in specific climate types
- To utilize existing traditional/vernacular/ historical structures in the city as case study to learn the various attributes of climate & the desirable responses.

Module-1	**Introduction to climate**	Importance of climate in architecture. Factors affecting climate. Elements of climate: solar radiation, temperature, wind, humidity & precipitation and their measurement.
Module-2	**Climate types**	Climate types all over the world. Tropical climate: climate zones, their charecteristics & responses of the traditional / vernacular. Micro Climate & Site Climate.
Module-3	**Human thermal comfort**	Study of body's heat production & heat loss, comfort zone, bio-climatic chart, effective temperature isopleths etc. Various models of Thermal Comfort: Static & Adaptive Mode, thermal indices & their applicability.
Module-4	**Solar chart**	Understanding the solar position of a place, azimuth, altitude, incidence, using shadow angle protractor for designing shading devices.
Module-5	**Daylight**	Natural lighting, glare, day light factor & factors affecting day-lighting in various space types, principles of day-lighting in tropics.
Module-6	**Ventilation & Air Movement**	Requirement, size & position of openings, Air-flow pattern inside & outside buildings.
Module-7	**Orientation**	Orientation of buildings in relation to sun & wind.

LIST OF ASSIGNMENTS (Field Exercises & Drawings)

1. Understanding tools & instruments utilized for measurement of climatic elements using the climatology lab & meteorological department.
2. Documenting local case studies of vernacular/ traditional/ historical buildings for understanding their responses to prevailing climate.
3. Collecting data of temperature, humidity, radiation light & wind for specific cities and making solar charts, bio-climatic charts & Mahoney tables for the same.

REFERENCE BOOKS

1. Koinesberger,O. Tropical climate.
2. Krishan, Arvind. Climate Responsive Architecture.
2. Brown, G.Z. Sun Wind & Light.
3. Olgyay, V. design with Climate.
4. Yeang, Ken. Designing with Nature: The Ecological basis for Architecture Design.
5. Works of Architects like Hasan Fathy, B.V. Doshi, Charles Correa, Ken Yeang, Sanjay Puri, among others to understand responses of varied designers to the existing environment.

B. ARCH. SEMESTER – IV
NAR – 401, ARCHITECTURAL DESIGN - IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	5	30	70	**100**	75	25	**100**	**200**	6	6 + 3 HRS.

OBJECTIVES

- To understand the role of climate and environment as a context in shaping building design.
- To comprehend the interpretation of prescribed environmental directions / norms for a given place in building forms.
- Recognizing the relevant materials & building techniques suitable for that region & explore their applicability in design.
- Learn building on sloping sites or with unique topography.

Module-1	**Understanding climatic zones**	Lecture on the varied climate zones especially in the Indian sub-continent including examples of environment responsive designs. Establishing design criteria for various climate types.
Module-2	**Design of climate responsive buildings**	Designing a multi-functional building in a typical climate zone utilizing the developed design criteria.
Module-3	**Design on sloping site**	Design exercise on sloping terrain with specific orientation & climatic conditions.

SUGGESTED STUDIO EXCERCISES

1. Studies of various climates; responses of vernacular / traditional in those conditions & establishing design criteria.
2. Design of multi-functional building like Motels, college, commercial complex, cultural complex, boarding school.
3. Design on sloping site with unique topography for structures like a simple guest house, tourist complex or museums.

REFERENCE BOOKS

1. Krishan, Arvind Climate Responsive Architecture.
2. Brown, G.Z. Sun Wind & Light.
3. Olgyay, V. Design with Climate.
4. Yeang, Ken. Designing with Nature: The Ecological basis for Architecture Design.
5. Works of Architects like Hasan Fathy, B.V. Doshi, Charles Correa, Ken Yeang, among others to understand responses of varied designers to the existing environment.

B. ARCH. SEMESTER – IV
NAR – 402, CONSTRUCTION & MATERIALS – IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1 Timber Products
Variety of Plywood, Ply-board, Block board, Particle board, Wood wool cement board, Fiber board, Compressed straw board, Cement fiber board, Mineral fiber board, Veneers, Laminates etc.

Module-2 Surface (Wall) Finishing
Types and application of Plasters, Jointing and Pointing, Cladding.

Module-3 Adhesives
Introduction.
Natural Adhesives – Animal, Casein, Bituminous.
Thermoplastic Adhesives – Polyvinyl Acetate.
Thermosetting Adhesives & Plastics - Urea Formaldehyde, Phenol Formaldehyde, Melamine Formaldehyde, Resorcinol Formaldehyde, Epoxide Resins.
Rubber Adhesive.

Module-4 Painting and Polishing
Preparation of variety of surfaces, Application of various coats.
Finishes – Lime / Colour wash, Dry distemper, Oil bound distemper, Cement paints, Acrylic emulsions, Synthetic enamels, Wall textures etc.
Polishes and Varnishes.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit timber products, paints, adhesives factory etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5 Workshop/Construction Yard Practice
Practicing in construction yard / workshop by making the examples of plastering, jointing, pointing and painting etc. and partitions and paneling samples.

Module-6 Site Exposure
Exposure to building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in plastering, jointing and pointing works.
2. To study the various tools, equipments used in painting works.
3. To construct examples of partition and panelling in construction yard / workshop.
4. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1 Brick Work
Cavity walls.

Module-2 Roof Terracing
Complete process of laying of terracing with provisioning of Gola & Khurra etc. - Lime concrete, Mud phaska with brick tiles, Brick coba.

Module-3 Door (Timber Products)
Types and details of Flush door shutter.

Module-4	**Door (Operational mechanism)**	Complete understanding of operational mechanism (automatic and manual) of variety of Sliding door shutters, Sliding-folding door shutters and Revolving doors shutters.
Module-5	**Partition**	Terminology, Partitioning methods with use of different materials e.g. Timber and Timber Products, Clay and Terracotta Brick / Block, Pre-cast Concrete Block, Wood Wool Cement Board, Compressed Straw Board, Glass and Glass Brick.
Module-6	**Panelling (Timber & Timber Products)**	Terminology, Panelling methods with use of materials e.g. Timber and variety of timber products.

CONSTRUCTION PLATES

1. To understand the application Cavity walls in brick masonry and roof terracing with various details.
2. To understand the application of variety of Flush door shutters and their details.
3. To understand the application of variety of sliding door shutters and their details.
4. To understand the application of variety of sliding folding door shutters and their details.
5. To understand the application of partitions in building interiors with using timber, timber products and glass etc. along with their details.
6. To understand the application of panelling in building interiors with using timber and timber products along with their details.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – Barry Volume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra &Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Mitchell's Structure & Fabric-II
10. Principle & Practices of Heavy Construction: Smith & Andres
11. Don A.Watson, Construction Materials and Processes, McGraw Hill Co.
12. Building Materials by SC Rangwala: Charotar Pub. House, Anand
13. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill Publishers, New Delhi, 2011.
14. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
15. National Building Code of India (Latest Edition), Bureau of Indian Standards.
16. Engineering Materials-Deshpande.
17. Engineering Material-Roy Chowdary
18. Designing with models – Criss. B. Mills.
19. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
20. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
21. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.

B. ARCH. SEMESTER – IV
NAR – 403, ARCHITECTURAL STRUCTURES - IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To understand the basic principles of R.C.C. structures and soil mechanics and their application in structural design and analysis.

Module-1	**Design Methods**	Introduction to Working stress method. Introduction to Limit state method.
Module-2	**Singly & Doubly Reinforced Beams and Flanged Beams**	Introduction, Bending of beam assumption, Moment of resistance, Modes of failure, Maximum depth of neutral axis, Limiting Values of tension steel & moment of resistance. Requirement of good detailing of reinforcement.
Module-3	**Slabs**	Introduction, Design of One way and Two way slab using limit state method.
Module-4	**Elements of Soil Mechanics**	Properties of soil, Safe bearing capacity, Active & Passive earth pressure.

REFERENCE BOOKS

1. Nautiyal B. D., “Introduction to Structural Analysis”, B.H.U.
2. Punmia P. C., “Strength of Materials & Mechanics of Structures”.
3. Khurmi R. S., “Strength of Materials”.
4. Senol Utku , “Elementary Structural Analysis”.
5. Rama Armarutham S., “Strength of Materials”.

B. ARCH. SEMESTER – IV
NAR – 404, ARCHITECTURAL DRAWING - IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	2	2	15	35	**50**	50	0	**50**	**100**	6	3 HRS.

OBJECTIVES

- To develop greater perception of complex Architectural forms and buildings.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.
- To develop or upgrade an understanding about Autodesk Revit Architecture, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

SECTION – A, ARCHITECTURAL DRAWING (MANUAL)

Module-1 Sciography
Shades and Shadows of objects and building elements cast on irregular surfaces, rendered in suitable medium.
Shades and shadows in perspective views for exteriors.
Shades and Shadows cast by point source of light in interiors.

Module-2 Perspective Drawing
Two-point exterior perspective views, using measure point method, of simple & medium sized buildings - isolated or in-group, showing shades and shadow using different media like-Pencil, Pen-Ink, Water Colour, Poster, and Airbrush etc.
One point perspective drawing of interiors rendered in different media.
Two point perspective drawing of interiors rendered in different media.
Introduction to short cut methods in perspective drawing.
Free hand perspective.
Other innovative methods of perspective presentation techniques should be encouraged.

SECTION – B, ARCHITECTURAL DRAWING (COMPUTER)

Module-1 Getting Started Revit Architecture
Introduction, Modifying the view, Common tasks, System options, File locations, Spelling options, Settings, Keyboard shortcuts, Levels and grids, Zooming, Steering wheels.

Module-2 Building the Model and Modify
Walls, Doors, Windows, Components, Architectural columns, Roofs, Ceilings, Floors, Openings, Model text, Model lines, Compound structure, Sloped surfaces, Stairs, Ramps, Railings, Adding and modify curtain wall. Attaching wall to roof, Modifying the entry deck, Modifying the roofs.

Module-3 Presentation
Dimensions, Keynotes, Tags, Symbols, Adding legend views, Creating a detail callout, Adding filled and masking regions, Using detail components, Creating sheet, Sheet properties

REFERENCE BOOKS

1. Interiors: Perspective in Architectural Design Graphic - SMA Publishing Co. Ltd., Japan, 1967.
2. Ernest Norling, Perspective drawing, Walter Fostor Art Books, California, 1986.
3. Bernard Alkins - 147, Architectural Rendering, Walter Foster Art Books, 1986.
4. Rober W.Gill, Advanced Perspective, Thames and Hudson, London, 1974.
5. Autodesk Revit Architecture 2012: No Experience required – Eric Wing
6. Mastering Autodesk Revit Architecture 2012 – James Vandezande, Phil Read, Edd

B. ARCH. SEMESTER – IV
NAR – 405, ARTS AND GRAPHICS - IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To develop an appreciation and understanding of Indian contemporary art and trends.
- To develop skills of making mural, sculpture, furniture, pottery and fountains from fiber glass, mild steel, cast iron, stainless steel, wood, plaster of paris, terracotta, cement concrete and ceramics etc.
- To develop skills of graphic printing techniques.

SECTION – A, ARTS AND GRAPHICS

Module-1 History of Art — Renaissance in Indian art i.e. 19th century, Post-independence art of India.

Module-2 Contemporary arts and artist in India — Contemporary arts and artist in India, Works of Abanindra Nath Tagore, Nand Lal Bose, Jamini Roy, Amrita Sher Gill, M.F. Hussain, Satish Gujral and S.H.Raza.

SECTION – B, WORK SHOP

Module-3 Work shop — Designing of murals, sculptures, furniture, pottery and fountains for outdoors in suitable materials.

DRAWING PLATES

1. Making graphic prints by using different technique of print making i.e. wood cut print, linocut prints, and serigraphy.
2. Drawing and Rendering of Designs up to material finish.
3. Drawing and designing of decorative elements for Interior display (drawing room, living room etc.).
4. Drawing and rendering of designs like murals, sculptures, furniture, pottery and fountains for outdoor.

LIST OF ASSIGNMENTS (Field Exercises & Workshop Activities)

1. To understand the various techniques of making of murals, sculptures, furniture, pottery and fountains etc. for outdoor of in suitable materials.

REFERENCE BOOKS

1. ABC of Indian Art- J.F.BLACKER.
2. A Concise History of Indian Art - ROY C. CRAVEN.
3. Maurya and Post Maurya Art- NIHAR RANJAN RAY
4. The Story of Indian Art- S.K. Bhattacharya

B. ARCH. SEMESTER – IV
NAR – 406, ARCHITECTURAL SERVICES – III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To understand the basic principles of physics of sound.
- To make them enable to apply the knowledge in various buildings.
- To get familiarized with sound system equipments, available in market.
- To familiarize the student with laws as per National Building Code of India/BIS.

Module-1 Building Acoustics

Introduction -
Terminology and unit.
Characteristics of audible sound – Propagation, Velocity, Frequency, Pitch, Quality/timbre, Loudness and Intensity.
Behavior of audible sound in enclosures – Reflection, Absorption, Diffraction and Transmission of sound.
Common acoustical defects and recommended remedies –
Echo, Sound foci, Dead spots, Sound shadows, Resonance, Insufficient loudness, External noise and Reverberation.
Sabine's expression for calculation of Reverberation time.
Absorbents and absorption coefficient.
Noise control –
Noise and its types, Noise pollution.
Sources of indoor noise, Indoor noise levels, Planning and design against indoor noise.
Sources of outdoor noise, Traffic noise levels, Planning and design against outdoor (traffic & buildings in built-up area) noise.
Identification of various sources of noise and recommendations to control them in various types of buildings e.g. – Residential, Educational, Hospital, Office, Hotels & Hostels, Industrial, Laboratories & Test houses, Miscellaneous buildings etc.
Constructional measures for sound insulation of buildings –
Materials, Hollow & composite wall construction, Floors & Ceilings.
Properties of good acoustical materials.
Sound system –
Sound reinforcement system, Public address system.
Familiarization and understanding of sound system equipment specification e.g. Amplifiers, Microphones, Speakers, Mixers, Conference systems and accessories.
Acoustical design principles and factors–
Acoustical design principles for Auditoriums, Cinema halls, Conference rooms etc. and factors viz. Site selection & planning, Dimensions, Shape, Seats & seating arrangements, Treatment of interior surfaces, Reverberation & sound absorption.

SECTION – B, APPLICATION

Module-2 Acoustical Design
The understanding the audio needs and layout for projects e.g. Auditoriums, Cinema halls, Conference rooms etc.

Module-3 Field / Market Surveys
Familiarization and understanding of sound system equipment available in market manufactured by various brands e.g. Amplifiers, Microphones, Speakers, Mixers, Conference systems and accessories.

REFERENCE BOOKS

1. National Building Code of India.
2. National Electrical Code.
3. K. A. Siraskar, Acoustics in Building Design, Orient Longman Ltd., 1972.
4. S. Kandaswamy, Architectural Acoustics and Noise Control, Allied publishers Pvt. Ltd., 2005.
5. Catalogues of leading Audio equipments agencies e.g. Philips, Ahuja etc.

B. ARCH. SEMESTER – IV
NAR – 407, HISTORY OF ARCHITECTURE – III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To inform about the development of Western architecture from 1st century onward and its contextual and ecclesiastical aspects.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion, climate and technology.
- To gain knowledge of the development of architectural form with reference to technology, style and character in western architecture.
- To comprehend and analyze spatial character, scale, and structure through historical and traditional built form.
- To comprehend and relate to the theoretical and philosophical basis of western architecture.

Module-1	**Early Christian Architecture**	Development of early church from Roman basilica. The concept of center and path of Christianity manifested through centralized and longitudinal church. Interiority of churches and the articulation of interiors to create spiritualized space. Study of different basilica churches in Italy.
Module-2	**Byzantine Architecture**	Centralization in Byzantine churches. Centrality and interiority of both cross-domed and cross in square planned church. Indistinct exterior of churches and the domed 'heavenly' interior. Construction of dome over polygonal compartments through the use of pendentives. Study of important churches in Constantinople
Module-3	**Romanesque Architecture**	Massiveness and verticality of medieval churches. Combination of the five towered structures and longitudinal basilica. Gradual integration of tower from early to later examples. Integration of centralized and longitudinal plans. Articulation of external wall like arcaded interiors resulting in dematerialization of exterior. Study of important cathedrals and churches from Italy and France.
Module-4	**Gothic Architecture**	Continued integration of centralized and longitudinal plans. Spatial and formal integration of Romanesque churches. Integration of wall and vault. Ribbed vault and the dissolution external wall to allow light. Sensitivity to light and use of stained glass for mysterious interiors. Need and development of different external buttressing. Study of important cathedrals and churches in France.
Module-5	**Renaissance Architecture**	Break with medieval churches for sources from Roman antiquity. Spatial centralization through simple addition of independent spatial elements. Use of elementary geometrical forms unified through symmetry and simple mathematical ratios. Reintroduction of anthropomorphic Classical Orders. Study of palazzos and development of centralized church form through specific examples from Italy.
Module-6	**Mannerism**	Conflict and tension in Mannerism in place of harmony and order of Renaissance. Dynamic interplay of contrasting elements as against static addition of independent units of Renaissance church. Interplay between manmade and nature in villas. Dynamism of urban spaces. Centralized longitudinal and the elongated central church plans. Study of important villas, churches and urban spaces in Italy.
Module-7	**Baroque Architecture**	Dynamism and systemization of Baroque architecture. Vitality and spatial richness with underlying systematic organization. Space as constituent element of architecture, as a complex totality and indivisible figure, comprising of interacting spatial elements based on inner and outer forces. Sensitivity to effects of texture, color, light and water. Study of important urban spaces and churches in Italy and Germany.

REFERENCE BOOKS

1. Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress, 1996.
2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London, 1985.
3. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994
4. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams, Inc.Pub., New York, 1972.
5. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd., London, 1986.
6. Gosta,E.Samdstrp, Man the Builder, Mc.Graw Hill Book Company, New York, 1970.
7. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962
8. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.
9. Christian Norberg-Schulz, Meaning in Western Architecture, Praegur, 1975
10. Kenneth Frampton, Modern Architecture: A Critical History, Thames and Hudson, Ltd. 2007.

B. ARCH. SEMESTER – IV
NAR – 408, RESEARCH - III

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Understanding basic principles of any research with special reference to architectural research and applications.

Module-1	**Introduction**	Styles of Referencing
Module-2	**Technical Writing**	Referencing Techniques, Bibliography.
Module-3	**Book Reviews**	Review of book and its presentation

LIST OF ASSIGNMENTS

1. Review of an architectural book/books prescribed by the assigned teacher.
2. Referencing assignments based on the book / topic assigned by the faculty member student is assigned with.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford UniversityPress, New Delhi.
2. Kate L.Tourabian, A manual for Writers of Research Papers, Theses and Dissertation, 8th edition.
3. Joseph Gibaldi, MLA handbook for Writers of Research Papers.

B. ARCH. SEMESTER – IV
NAR – 409, BUILDING ECONOMICS

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.

OBJECTIVES

- To develop an understanding among the students regarding management of physical and human resources including evaluation techniques pertaining to a business organization in general and specific to construction industry.

Module-1	**Elementary concepts of economics**	Introduction to economics- Definitions, Needs & Wants, Nature & Scope of Economics. Division of economics – Micro Economics - Scarcity, Utility - Marginal, Total & Average. Laws of Demand and Supply. Macro Economics - Economic system in India.
Module-2	**Economics in relation to architecture, engineering and other sciences**	Meaning and scope of building economics, Issues and challenges associated with building projects. Building Efficiency, Building Life-cycle. Costs and Benefits of Building - Monetary and Non Monetary.
Module-3	**Project Financing**	Equity, Financing Institutions in Financing Process, Interim Finance and Permanent Financing, Bank Loan - Simple Interest and Compound Interest. Types of Mortgage, Lease Arrangements.
Module-4	**Economic performance of building**	Decision Making using techniques of economic performance to measure tangible and non-tangible issues - Cost-Benefit Analysis, Incremental Analysis and Multi-criteria Analysis.

REFERENCE BOOKS

1. Modern Economic theory - K.K. Dewett.
2. Economic for Engineers – M.L. Gupta.
3. Micro – economic theory – Samuelson.
4. Building Economics for Architects – T. Mann.

UTTAR PRADESH TECHNICAL UNIVERSITY
LUCKNOW

SYLLABUS

Bachelor of Architecture

3rd Year (V & VI Semester)

(Effective from Session 2015-2016)

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - V

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 501	ARCHITECTURAL DESIGN - V	2	0	7	30	70	**100**	75	25	**100**	**200**	9	6 + 6 HRS.
2	NAR - 502	CONSTRUCTION & MATERIALS - V	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 503	ARCHITECTURAL STRUCTURES - V	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 504	INTERIOR DESIGN	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
5	NAR - 505	ESTIMATION & SPECIFICATIONS	1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 506	ARCHITECTURAL SERVICES - IV	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 507	HISTORY OF ARCHITECTURE - IV	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 508	RESEARCH - IV	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 509	DISASTER MANAGEMENT	1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.
	TOTAL		**13**	**7**	**13**							**950**	**33**	
	GENERAL PROFICIENCY											**50**		
	GRAND TOTAL											**1000**	**33**	

UTTAR PRADESH TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - VI

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 601	ARCHITECTURAL DESIGN - VI	2	0	7	30	70	**100**	75	25	**100**	**200**	9	6 + 6 HRS.
2	NAR - 602	CONSTRUCTION & MATERIALS - VI	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 603	ARCHITECTURAL STRUCTURES - VI	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
4	NAR - 604	LANDSCAPE DESIGN	1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
5	NAR - 605	BUILDING BYE - LAWS	1	0	2	15	35	**50**	0	0	**0**	**50**	2	-
6	NAR - 606	ARCHITECTURAL SERVICES - V	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 607	HISTORY OF ARCHITECTURE - V	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 608	RESEARCH - V	1	1	0	15	35	**50**	0	0	**0**	**50**	2	-
9	NAR - 609	THEORY OF ARCHITECTURE	1	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
	TOTAL		**13**	**5**	**15**							**950**	**33**	
	GENERAL PROFICIENCY											**50**		
	GRAND TOTAL											**1000**	**33**	

B. ARCH. SEMESTER – V
NAR – 501, ARCHITECTURAL DESIGN - V

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	7	30	70	**100**	75	25	**100**	**200**	9	6 + 6 HRS.

OBJECTIVES

- Understanding basic structure forms in relation to space and materials.
- To understand the different structural systems and their mechanism/logic.
- To understand the constraints and possibilities of designing with the range of structural systems available.
- To employ and integrate these structure systems into the design ideology, especially in proposals requiring large spans.
- It should be noted that emphasis should be on the understanding of basic structural concepts and graphical presentation of systems rather than their structural analysis.

Module-1 Introduction

Acquainting with the various structural systems and their relation to form, materials and function.
Understanding of Loads on structures and Basic state of stresses.

Module-2 Types of Structural Systems

Through seminars, drawings and models, a study of different structural systems, their mechanism of load bearing, adaptability, efficiency and limitations.

Trabeated	Brick and Stone, Columns and Beams, Slabs one way and two way, Coffers, Cantilevers, Portals.
Arcuated	Types of Arches, Vault and Dome, Squinch and Pendentives.
Vector	Trusses and Space Frames.
Form Active	Folded slabs, Shells, Hyperbola-paraboloid.
Tensile	Tents, Cables and Pneumatic vis-à-vis materials and plan shape/s.
Vertical Systems	Cores and shear wall, Rigid & braced frame, Moment resistant frames, Core and out rigger, Framed tube, Trussed tube, Bundled tube, Tube in tube and Hybrid systems.

Module-3 Design Proposal

Design of functional spaces that incorporate large span structures, repetitive modules, medium column free spans and multi-storied aspects that use the varied structural systems.

Module-4 Integration of design of structural system

Development of the design proposal to the stage of integrating structure system necessary for the execution of the project and making relevant drawing for the same.

SUGGESTED STUDIO EXCERCISES

1. Literature study and Case Study of different structural systems as used in famous buildings of the world.
2. Presentation of the system with scaled models or actual structures in construction yard.
3. Design of buildings like Stadia, Auditorium, Petrol Pump, Factories, Museums, Malls, Factories and buildings using varied structural systems.
4. Study tours to relevant urban destinations for primary documentation.

REFERENCE BOOKS

1. Ching, Francis D. K. “Architecture : Form, Space and Order”, John Wiley and Sons Inc.
2. Lidwell, William, Holden, Kestina, Butler, Jill, “Universal Principles of Design”, Rockport – Publications, Massachusetts.
3. Ahmet Hadrevic, “Structural Systems in Architecture”, Book Serj Publishing, South Karolina.
4. Heinoengel, “Structure System”
5. Structural System for Tall Buildings, CTBUH, McGraw-Hill,Inc.

B. ARCH. SEMESTER – V
NAR – 502, CONSTRUCTION & MATERIALS – V

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To introduce and familiarize the students with constituents, manufacturing process/availability, properties/characteristics, defects, classifications and uses of building materials used in construction;
- To understand the use of these building materials in building works.
- To introduce and familiarize the students with the various metal/gypsum board partitions and false ceilings construction works.
- To understand the use of the metal doors/windows in existing and new construction.
- To familiarize the student with the building construction practices on site.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1	**Gypsum Products**	Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles), Gypsum Plaster, Components and Accessories. Jointing and Finishing.
Module-2	**Metals (Ferrous)**	Iron (Pig, Cast & Wrought). Variety of M.S. sections – Sheets (plain & corrugated), Flats, Bars (round & square), Angles (Equal & Unequal), R.S. Sections (I beams, Channels, Tees), Hollow tubular sections available for application in building industry. Stainless Steel and Alloys. Metal Coatings – Electroplating, Spraying, Galvanizing.
Module-3	**Water Proofing Compounds**	Various waterproofing compounds – Neoprene, Butyl, EPDM, PVC, Polyurethane.
Module-4	**Asbestos Products**	Understanding of various Asbestos Cement products available for application in building industry.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit assembly workshops/shops etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5	**Workshop/Construction Yard Practice**	Practicing in construction yard by making the examples of components covered under 'Building Construction Technology'.
Module-6	**Site Exposure**	Exposure to advanced building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in structural steel works, partitions and false ceiling works.
2. To construct examples of structural steel works, partitions and false ceiling works in construction yard.
3. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1	**Structural Steel Works**	Typical metal joinery - Mechanical (riveted & bolted), Soldering and Brazing and welding. Detailing of structural steel work – Beam to Column joint, Beam to Beam joint, Column Splice, Column Base, Roof Truss to Column joint.
Module-2	**Doors & Windows (Metals)**	Mild steel L and Z section Pressed steel section.
Module-3	**Shutters (Operational Mechanisms)**	Complete understanding of operational mechanism (automatic and manual) of variety of Rolling shutters and Collapsible shutters.

Module-4	**Partitions & False Ceilings (Gypsum Board)**	Construction details of Metal Stud Partition (single layer). Construction details of Suspended Ceilings.
Module-5	**Water Proofing Works**	Basements and Expansion joints.
Module-6	**Temporary Constructions**	Shoring (Raking, Flying and Needle).

CONSTRUCTION PLATES

1. To understand the application of structural steel works in buildings.
2. To understand the application of metal doors/windows in buildings.
3. To understand the operational mechanism of metal shutters in buildings.
4. To understand application of gypsum board in metal stud partitions and false ceilings in buildings.
5. To understand the application of waterproofing works in buildings.
6. To understand the application of temporary construction in buildings.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – Barry Volume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra &Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Mitchell's Structure & Fabric-II
10. Principle & Practices of Heavy Construction: Smith & Andres
11. Don A.Watson, Construction Materials and Processes, McGraw Hill Co.
12. Building Materials by SC Rangwala: Charotar Pub. House, Anand
13. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill Publishers, New Delhi, 2011.
14. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
15. National Building Code of India (Latest Edition), Bureau of Indian Standards.
16. Engineering Materials-Deshpande.
17. Engineering Material-Roy Chowdary
18. Designing with models – Criss. B. Mills.
19. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
20. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
21. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.

B. ARCH. SEMESTER – V
NAR – 503, ARCHITECTURAL STRUCTURES - V

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To understand the structural behavior of various structural elements
- To understand the analysis and design of R.C.C. structures and their use in building industry.
- To understand the analysis and design of Steel structures and their use in building industry.

Module-1	**Structural behavior of various Structural Elements**.	Understanding the structural behavior of following elements under loads and stresses and their stability e.g. Columns, Beams, Cantilevers, Portals, Arches, Vaults, Domes, Trusses, Space Frames, Folded plate, Shells, Cables and Multistory frames.
Module-2	**Introduction (Limit State Method)**	Understanding of Limit state, characteristic strength and characteristic load. Design values, partial safety factors, factored loads, Stress strain relationship for concrete & steel, Yield stress, Provision of IS codes, Load & load combination.
Module-3	**Analysis & Design of R.C.C. Foundation & Footing (Limit State Method)**	Introduction, Type of foundation, Depth of foundation, Theory & design of axially loaded isolated square footing and detailing of its reinforcement. Pile foundation - Introduction, classification and its application.
Module-4	**Analysis & Design of R.C.C. Column (Limit State Method)**	Introduction, Effective height of column, Assumptions, Minimum eccentricity, Analysis and design of short R.C.C. column under pure axial load as well as under axial load and bending moment.
Module-5	**Analysis & Design of Steel Structure (Limit State Method)**	Various types of connections – Riveted connection - Introduction, classification, strength of riveted joint. Bolted connection - Introduction, classification of bolts based on type of load transfer, terminology, specifications for spacing and edge distances of bolt holes as per I.S. Code 800-2007, Types of bolted connections, Type of actions on bolts, Design strength of plates in a joint, Design strength of bearing bolts Welded connection - Introduction, Types of welded joints, Important specifications for welding as per IS code, Design strength of welded joints. Analysis and Design of various types of members – Tension members - Introduction, Design strength, Analysis and design of Tension member. Compression members - Introduction, slenderness ratio, Actual length, Effective length, Design strength, Analysis and design of Compression member.
Module-6	**Steel Structure**	Understanding of Miscellaneous Structural Elements – Beam and plate girder & its use in building industry. Grillage foundation and its' component & its use in building industry. Types of roof trusses and nomenclature of its members.

APPROACH

1. Lectures by Experts in the field of Design and analysis will be arranged to make the student's exposure to practical aspects of design

REFERENCE BOOKS

1. Jain Ashok K, "Reinforced Concrete Limit State Design".
2. Punmia B. C., "Limit State Design of Reinforced Concrete".
3. Bhavikatti S.S., "Steel Structures By Limit State Method as Per IS: 800-2007".

B. ARCH. SEMESTER – V
NAR – 504, INTERIOR DESIGN

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To initiate students into theory and practice of Interior Design.
- To familiarize students with modern materials and techniques useful for furniture and interior design.
- To appreciate early interventions in design of furniture

Module-1	**Introduction to Interior Design**	Definitions related to interior design. Review of enclosing elements like walls, floors, ceilings, openings, staircases, furniture & design elements such as color, light textures in interior spaces. Principles of interior design.
Module-2	**History of Interior & Furniture Design in Brief**	Concise understanding of evolution from ancient to modern, post-modern ideologies to contemporary (Egyptian, Greek, Roman, Gothic, Baroque, Renaissance, Arts and Crafts Movement, Art Nouveau, De Stijl, Modernism, Post Modernism and Contemporary).
Module-3	**Study of Materials, Finishes & their applications in Furniture & other Interior Elements**	An in-depth understanding of the characteristics and workability of various materials used in interiors. Their classification could be on basis of elements of usage (floor, ceilings, walls, doors, windows and fabrics/upholstery) or materials based like wood, metal plastics and their variants.
Module-4	**Understanding innovation in Furniture & Interior Design**	Modern materials, Modular furniture, Interior landscaping, Fittings & fixtures.
Module-5	**Analysis & Design of Furniture**	Analyzing existing designs of selected furniture on basis of ergonomics, user type, economics, material, joinery and maintenance to ascertain their suitability. Design furniture for specific use complying with the aforementioned formulated design criteria. Build scaled models of the designed furniture for better understanding of working and materials.
Module-6	**Analysis & Design of small Interior spaces**	Analyse small selected interior spaces like study, bedroom, executive/ architect office, retail outlet, conference, reception & waiting lobby including toilets and kitchens in detail, for varied aspects like function, ergonomics, and materials and establishing detailed design criteria. Design of selected small interior spaces on specific sites/ locations based on formulated design criteria using modern design methodologies. Develop design details of the afore-designed projects for their furniture and finishing.

APPROACH

1. Course should be covered through lectures and seminars by the students.
2. Attempts should be made for a thorough study of materials and techniques used in interiors and their applicability.
3. Scaled models of design exercises should be encouraged.
4. Regular studio work for total grasp of the subject is essential.
5. Report making for study of furniture and craft styles in India should be done.

REFERENCE BOOKS

1. Ching, Francis D.K. Interior Design Illustrated, V.N.R. Pub. NY 1987.
2. Pandya ,Yatin. Elements of spacemaking.
3. Massey, Anne. Interior design since 1900.
4. Litchfield, Fredrick. Illustrated History of Furniture from the earliest to the present time.
5. Fiell, Charlotte and Peter. 1000 chairs

B. ARCH. SEMESTER – V
NAR – 505, ESTIMATION & SPECIFICATION

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:
- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

Module-1 Specifications (Materials)
Introduction, Importance and scope.
Type of specifications, Correct form and sequence of clauses for writing specifications. Study and uses of standard specifications viz; drafted by C.P.W.D.
Writing detailed specifications for various building materials e.g. Bricks, Aggregates (fine & coarse), Cement, Reinforcement, Timber, Glass and Paints.

Module-2 Specifications (Items of works)
Writing detailed specifications for various items of works e.g. Earthwork in foundation, Cement concrete, Reinforced cement concrete work, Brick work in cement mortar, Damp proof course, Wood works (door & windows), Glazing, Plastering (cement and sand), Flooring (cement concrete & tiles), Distempering (dry & oil bound), Painting on wood & iron work, Water proof cement painting, Brick bat coba terracing.

Module-3 Estimation
Introduction, Importance and scope.
Types of estimates – Preliminary, Plinth area, Cubical content, Approximate quantity, Detailed / Item rate method estimates.
Methods of Estimation – Separate / individual wall, Centre line methods of estimation.

Module-4 Estimation Exercises
Exercises in estimation, using different methods, for small or medium size buildings.

Module-5 Rate Analysis
Labour turnout and norms of consumption of basic materials.
Principles of analysis of rates, Market / DSR rates of labour and materials.
Exercises for rate analysis of various items of works mentioned in Module – 2.

Module-6 Accounting Procedures
Introduction to P.W.D accounts procedure, measurement book, daily labour, muster roll, stores, stock, and issue of material from stock, indent form, imprest account, cash book, mode of payment.

LIST OF ASSIGNMENTS
1. To study the various types of estimates.
2. To prepare detailed estimate for a small building.
3. To study the importance and correct form of writing specifications.
4. To prepare detailed specifications for various items.
5. To study the principles of analysis of rates and prepare analysis of rates for various items of work.
6. To understand the Standard accounts procedure and record keeping.

APPROACH
- The course would be covered through lectures and tutorials.
- The students' seminars will help realize the grasp on the subject matter.

REFERENCE BOOKS

1. Dutta, B. N. (2003) *Estimating and Costing*, UBS Publishers
2. Birdie, G. S. *Estimating and Costing*
3. Chakraborthi, M. *Estimation, Costing and Specifications*, Laxmi Publications
4. Kohli, D.D and Kohli, R.C. (2004) A Text Book of Estimating and Costing, S.Chand & Company Ltd.
5. Brook, Martin. (2004) *Estimating and Tendering for Construction Work*, 3rd edition, Elsevier.
6. Ashworth, A. (1999) *Cost studies of buildings*, Pearson Higher Education

7. Buchan, R., Grant, F. and Fleming, E. (2006) *Estimating for Builders and Quantity Surveyors*, 2nd edition, Butterworth-Heinemann
8. Cross, D.M.G. (1990) *Builders' Estimating Data*, Heinemann-Newnes
9. McCaffer, R. and Baldwin, A. (1991) *Estimating and Tendering for Civil Engineering Works*, 2nd edition, BSP
10. Sher, W. (1997) *Computer-aided Estimating: A Guide to Good Practice*, Addison Wesley Longman
11. (2004) *Standard Handbook for Civil Engineers*, McGraw-Hill
12. Standard Schedule of Rates for Delhi, CPWD & UPPWD.
13. Standard Specifications, CPWD & UPPWD
14. I. S. 1200 Parts I to XXV – Method of Measurement of Building and Civil Engineering Works, Bureau of Indian Standards
15. National Building Code of India (Latest Edition), Bureau of Indian Standards.

B. ARCH. SEMESTER – V
NAR – 506, ARCHITECTURAL SERVICES – IV (AIR CONDITIONING SYSTEMS & LIFT SERVICES)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

SECTION – A, AIR CONDITIONING SYSTEMS

Module-1	**Introduction & Principles**	Fundamentals of Air Conditioning System Design. Building Plans, Drawings, and Schematics. Refrigeration Cycle, Psychometric chart, Cooling load for air conditioning.
Module-2	**AC systems**	Comfort cooling systems & their working- Unitary air conditioning- window ac & split ac. Package ac system. Evaporative cooling systems. Central air conditioning their parts - A.H.U., Cooling plant, Cooling tower.
Module-3	**Air Distribution Systems**	Air Distribution Systems - fans, filters, fan coil units, ductwork, outlets, dampers.

SUGGESTED EXCERCISES

- Site visits of buildings where different types of Air-conditioning systems have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-storeyed building installation of an air-conditioning system and the location of their parts and how they will be connected.

SECTION – B, LIFT SERVICES

Module-1	**Introduction & Principles**	Fundamentals of lift services System Design. Building Plans, Drawings, and Schematics. Definitions regarding lifts such as average travel lift carrying capacity, rated load, rated speed, RTT etc. Grouping of lifts and design standards of a lift lobby.
Module-2	**Lift Types**	Types of Lifts. Working of lifts with details of lift section describing various parts of lifts.
Module-3	**Escalator**	Types of Escalators. Fundamentals of escalators, Function and working of Escalators

SUGGESTED EXCERCISES

- Site visits of buildings where different types of lifts & escalators have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-strayed building installation of these systems and the location of their parts and how they will be connected.

APPROACH

- Specialized lectures from technical people in the field.
- Practical and site based exercises to make the data more comprehensive.

REFERENCE BOOKS

1. Mitchell's Building Construction: Environment & Services, Peter Burberry, 8th Edition, 1997, Longman
2. Mechanical and Electrical Equipment for Buildings, B. Stein and J. Reynolds, 10th Edition, 2005, Wiley & Sons Inc
3. The Building Systems Integration Handbook, R Rush, 1991, American Institute of Architects

4. Building Services: A Guide to Integrated Design: Engineering for Architect, RP Parlour, 2008, Integral Publishing
5. Understanding Buildings: A Multi-disciplinary Approach, E Reid, MIT
6. William H.Severns and Julian R.Fellows, “Air-conditioning and Refrigeration”, John Wiley and Sons, London, 1988.
7. A.F.C. Sherratt, “Air-conditioning and Energy Conservation”, The Architectural Press, London, 1980.
8. ASHRAE Publications
9. National Building Code of India (Latest Edition), Bureau of Indian Standards.

B. ARCH. SEMESTER – V
NAR – 507, HISTORY OF ARCHITECTURE – IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

Module-1	**Introduction**	Introduction and understanding of 'Islam's' philosophy and its consequent rituals and their interpretation in building type e.g. mosque, tomb, fort and their elements like domes, minarets, arch, squinch, landscape, motif, calligraphy, directionality, symmetry, geometry, material, court, water, patterns etc.
Module-2	**The Sultanate Style**	The architecture of early Islamic dynasties that ruled from Delhi like the Slave, Khalji, Tughlaq, Sayyid, Lodhis and ShershahSuri regimes. The formation of 'Indo-Islamic' style that was the amalgamation of Islamic space and prevalent Hindu techniques of building and materials.
Module-3	**Provincial Architecture**	Development of colloquial styles in various provinces of India like Punjab, Jaunpur, Gujrat, Bengal, Bijapur, Bidar and Deccan.
Module-4	**Cities and Citadels**	Morphology of fortified cities of Jaisalmer, fort/ palaces like Mandu, Chittorgarh, Orchha, Datia, Jodhpur etc. with an overview on architectural types like havelis, stepwells, gates, baradaris etc.
Module-5	**Mughal Architecture**	The architecture of the Timurids in India-Babur, Hamayun, Akbar, Jahangir and Shahjahan, which was the culmination of the Indo-Islamic paradigm. The proportions, structure systems, landscape, materials, scale and distinct features.
Module-6	**The Later Moghuls**	The Oudh architecture, which was a blend of the Mughal style and the British features, in Lucknow and its environs. The manzils, baghs, kothis, imambaras, karbalas: their planning, materials and techniques.
Module-7	**Colonial Architecture**	The British architecture of the colonial days in India- the capitol at Delhi and the residency at Lucknow emphasizing on their planning criteria and architectural features. Incorporation of local motifs and materials.

APPROACH:

1. Lectures to be specifically conducted with the visual aids and seminars presented by students.
2. Students will make written assignments and seminar presentations on architectural characteristics that identify the building types and the intentions of the period in response to context and time.
3. Free hand sketches and orthographic drawings could made by students in the tutorials on specific building examples to familiarize them with the architectural character that identify the works of the particular period.
4. Scaled, sectional models of historical buildings to be encouraged to understand the scale and proportion.

REFERENCE BOOKS

1. Percy Brown, "Islamic Architecture."
2. Jown'd Hoag, "Islamic Architecture (History of World Architecture)", 2004.
3. Rober Hillenbrand " Islamic Art and Architecture" Tames and Hudson.
4. Rober Hillenbrand, "Islamic Form Function and Meaning".
5. Adam Barkman, "Making Sense of Islamic Art and Architecture", Tames and Hudson.
6. Tadgell, "World Architecture".

B. ARCH. SEMESTER – V
NAR – 508, RESEARCH - IV

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Understanding basic principles of any research with special reference to architectural research and applications.
- To understand the basic methodology of writing a technical paper.
- To be able to write a technical paper of about 2000 words.

Module-1	**Introduction**	Anatomy of a technical paper- parts of a technical paper; its chronology.
Module-2	**Technical Writing**	Intent of the paper. Structuring the paper; formulating a synopsis. Identifying sources- categorization into direct and indirect; sequencing them in order of significance. Referencing.
Module-3	**Writing a Technical Paper**	Writing a paper of 2000 words in following stages: Synopsis with clear heads of Intent, Background, Aims and Objectives, Scope, Methodology. Structuring the body of the paper in detail. Ascertaining Primary and Secondary Sources. Utilizing the sources to reach to the desired objectives. Editing the paper.

LIST OF ASSIGNMENTS

1. Writing a paper of 2000 words. This should be broken down stage wise and a feedback be given at every stage.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford University Press, New Delhi.
2. Kate L.Tourabian, A manual for Writers of Research Papers, Theses and Dissertation, 8th edition.
3. Joseph Gibaldi, MLA handbook for Writers of Research Papers

B. ARCH. SEMESTER – V
NAR – 509, DISASTER MANAGEMENT

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	10	15	**25**	25	0	**25**	**50**	2	3 HRS.

OBJECTIVES

- To make the students understand the disaster management cycle.
- To create awareness about natural disasters, factors that cause them, and to foster knowledge about strategies for disaster prevention and management.
- Overview of major natural disaster through case studies.
- Their role in design & planning solutions, for reduction of risk and damages caused.

Module-1	**Introduction to Hazards & Disasters**	Introduction to disaster management, Indian scenario, Understanding of disaster, Hazard and its classification, Vulnerability, Capacity, Risk. Various types of disasters. To understand in detail for the causes, adverse effects, distribution patterns, mitigation measures of Earthquake, Tsunami, Cyclone, Flood and Landslide. Disaster management cycle.
Module-2	**Case Studies**	Studies to understand above mentioned disasters (National as well as International) occurred in past and their inferences.
Module-3	**Disaster Preparedness**	Disaster Management Act, Guidelines, NDMA. Vulnerability Assessment & Warning systems for above said disaster types.
Module-4	**Disaster Response**	Programmes and strategies for disaster reduction. Communications.
Module-5	**Disaster Mitigation**	Pre disaster, emergency, transition, and recovery. Disaster management plan, Natural crisis management committee, State crisis management group.
Module-6	**Disaster Resistant Construction Techniques**	Risk reduction measures through land use control, site planning and land management, design and construction of structures for above mentioned disasters.

REFERENCES:

1. Building Configuration and Seismic Design-Christopher Arnold.
2. Structural failures in Residential Buildings- Frich Schild & Others.
3. Handbook of Planning security Planning & Design-Peter S. Hopf.
4. S. Rajagopal – Problems of housing in cyclone prone areas – SERC, Vol.2 , Chennai, 1980.
5. Office of the UN Disaster Relief Co-ordinator – Disaster prevention and mitigation, Vol 12, Social and Sociological aspects – UNO, NY, 1986.
6. F. C. Cony et.al – Issue and problems in the prevention of disaster and housing – A review of experiences from recent disasters – Appropriate reconstruction and training information centre, 1978.
7. S. Ramani, Disaster management – Advanced course on modern trends in housing – SERC, Vol 2, Chennai, 1980.

B. ARCH. SEMESTER –VI
NAR – 601, ARCHITECTURAL DESIGN - VI

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	7	30	70	**100**	75	25	**100**	**200**	9	6 + 6 HRS.

OBJECTIVES

- To understand the constraints of multiple housing units in an urban setting with respect to social norms, climate and client's expectations.
- To understand design limitations due to authority guidelines and making drawings / details necessary for final execution of a project.
- To integrate services and structure system in the housing design project.

Module-1 Introduction
Acquainting with the various ways of designing a group housing in urban context i.e. low/medium rise- high density, high rise- high density etc.

Module-2 Study and Analysis
Through literature studies and case studies analyze the constraints, typologies and interventions in housing throughout India and the rest of the world.

Module-3 Design Proposal
Design of a housing project incorporating varied formats of grouping on an actual site with specific bye-laws and regulations.

Module-4 Integration of Services and Structure
Development of the housing proposal to the stage integrating services, structure and other infrastructural facilities necessary for the final execution of the project and making relevant drawing for the same.

Module-5 Working Drawing
Making complete set of working Drawings and Details for the residence or any other project designed by the students. The drawings to also incorporate electrical and plumbing details complete with schedule and all specifications.
The Working Drawings and details to include -
Site Plan.
Trench Plan with Foundations Details (showing grid lines, if required).
Ground, First and Terrace Floor Plans.
Sections, preferably through Staircase and Toilet.
Elevations.
Doors and Windows (Frames & Shutter Details).
Electrical Layout Plan with specifications.
Toilet Details showing all fixtures and gadgets, Wall elevations & Floor plan to show tile pattern, Internal Plumbing and Sanitary Layout Plan.
Kitchen Details showing all fixtures, Flooring & Wall elevations to show tile pattern and counter details, Internal Plumbing and Sanitary Layout Plan.
Plumbing and Sanitary Layout Plan of total site.
Flooring pattern Plan (internal and external areas, steps etc.).
Staircase and Railings Details.
Details of Window Grills, Gates, Jaals, Pergolas, Parapets.
Typical wall section showing foundation, DPC, floor, sill, lintel / beams slab, projections, terracing, parapet details.

SUGGESTED STUDIO EXCERCISES

1. Design of group Housing in varied formats with diverse bye-laws and regulations.
2. Complete set of working drawings as suggested above for a medium sized project.

REFERENCE BOOKS

1. Ching, Francis D. K. "Architecture : Form, Space and Order", John Wiley and Sons Inc.
2. Lidwell, William, Holden, Kestina, Butler, Jill, "Universal Principles of Design", Rockport – Publications, Massachussets.

3. Correa, Charles, “The New Landscape”,
4. Jogelekar & Das, S.K, “Contemporary Indian Architecture: Housing and Urban Development”, HUDCO, 1995
5. Rewal,Raj, “Humane Habitat at Low Cost”, Architectural Research Cell, 2000.
6. Steele, James, “The Complete Works of Balakrishna Doshi: Rethinking Modernism for the Developing World”, Super Book House, Mumbai, 1990.

B. ARCH. SEMESTER –VI
NAR – 602, CONSTRUCTION & MATERIALS –VI

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To introduce and familiarize the students with constituents, manufacturing process/availability, properties/characteristics, defects, classifications and uses of building materials used in construction;
- To understand the use of these building materials in building works.
- To introduce and familiarize the students with the various temporary construction works required for RCC construction works.
- To understand the use of the metal/PVC doors/windows in existing and new construction.
- To familiarize the student with the building construction practices on site.

SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1 Plastics and Rubbers Thermoplastics - Polythene, Polyvinyl chloride, Poly-propylene, Polymethyl methacrylate, Acrylonitrile butadiene styrene.
Thermosetting Plastics – Phenol formaldehyde, Urea formaldehyde, Melamine formaldehyde, Polyurethanes, Silicon resins.
Rubber.

Module-2 Metals (Non-Ferrous) Non ferrous – Copper & Copper based alloys (Brass & Bronze), Tin, Cadmium, Chromium, Zinc, Lead and Nickel.
Metal Coatings – Electroplating, Anodizing.

Module-3 Additives & Admixtures Various additives and admixture – Cementitious (crystalline) systems, Integral systems, Proprietary systems, Cementitious Coating systems.

Module-4 Construction Equipments Electric hand tools, Vibrators, Pumps, Compactors/Rollers.
Earth Moving & Excavation – Dozers, Scrapers, Graders, Shovels, Backactor, Dragline, Trenchers.
Transportation – Lorries, Trucks, Dumpers, Hoist, Cranes (mobile, static, tower).
Concrete mixers and pumps for ready mix concrete.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit assembly workshops/shops etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5 Workshop/Construction Yard Practice Practicing in construction yard by making the examples of components covered under 'Building Construction Technology'.

Module-6 Site Exposure Exposure to advanced building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in RCC and temporary construction works.
2. To construct examples of RCC works in construction yard.
3. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1 Doors & Windows (P. V. C.) Doors Frames and Shutters. Windows Frames and Shutters.

Module-2 Doors , Windows & Partitions (Aluminium) Doors Frames and Shutters. Windows Frames and Shutters. Partitions Framework & fixing with other suitable materials.

Module-3	**R.C.C. – I (Formwork & Laying)**	Foundations - Isolated, Combined, Cantilever, Eccentric footing, Grillage and Raft foundation, Pile foundations – details of pile, varieties of piles, pile caps. Understanding of steel reinforcement types, laying, bending and binding.
Module-4	**R.C.C. – II (Formwork &Laying)**	Columns, Lintels, Projections/Chujjas and Beams. Understanding of steel reinforcement types, laying, bending and binding.
Module-5	**R.C.C. – III (Formwork & Laying)**	Slabs - Simply supported, Continuous & Cantilevered. Staircases - Waist and Folded slab. Understanding of steel reinforcement types, laying, bending and binding.
Module-6	**Temporary Constructions**	Centering, Shuttering and scaffolding.

CONSTRUCTION PLATES

1. To understand the application of PVC Doors and Windows.
2. To understand the application of Aluminium Doors, Windows and partitions.
3. To understand the construction of RCC Foundations along with its' steel works.
4. To understand the construction of RCC Columns, Lintels and Beams along with its' steel works.
5. To understand the construction of RCC Slabs and Staircases along with its' steel works.
6. To understand the application of temporary construction in buildings.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – Barry Volume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra &Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Mitchell's Structure & Fabric-II
10. Concrete: Microstructure, Properties and Materials P. Kumar Mehta
11. Properties of Concrete A. M. Neville
12. Concrete Admixture Handbook: Properties, Science & V. S. Ramchandran Technology
13. Principle & Practices of Heavy Construction: Smith & Andres
14. Don A.Watson, Construction Materials and Processes, McGraw Hill Co.
15. Building Materials by SC Rangwala: Charotar Pub. House, Anand
16. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill Publishers, New Delhi, 2011.
17. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
18. National Building Code of India (Latest Edition), Bureau of Indian Standards.
19. Engineering Materials-Deshpande.
20. Engineering Material-Roy Chowdary
21. Designing with models – Criss. B. Mills.
22. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
23. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
24. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.
25. Testing of Concrete in Structures J H Bungey and S. G. Millard

B. ARCH. SEMESTER – VI
NAR – 603, ARCHITECTURAL STRUCTURES - VI

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To understand the analysis and design of R.C.C. structures and their use in building industry.

Module-1	**Introduction to Shear and Development Length in Beams.**	Understanding of Shear stress, Diagonal tension, Shear reinforcement, Spacing of shear reinforcement, Problems of shear reinforcement, Development length, Anchorage bond, Flexural bond.
Module-2	**Analysis & Design of R.C.C. Beam (Simply Supported & Cantilevered). (Limit State Method)**	Analysis & Design of R.C.C. singly reinforced & doubly reinforced rectangular and flanged (L & T) beam sections.
Module-3	**Analysis & Design of R.C.C. Beam (Continuous). (Limit State Method)**	Analysis & Design of R.C.C. continuous Beam.
Module-4	**Analysis & Design of R.C.C. Flat Slab. (Limit State Method)**	Analysis & Design of R.C.C. flat slab.
Module-5	**Analysis & Design of R.C.C. Cantilever Retaining Wall (Limit State Method)**	Introduction, Type of retaining walls, Analysis & Design of Cantilever retaining walls and detailing of its reinforcement.
Module-6	**Analysis & Design of R.C.C. Stairs (Limit State Method)**	Introduction, Types of stairs, Effective span of stairs, Loading on stairs, Analysis & design of stairs (dog legged with waist slab) and detailing of its reinforcement.

APPROACH

1. Lectures by experts in the field of design and analysis will be arranged to make the student do independent design of structural elements.

REFERENCE BOOKS

1. Jain Ashok K, “Reinforced Concrete Limit State Design”.
2. Punmia B. C., “Limit State Design of Reinforced Concrete”.

B. ARCH. SEMESTER – VI
NAR – 604, LANDSCAPE DESIGN

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To make students aware of plant-scape around them
- To encourage hand drawing & drafting in landscape presentation drawings
- To familiarize students in preparation of simple landscape proposals.

Module 1	**Introduction to Landscape Architecture**	Role and scope of Landscape Architecture, Understanding its relationship with earth, water, fire, air, ether/space. Factors affecting landscape design like Climatic/Natural conditions - (soil, water, landforms, vegetation, temperature, humidity, rainfall), Scale, Material, Cost, Time. Elements of Landscape Design - Natural elements (Landform, water, plantscape, microclimate), Design elements (man-made water bodies, landscape furniture, lighting, hardscape and softscape) Principles of Landscape Design - Unity, Symmetry, Balance, Hierarchy, Repetition, Sequence with suitable examples.
Module 2	**Landscape Graphics**	Techniques on making handmade landscape drawings - trees of varied textures, landforms, buildings, paving, foliage patterns, tone contrast, & balance, rock & water and other landscape features. Conventional symbols in landscape presentations.
Module 3	**Concise Theory And Evolution Of Landscape Architecture**	Evolution of landscape from pre- history to present day (history of landscape through civilizations). Major Garden styles - Hindu, Buddhist, Mughal, Japanese, Italian, Renaissance, their Design and Philosophy in brief.
Module 4	**Planting Design**	Classification of Plants - Trees, shrubs, groundcovers, flowering plants. Selection criteria of plants on the basis of visual, functional, micro climate and ecological aspects.
Module 5	**Landscape Design**	Inventory, Site analysis and Site planning. Conceptual design, Design development and proposals. Landscape constructional details paving, curbs, retaining wall, fountain, decks, terrace gardens etc.

APPROACH

- Emphasis would be in drawing in studios
- Site-visits to botanical gardens, existing parks & urban spaces

SUGGESTED STUDIO EXCERCISES

1. Design and presentation of Traffic islands, Small residences, Offices, Canteen etc.

REFERENCE BOOKS

1. Geoffry& Susan Jellicoe: landscape of Man: shaping the environment from pre-history to the present day.
2. Brian Hackett: planting design
3. Nick robinson: planting design handbook.
4. Ian Mcharg: Design with nature
5. Simonds: landscape architecture
6. Jay Applaton: Experience of Landscape
7. Paul Bannet: The language of Landscape
8. SimondSwaffield: Theory in Landscape Architecture

9. Pradip Krishen: Trees of delhi
10. Tropical gardens of india
11. Website <flowers of india>
12. Software tukai: exotic plants of pune

B. ARCH. SEMESTER – VI
NAR – 605, BUILDING BYE - LAWS

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- To study the master plan and development controls as applicable to building design.
- To acquaint the students to compulsory building bye-laws and permits.
- To understand design limitations due to authority guidelines.

Module-1	**Introduction to Building Bye Laws**	Introduction to building bye laws and regulation, Need and relevance, General definitions such as building height, building line, FAR, Ground Coverage, Set Back Line. Role of various statutory bodies governing building works like development authorities, municipal corporations etc. Introduction to Master Plan and understanding various land uses and related terminology.
Module-2	**Development Authority**	Familiarizing with Building Bye-laws through NBC & Local Development Authority, State Housing board, etc. Interpretation of the Bye Laws applicable to residence in plotted developments, Group Housings, Commercial Buildings, Educational Buildings and other Public Institutions.
Module-3	**Other Authorities**	Various other statutory controlling authorities e.g. Water, Electricity, Fire, Airport, Archaeology.
Module-4	**BIS Codes**	Introduction to various BIS codes in building industry.
Module-5	**Drawings**	Complete set of Submission drawings as suggested above for a medium sized project.

LIST OF ASSIGNMENTS

1. To study the importance and correct form of Building Bye-laws.
2. Submission Drawings for statutory approval from the regulating Authority.

APPROACH

- The course would be covered through lectures and tutorials.
- The students' seminars will help realize the grasp on the subject matter.

REFERENCE BOOKS

1. National Building Code of India (Latest Edition), Bureau of Indian Standards.
2. Development Authority Bye-laws.
3. Master Plan.
4. Model – Bye-laws by TCPO.
5. Various BIS Codes.

B. ARCH. SEMESTER – VI
NAR – 606, ARCHITECTURAL SERVICES – V (FIRE PROTECTION & ELECTRONIC SECURITY AND SURVEILLANCE SYSTEMS)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To develop an understanding of the advanced building services such as Fire Protection and Security and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part

SECTION – A, FIRE PROTECTION

Module-1	**Introduction**	Causes and spread of fire. Fire triangle/tetrahedron. Classes of fire. Combustibility of materials and fire resistance. Building Plans, Drawings, and Schematics.
Module-2	**Fire Detection & Alarm Systems**	Fire Detection Equipments - Heat and Smoke sensors. Fire Alarm Systems.
Module-3	**Fire Fighting & Extinguishing Techniques**	First stage fire fighting equipment, Ladders, Snorkel Ladder. Fire fighting pump and water storage, Hose and hose fittings, Dry and wet risers, Automatic sprinklers. Fire Extinguishers - Portable fire extinguisher and other fire fighting equipments. Means of escape, Fire escape, Fire doors, and Water curtains.

SUGGESTED EXCERCISES

- Site visits of buildings where different types of Fire protection equipments have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-strayed building installation of these systems and the location of their parts and how they will be connected.

SECTION – B, ELECTRONIC SECURITY AND SURVEILLANCE SYSTEMS

Module-1	**Perimeter Protection, Intrusion Detection & Alarm Systems**	Perimeter protection - Barriers, Doors, Gates, Turnstiles and Fences. Intrusion Detection Sensors and Alarm Systems - Outdoor & Indoor. Building Plans, Drawings and Schematics.
Module-2	**Access Control**	Introduction to Access Control Systems, Locks & Emergency Exits. Visitor Management Systems. Identification Systems - PIN, Card, Wireless systems, Biometric Systems.
Module-3	**Surveillance & Recording System**	Components of Basic Systems. Security Lighting, Illumination including Infra-red. Understanding CCTV cameras - Pan, Tilt & Zoom mechanisms. Recording Systems - Digital and Analog Recording.

APPROACH

- Specialized lectures from technical people in the field.
- Practical and site based exercises to make the data more comprehensive.

REFERENCE BOOKS

1. Understanding Building Automation Systems (Direct Digital Control, Energy Management, Life Safety, Security, Access Control, Lighting, Building Management Programs) by Reinhold A. Carlson, Robert A. Di Giandomenico
2. Building Automation: Control Devices and Applications by In Partnership with NJATC (2008)
3. Building Control Systems, Applications Guide (CIBSE Guide) by The CIBSE (2000)

4. Security/Fire Alarm Systems: Design, Installation, and Maintenance by John E. Traister (1995)
5. CCTV (Newnes) by Vlado Damjanovski (1999)
6. Security, ID Systems and Locks: The Book on Electronic Access Control (Newnes) by Joel Konicek and Karen Little (1997)
7. Integrated Security Systems Design: Concepts, Specifications, and Implementation (v. 1) by Thomas L. Norman (2007)
8. Access Control Systems: Security, Identity Management and Trust Models by Benantar, Messaoud, Springer (2005)
9. Building Automation Online by McGowan; McGowan, John J.
10. CCTV by Damjanovski, Vlado; Edition: 3 Publisher: Butterworth- Heinemann
11. CCTV for Security Professionals by Machette, Alan; Matchett, Alan R.; Butterworth-Heinemann (2003)
12. CCTV Surveillance: Analog and Digital Video Practices and Technology by Kruegle, Herman, 2nd Edition, Butterworth- Heinemann (2006)

B. ARCH. SEMESTER – VI
NAR – 607, HISTORY OF ARCHITECTURE – VI

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Understanding of the period in terms of its location, climate as well as the social cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

Module-1	**Picturesque and Neo-Classical Architecture**	Purity and structural honesty of antiquity preferred over ornamentation and exaggeration of Baroque. Representation of ancient Roman monuments in imaginary compositions. Archeological purism and importance of pictorial values in historical settings. Recreation of antique Roman simplicity and splendor for modern living. Study of important palaces and public buildings in Britain and France.
Module-2	**Enlightenment and beginnings of Modern**	Belief in creation of 'new' and 'ideal' world through return to fundamentals, 'true' and 'original' values. Romanticizing elementary geometrical forms with undecorated surfaces. Iron and glass construction for openness and lightness: Art Nouveau. Repetitive, Orthogonal, skeletal systems for horizontal and vertical expansion. Latter attempts to dissociate references to past styles.
Module-3	**Modern Architecture**	Social intentions and search for ideal world. Pluralism in place of past unity of styles. Search for paradigms in historical sources: It return to fundamentals and origins in geometry, nature and paradigms of technology. Expressions of construction and technology. Equating technology and progress with present. Functionalism and functional appropriateness. Thoughts and works of Frank Lloyd Wright, Walter Groupies, Le Corbusier, Mies van der Rohe, Alvar Aalto, Louis Kahn, Dutch De Stijl Italian futurists and Russian Constructivists. International style: Oversimplification of the modern Movement into functional, steel and glass, cubes. Monotonous functionalist abstractions and Modernism as a style. Disenchantment of modern cities and fall of modern Movement.
Module4	**Post Modern Architecture**	Post modern architecture as a revision of modern architecture and resistance to functional containers of 60's. Objective, representational and emphasis on content. Pluralistic and differing trends.
Module-5	**Post Modern – Historicism**	Rooted to place and history. Regards of expression: ornaments, symbolism and context with irony and humour, exemplified through the works of James Stirling, Michael Graves, Charles Moore, Arata Isozaki.
Module-6	**Neo - Modern**	Disregard historical imaginary to recapture ideas for modern architecture of 20's. Hi-tech metal abstractions of Richard Rogers, Normal Foster, showing structure and equipment as implied ornament. References of Russian Constructivists. The early works of New York Five including later works of Richar Mier as complicated, exaggerated and sophisticated revival of the modern grid and Corbusier's geometry. Synthesis of Hi-Tech and Historicism in the works Aldo Rossi, Mario Botta, Cesar Pelli.
Module-7	**Deconstructive**	Narrative and representational. Sources in Russian Constructivism. Non perfection in the works of Frank Gehry, Peter Eisenman, Bernard Tschumi, Daniel Libeskind, Questioning traditional purity of form, geometry and structure.

REFERENCE BOOKS

1. Kenneth Frampton, “Modern Architecture; A Critical History” by, Tames and Hudson
2. Willam Jr.Curtis, “Modern Architecture since 1900”, Phaidol
3. Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress, 1996.
4. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London, 1985.
5. Leland M Roth; Understanding Architecture: Its elements, history and meaning; CraftsmanHouse; 1994
6. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams,
7. Inc.Pub., New York, 1972.
8. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,
9. London, 1986.
10. Gosta,E.Samdstrp, Man the Builder, Mc.Graw Hill Book Company, New York, 1970.
11. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962
12. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.
13. Charles Jencks, “The language of Post Modern Architecture”.
14. Heinrich Clotz, “History of Post Modern Architecture”.
15. Marvin Trastctenberg, “ Architecture from Prehistory to Post modernism”

B. ARCH. SEMESTER –VI
NAR – 608, RESEARCH - V

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	0	0	**0**	**50**	2	-

OBJECTIVES

- Understanding basic principles of any research with special reference to architectural research and applications.
- To write a technical paper of about 5000 words with original input.

Module-1 Introduction Learning the formulation of research question or hypothesis

Module-2 Writing a Technical Paper Writing a paper of 5000 words in following stages:
Formulation of an original research issue by ascertaining the gaps in research
Synopsis with clear heads of Intent, Background, Aims and Objectives, Scope, Methodology.
Structuring the body of the paper in detail.
Ascertaining Primary and Secondary Sources.
Referencing in Harvard Style.
Utilizing the sources to reach to the desired objectives.
Editing the paper.

LIST OF ASSIGNMENTS

1. Writing a paper of 5000 words. This should be broken down stage wise and a feedback be given at every stage.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford UniversityPress, New Delhi.
2. Kate L.Tourabian, A manual for Writers of Research Papers, Theses and Dissertation, 8th edition.
3. Joseph Gibaldi, MLA handbook for Writers of Research Papers.

B. ARCH. SEMESTER –VI
NAR – 609, THEORY OF ARCHITECTURE

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVE

- To provide the students a strong knowledge base of original ideas written by the architects themselves and familiarize them with the original thought processes that was instrumental in the change.

Module-1 Pre-modern	Ornament and Crime by Adolf Loos Seven Lamps of Architecture by John Ruskin
Module-2 Modern	Towards a New Architecture by Le Corbusier In the cause of Architecture by Frank Lloyd Wright
Module-3 Post Modern	Complexity and Contradiction in Architecture by Robert Venturi The Architecture of a City by Aldo Rossi Thinking Architecture by Peter Zumthor .

APPROACH

Allocate books amongst students and discuss it holistically and sequentially in class. The teacher can prepare a summary as a presentation to summarize the book.

REFERENCE BOOKS

1. Pattern language-Christopher Alexander
2. The language of post Modern architecture –Charles Jencks
3. K. Michael Hays, “Architecture Theory since 1968”
4. Kenneth Frampton, “Modern Architecture; A Critical History” by, Tames and Hudson
5. Colin Davies, “Thinking about Architecture and Introduction to Architectural Theory”
6. Robert Venturi, “Complexity and Contradiction in Architecture”
7. Le Corbusier, “Towards a New Architecture”
8. Charles Jencks, “The language of Post Modern Architecture”.
9. Willam Jr.Curtis, “Modern Architecture since 1900”, Phaidol
10. Aldo Rossi, “ The Architecture of City”
11. Robert Venturi, “ Learning from Las Vegas”
12. M. Reza Shirazi, “Towards an Articulated Phenomenological Interpretation of Architecture: Phenomenal Phenomenology”.

DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - VII

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 701	PRACTICAL TRAINING - I	-			-		**250**	-	250	**250**	**500**	**16**	
		TOTAL										**500**		
		GENERAL PROFICIENCY										**0**		
		GRAND TOTAL										**500**		

DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW

FACULTY OF ARCHITECTURE

BACHELOR OF ARCHITECTURE

SEMESTER - VIII

SCHEME OF TEACHING AND EXAMINATION

S. NO.	SUBJECT CODE	NAME OF THE SUBJECT	PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
			LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
						CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	NAR - 801	ARCHITECTURAL DESIGN - VII	1	0	8	30	70	**100**	75	25	**100**	**200**	9	6+6+6 HRS.
2	NAR - 802	CONSTRUCTION & MATERIALS - VI1	2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.
3	NAR - 803	ADVANCED STRUCTURES	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
4	NAR - 804	TOWN PLANNING	1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
5	NAR - 805	ELECTIVE - I	1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
6	NAR - 806	ADVANCED SERVICES	1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.
7	NAR - 807	PROFESSIONAL PRACTICE - I	2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.
8	NAR - 808	DISSERTATION	0	5	0	-		**50**	-		**50**	**100**	5	
		TOTAL	**9**	**12**	**12**							**950**	**33**	
		GENERAL PROFICIENCY										**50**		
		GRAND TOTAL										**1000**	**33**	

B. ARCH. SEMESTER – VII
NAR – 701, PRACTICAL TRAINING - I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
-	-	-	-	-	**250**	-	250	**250**	**500**	16	-

INTRODUCTION

A. TRAINING RULES:

Extracts from Ordinances, Scheme of Examination & Syllabus:
(For the award of the degree of B. Architecture by the Dr. A.P.J. Abdul Kalam Technical University. Lucknow)

Ordinance 16 PRACTICAL TRAINING:

16.1 Each student will be required to proceed on 'Practical Training' for the VII semester after appearing at the VI semester examination. The Principal/Head of Department of Architecture of the concerned Institute will approve the office of the 'Practical-Training' for the student.

16.2 The marks for 'Practical Training' will be awarded to each student in accordance with the Regulations and Guidelines issued separately by the Dr. A.P.J. Abdul Kalam Technical University.

B. AIMS OF PRACTICAL TRAINING:

1. The aim of the 'Practical Training' is to enable the students to gain the kind and range of practical experience which will prepare them for their likely responsibilities, immediately after qualifying B. Arch. Course.

2. The 'Practical Training' should be regarded as an important academic activity. Howsoever good the arrangement of training may be, the trainee student, still, has the responsibility to use his own initiative in making the best use of the opportunities which he/she gets during training period and prepare himself/herself for the profession.

3. The student should try to seek a variety of experiences in his/her 'Training office' to acquaint himself/herself with various works, procedures etc. of building trade.

GUIDELINES FOR STUDENT TRAINEE

1. **Criteria for selection of a Training Office**

- In case of proprietorship firm, the proprietor shall be an architect; also, the firm shall have at least two or more architects as employee/associates.
- In case of 'Partnership' / 'Pvt. Ltd.' Firms, at least one of the partner/director shall be an architect, and the firm shall have at least one or more architects as Partner/director/employee/ associate.
- In case of a 'Public-sector' / 'State or Central Government office/academic institute or a multinational organization', there shall be a separate wing for architectural consultancy works.
- The said architect (Proprietor/Partner/Director/Head of Department/Chief Architect etc.) shall have at least 10 years of working experience and the organization should have a variety of projects.

2. Working Relationship between Architect and Trainee

- The architect shall provide enough jobs to the trainee to keep him/her occupied.
- The Architect shall expose the trainee to difference aspects of professional practice. The tasks given to the trainee shall include the following-

- **Preparation of**
  - Sketch designs, presentation drawings etc.
  - Municipal drawings according to the byelaws.
  - Workings drawings and details.

- Estimates, bill of quantities & specifications.

- **Discussions with**
  - Clients.
  - Structural Consultants.
  - Services Consultants.
- **Inspection and management of site.**
- **Preparation of**
  - Models, perspectives and photographs.
  - Reports, progress charts etc.
- **Other administrative works.**

3. Honorarium/Stipend

- The architects usually pay some amount as honorarium/stipend to meet out of pocket expenditure to the trainee. The Institute/College of the student shall have no objection if the trainees accept/receive such honorarium/stipend.
- The mode and amount of the honorarium shall depend upon the office and be based upon a mutual agreement between the employing architect and the trainee. However it shall neither be a claim of the trainee nor binding on the architect but in order of professionalism and to maintain the dignity of profession, the training office of architects pay a respectable amount as stipend/honorarium.
- The Institute/Training and Placement cell of the Institute shall not in any way be responsible for the payment against any sorts of damages, whatsoever.

4. Code of conduct for the trainee

- He/she shall abide by the rules, regulations and general instructions of the office/firm.
- He/she shall remain punctual and regular in attendance.
- He/she shall make all efforts to learn the work involved in the profession, and if so required for work, shall attend the office beyond the scheduled time in the office.
- He/she shall respect and obey the senior members of the office/firm.
- He/she shall take up the job with full responsibility and show utmost interest in the work allotted.
- He/she shall inform the institute/training and placement cell about joining in the training office, its address and contact numbers. He/she shall also inform the address of the accommodation acquired during the training period.
- He/she shall remain in regular touch with the institute/ 'Training and Placement Cell' and shall keep the Training and Placement Cell fully informed about his/her progress in the training office.
- In case of any complaint or misconduct, the Institute/Training and Placement Cell may take suitable and strict action against the student

5. Arranging/Fixing-up the Training office

- The Department of Architecture, directly or through the 'Training and Placement Cell' of the Institute shall provide a list of offices, along with their addresses of some well-established and recognized architects. Addition, alteration and deletion in such a list may be made from time to time in conformity to 'Criteria' as laid down for selection of a training office.
- After seeking advice from 'Training and Placement Cell', the student shall make his/her options available to the Training and Placement Cell.
- With the help of 'Training and Placement Cell', the student shall make all efforts to settle his/her appointment as trainee with an established and recognized architect.

6. Joining and Leaving the Training Office

- The trainee is expected to join the training office on the scheduled date, and submit his **'Joining Report'** on the letterhead of the office duly signed by Head of the Training to the Institute in the Performa prescribed for the purpose and contained in the Log Book.
- The trainee must obtain a '**No Dues Certificate'** duly and get relived from the office at the end of the training period or before changing the 'Training Office'. The trainee must submit this **'No Dues Certificate'** along with the **Log Book.**

7. Change of Training Office

- In case of any emergency, a trainee may be permitted to change the training office/place of training once only during the entire period of training. He/she shall inform the Principal/Director/Head of

Department/Officer in-charge of the 'Training and Placement Cell', and seek prior permission for such a change.

- The total duration of the practical training shall be the sum of the period of stay in different offices. It shall be in conformity with the 'Duration of Training' as prescribed in the 'Ordinances, Scheme of Examination & Syllabus' of the Dr. A.P.J. Abdul Kalam Technical University.

8. Final Submissions

- After completion of practical training, the trainee is required to submit the following to the parent Institute.
- 'Certificate' of successful completion of the practical training mentioning the attendance in percentage, from the architect.
- 'Daily Diary' with details of the day to day work record, which will be returned to the student after assessment and viva voce examination. The suggested 'Proforma' of the page of the daily diary is available in the prescribed 'Log-Book'.
- 'Training report' supplemented with the prints and documents of work done during practical training. The prints and documents shall be obtained with the permission of the Training office and shall be duly signed by the 'Supervisor'.
- Training report shall be submitted in two copies. First copy shall be returned to the student after assessment of sessional marks and viva voce examination. The second copy shall be retained by the Training and Placement Cell/library. These shall be presented in A-4 size with ring binding.

9. Failures:

- In case the student/trainee remains unsuccessful or fails in completing his/her practical training or viva-voce examination, the matter shall be dealt with in accordance with the relevant 'Rules and Regulations' of the Dr. A.P.J. Abdul Kalam Technical University.

COMPOSITION OF JURY PANEL FOR FINAL EVALUATION / EXAMINATION OF PRACTICAL TRAINING

EXAMINERS -

- An Architect Director / Dean / Principal / Head of the Department / Professor of the parent institution.
- An Architect Director / Principal / Head of the Department / Professor of other than the parent institution.
- An Eminent Architect from the profession with at least 15 years of field experience.

Further the Practical Training Coordinator will act as facilitator.

B. ARCH. SEMESTER – VIII
NAR – 801, ARCHITECTURAL DESIGN - VII

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	8	30	70	**100**	75	25	**100**	**200**	9	6+6+6 HRS.

OBJECTIVES

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development.
- Understanding relationship of buildings amongst themselves and with a given environment.
- Incorporating the agenda of complex services, acoustics, building bye laws, structure, site planning and landscape.

Module-1	**Introduction**	Understanding the importance of 'context' and built urban environment in design and lessons to be learnt in contextual insertions.
Module-2	**Study and Analysis**	Examining an existing urban environment for establishing parameters that influence contextual insertion within that fabric.
Module-3	**Design Proposal**	Design of a multi-utility building/campus incorporating the constraints derived from the context it is placed in.
Module-4	**Integration of Services and Structure**	Development and refinement of the design proposal to the stage integrating services, structure and other infrastructural facilities necessary for the final execution of the project and making relevant drawing for the same .

SUGGESTED STUDIO EXCERCISES

1. Study of a given urban fabric with underlying context.
2. Insertion of built forms like commercial complexes, interpretation centres & malls.
3. The exercises shall be generated after understanding the existing physical, socio-cultural, economical and political context surrounding activities etc.

REFERENCE BOOKS

1. Architecture Today
2. Concept to the manifest

B. ARCH. SEMESTER – VIII
NAR – 802, CONSTRUCTION & MATERIALS – VII

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	50	**75**	50	25	**75**	**150**	6	3 HRS.

OBJECTIVES

- To introduce and familiarize the students with advanced and speedy building techniques.
- The understanding for the system to be adopted for the construction of large span & multi storey structures.
- To introduce and familiarize the students with the various construction equipments required for speedy and effective construction works.
- To study the causes and remedies of various defects in existing and new construction.
- To familiarize the student with the advanced building construction practices on site.

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SECTION – A, BUILDING MATERIALS AND SCIENCES

Module-1	**Advanced Structural Concretes**	Structural Light weight Concrete, High Strength Concrete-Classification, Availability, Characteristics and Uses.
Module-2	**Materials for pre-stressing**	Classification, Availability, Characteristics and Uses.
Module-3	**Forms & materials for speedy construction**	Reinforcement types, RMC; Advanced Formwork systems. Classification, Availability, Characteristics and Uses.
Module-4	**Forms of steel for Industrial construction**	Classification, Availability, Characteristics and Uses.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)

1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit factory etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

Module-5	**Workshop/Construction Yard Practice**	Practicing in construction yard by making the examples of precast components.
Module-6	**Site Exposure**	Exposure to advanced building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS

1. To study the various tools, equipments used in Precast works.
2. To construct examples of precast works in construction yard.
3. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

Module-1	**Prefabrication**	Systems – open prefab system, large panel prefab system, joints, pre-casting methods, materials, on-site and off-site prefabrication, components, etc.
Module-2	**Pre-stressed Concrete**	Introduction, methods of pre-stressing and their application to large-space structures.
Module-3	**Speedy Construction**	Methods, Types of floor construction - Beam & Slab, Waffle Grid Slab, Drop Beam & Slab, Flush Slab, Lift Slab Construction; Cast-in-situ service & stair cores; Cross wall & Box frame construction.
Module-4	**Industrial Construction**	Structural Steel Works: Portal Frame Construction, north-light truss and lattice girder roof with various roof coverings.

Module-5	**Defects and Remedies**	The study of various defects in buildings and their remedies, Defects caused by dampness, applied forces and changes in size.
Module-6	**Modular Coordination**	Aims, basis, planning, dimensioning. Assembly of components, tolerances, modules, reference system, grids, positioning of functional elements – slabs, walls, staircases; Standardization in buildings' design and their components.

CONSTRUCTION PLATES

1. To understand the joint details in prefabricated buildings.
2. To understand the application of pre-stressed concrete in buildings – planks, hollow core slabs, single & double tee slabs; beams, columns; composite construction.
3. To understand speedy construction techniques in buildings.
4. To understand large span structural steel works with roof coverings.
5. To understand the causes and remedies of various defects in existing and new construction.
6. To understand the standardization in buildings' design and their components.

APPROACH

- The students would be familiarized with vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS

1. McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000.
3. The Construction of Buildings – Barry Volume I, II, III and IV
4. Chudley, Roy, "Construction Technology", Longman, 2005.
5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., "Building Construction", Charotar Publishing House, 2007
7. Building Construction-Bindra &Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Mitchell's Structure & Fabric-II
10. Prestressed Concrete Structures: P. Dayaratnam
11. Concrete: Microstructure, Properties and Materials P. Kumar Mehta
12. Properties of Concrete A. M. Neville
13. Concrete Admixture Handbook: Properties, Science & V. S. Ramchandran Technology
14. Modern Prestressed Concrete: J. R. Libby
15. Principle & Practices of Heavy Construction: Smith & Andres
16. Don A.Watson, Construction Materials and Processes, McGraw Hill Co.
17. Building Materials by SC Rangwala: Charotar Pub. House, Anand
18. M. Gambhir, NehaJamwal, Building Materials Products, Properties and Systems, Tata McGraw Hill Publishers, New Delhi, 2011.
19. R.K.Gupta, Civil Engineering Materials and Construction Practices, Jain brothers, New Delhi, 2009.
20. National Building Code of India (Latest Edition), Bureau of Indian Standards.
21. Engineering Materials-Deshpande.
22. Engineering Material-Roy Chowdary
23. Designing with models – Criss. B. Mills.
24. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons, 2000.
25. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth, 2000.
26. Raghuwanshi, B.S., "A Course in Workshop Technology - Vol. I and II", Dhanpat Rai and Co, 2001.
27. Wenninger (Magrus.J.) Spherical Models, Cambridge University Press, 1979
28. Testing of Concrete in Structures J H Bungey and S. G. Millard
29. Non-destructive testing V. M. Malhotra
30. Learning from failure – deficiencies in Design, Construction and Service R N Raikar
31. Concrete: Repair and Maintenance Illustrated, Problem Analysis, Repair strategy and Techniques Peter Emons & Gajanan Sabnis
32. Construction Failure Jacob Feld, Kennith Harper

B. ARCH. SEMESTER – VIII
NAR – 803, ADVANCED STRUCTURES

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To understand the reinforcement cement concrete design of structural elements

Module-1	**Analysis and design of Pre stressed concrete**	Introduction, Element of pre stressed concrete, Advantages and disadvantages of prestressed concrete, Reinforced concrete versus prestressed concrete, General Principles of prestressing concrete member and Systems of prestressing, Loss of prestress. Analysis and design of prestress concrete beam.
Module-2	**Multistoried buildings**	Introduction, Structural systems, Stiffening elements, Need for redundancy, Regularity, Member stiffness, Loads (Dead loads, Live loads, Wind loads), Approximate analysis for vertical loads and lateral loads, Effect of sequence of construction, Partition walls or infill walls, Coupling effect in buildings, Effect of joint width, Beam to column joint. Introduction to various loads resisting system.
Module-3	**Analysis & Design of Portal frame (R.C.C.)**	Analysis and design of portal frame (Single bay, Single storey) with fixed and hinged base, in R.C.C.
Module-4	**Analysis & Design of Shell structures (R.C.C.)**	Introduction to various types of shell structures. Analysis and design of shell structure (Hemi-spherical Dome) in R.C.C.
Module-5	**Analysis & Design of Roof Trusses (Steel)**	Introduction and terminology of Roof Trusses, Types of Trusses, Analysis and design of Roof Truss (Fan Type) in Steel.

APPROACH

1. Lectures by experts in the field of design and analysis will be arranged to make the student do independent design of structural elements.

REFERENCE BOOKS

1. Reinforced Concrete Design- AK. Jain.
2. Earthquake Resistant Design of Structures- Manish Shrikhande and Pankaj Agarwal.
3. Advance reinforced concrete design – P.C.Varghese.
4. Structural Design & Drawing Reinforced Concrete & Steel – N Krishna Raju
5. Steel Structures Design & Drawing – Prof. Harbhajan Singh Col. (Retd.)

B. ARCH. SEMESTER – VIII
NAR – 804, TOWN PLANNING

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To develop an appreciation of the planning issues involved at the scale of a town or a city.
- To expose the students to the history and development of planning, its relevance & application to modern day principles of town planning.

Module 1	**Introduction to Town Planning**	Definitions of town planning, form of planning, Elements and planning principal of city plan, Shapes of plan in accordance to road networks.
Module 2	**Planning Concepts and Evolution**	Planning concepts related to City beautiful movement (Chicago, Chandigarh), Urban Utopia (Broadacre), Garden city (Letchworth), Radburn Theory (Radburn) and Neighbourhood planning.
Module 3	**Planning Process & Standards**	Understanding of planning process. Relevance of standards in planning as per URDPFI guidelines prepared by TCPO.
Module 4	**Roads and traffic studies**	Awareness of concepts related to various traffic problems in India. Understanding of PCU, Traffic volume, Road capacities, Road types; their sections and intersections, Traffic calming as per IRC guidelines.
Module 5	**Modern Transportation systems**	New concepts in mass and rapid transportation systems e.g. BRT, LRT and Metro rail.
Module 6	**Modern approach in Planning**	Introduction, Benefits and Planning components of Green City (e.g. Vancouver), Compact City (e.g. Sky city, China) and Smart City (e.g. Malta)

REFERENCE BOOKS

1. John Ratcliffe, An Introduction to Town and Country Planning, Hutchinson 1981
2. Arthur B. Gallion and Simon Eisner, The Urban Pattern – City planning and Design, Van Nostrand Reinhold company
3. Rangwala, Town Planning, Charotar publishing house
4. G.K.Hiraskar, Town Planning
5. Rame Gowda, Urban and Regional planning
6. S.K.Khanna, Highway Engineering, C.E.G. Jhusto, Nemchand & Bros. Roorkee 1997 7. N.V.Modak, V.N.Ambedkar, Town and country planning and Housing, orient longman, 1971
7. URDPFI Guidelines for Planning by TCPO.
8. IRC Guidelines

B. ARCH. SEMESTER –VIII
NAR – 805, ELECTIVE – I (A - ADVANCED COMPUTERS)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Computation is no longer limited to the 'binary' digits. A new understanding of application of the computers to design is beginning to arise, paving the way to a more interdisciplinary approach to design. The field of mathematics and engineering, design, natural sciences, and many more can inform each other in the virtual space. Material and structure systems are no longer mere receivers of design, they themselves, with the aid of right computer tools, have become the 'generators' of design.
- The main objective of this elective is to familiarize students with the potential of computers as a design medium, and not just a drafting tool. It will encourage them to look at architectural design as an interdisciplinary science and not just a stand-alone area. The program will expose the students to various practices (all over the world) using computation in architecture both as a medium to create complex geometry (iconic design) as well as a problem-solving engine. The three main sub-areas of study will be 1-Natural Systems 2- Material and fabrication 3- Urban Design. By talking about computation in reference to the above-mentioned areas, the elective will help prepare the students to have an overall understanding of the subject and at the same time prepare them to find their own 'way' into the world of computation.
- Tool: Rhinoceros 3D

Module 1	**Computer as a Design Medium**	Design thinking, Intuition, Human limitation.
Module 2	**Natural Systems**	Evolution of form in nature, Bio-mimicry, Fusion of space, Structure, Surface and material, Genetic algorithm.
Module 3	**Material and fabrication**	Parametric design, Works of researchers like Neri Oxman.
Module 4	**Urban Design**	Spacial properties of urban barriers: Space syntax

LIST OF ASSIGNMENTS

1. Deconstrcut the design process of your favourite computaion driven design.
2. Main idea: to reinforce in students the idea that process is more important than product.
3. Journey from complex 3D model in virtual space (rhinoceros 3d) to a physical model.
4. Main Idea: to extract the right information from a virtual 3D space to tranlate it into a real world form.
5. Natural systems- final report
6. Main idea: to understand the priciple of form development in nature and translate it into an architecturall useful concept.

REFERENCE BOOKS

1. John Frazer, An Evolutionary Architecture, Architectural Association Publications, Themes VII, copyright John Frazer and the Architectural Association 1995.
2. Makoto Sei Watanabe 2002, InductionDesign: A Method for Evolutionary Design,Birkhäuser, Switzerland.
3. D'Arcy Wentworth Thompson 1966, OnGrowth and Form, Cambridge universitypress, London
4. Christopher Alexander 1964, Notes onSynthesis of Form, Harvard UniversityPress, Cambridge, Massachusetts.
5. Mark Verstockt 1982, The Genesis ofForm, from chaos to Geometry, Muller Bond and White limited, London
6. Lynn, G.: 1999, Animate Form, Princeton Architectural Press, New York.
7. Philip Drew, Frei Otto: Form and Structure– 1976
8. Alexander, C. (1965/1996), "A City Is Not a Tree" in LeGates& Stout (eds.) The City Reader.Pp 118-131. Routledge, London.
9. Hillier, B.(1996), Space is the Machine Cambridge, UK.
10. Galofaro, L.: 1999, Digital Eisenman – An Office of the Electronic Era, Birkhauser, Basel
11. Jacobs, J. (1961) The Death and Life of Great American Cities.Penguin, London.
12. PatrikSchumacher : 2004, Digital Hadid`

B. ARCH. SEMESTER – VIII
NAR – 805, ELECTIVE-I (B - ART TECHNIQUES)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS

OBJECTIVES

- Objective of this subject is to develop the understanding and knowledge of creation technique, medium of arts and uses of their techniques in different mediums.

Module 1	**Artistic Creation**	Complete understanding of Perception, Communication, Imagination, Expression, and Creativity for artistic creation.
Module 2	**Mediums of Expression**	Visual Mediums - Painting, Sculpture and Architecture.
Module 3	**Art Movements**	To understand the thoughts and techniques involved in important art movements - Impressionism, Cubism, Constructivism, Optical Art, Kinetic Art.
Module 4	**Activities**	Students are expected to express their ideas through Posters, Murals, Building Art, Collage, Graffiti, 3D-Installations.

LIST OF ASSIGNMENTS

- Preparation of Reports and Tutorials.
- Drawing and Paintings following the impression and impact of important art movements.
- Designing various types of Posters, Murals, Building Art, Collage, Graffiti, 3D-Installations to express their feelings, thought and emotions.
- Composing various types of forms / patterns to understand the relation and language of forms, and to create sensible composition.
- Other art techniques.

REFERENCE BOOKS

1. Graphic Design Basics (IInd Edition), Amy.E. Aniston.
2. Practical Graphic Design Technique, Edited by – Lydia Darbyshire.
3. The Ultimate Drawing Workbook, Barrington Barber, Peter Gray.
4. Creative Design, Philip Rowson.

B. ARCH. SEMESTER – VIII
NAR – 805, ELECTIVE-I (C – ADVANCED BASIC DESIGN)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS

OBJECTIVES

- To enable an understanding and informed appreciation for design as a problem solver. Also, it should give an introduction to the variety of mediums which can be used to induce improvement in any experience around a product or an artifact.

Module-1	**Design Theory Refresher**	Elements of Design - Line, Colour, Value, Texture, Shape, Size, Space. Principles of Design - Pattern, Contrast, Emphasis, Balance, Proportion / Scale, Harmony, Rhythm / Movement; Design Process - Research, Analyse, Ideate, Prototype, Build, Test, Iterate. Basic Creativity Tools: Mind Mapping, Brainstorming, Reverse Brainstorming.
Module-2	**Design for Improvement/ Innovation**	Innovation, Designing to improve an accepted norm in a way to positively enhance the experience, Out of the box thinking. Fundamentals of User Centered Design approach, Empathy with the user, Rationalisation. Problem Solving Process - Identification, Factual Analysis, Improvement, Implementation. Providing solutions as quick fixes or as durable solutions based on use cases and requirements and available opportunities.
Module-3	**Design for Communication**	Colour - choice of colours in communication, designing for monochrome, bichrome, trichrome and multi chrome colour schemes. Typefaces - Understanding of types of Typefaces, Font Families, Expressive Typography. Compositions with type, Relationship of Typography to the context. Layout - Grids (Manuscript, Column, Modular, Hierarchical, Irregular) Relationship between syntactics, semantics and pragmatics, Relationship of colour, form and meaning, Explorations in visual abstraction. Understanding of Branding, Identity and Logo Design.
Module-4	**Design for Novelty / Disruption**	Designing to improve an accepted norm in a way to positively enhance the experience. Process of Disruption - Out of the box thinking for uncommon creative solutions for experiences that can be improved / altered, either by better streamlining of the workflow or through addition of a fun element to it.

LIST OF ASSIGNMENTS

• Presentations by students -

1. Elements of Design
2. Principles of Design
3. Creativity Tools

REFERENCE BOOKS

1. The Design of Everyday Things (by Donald Norman)
2. Design Basics (by S. Pentak and A. Lauer)
3. Thinkertoys (by Michael Michalko)

4. Visual Notes for Architects and Designers (by Norman Crowe and Paul Laseau)
5. Geometry of Design: Studies in Proportion and Composition (by Kimberly Elam)
6. Design as Future-Making (by Susan Yelavich and Barbara Adams)
7. The Design Process (by Karl Aspelund)
8. The Visual Display of Quantitative Information (by Edward Tufte)
9. Anatomy of Design: Uncovering the Influences and Inspiration in Modern Graphic Design (by Steven Heller and Mirko Ilic)
10. Universal Principles of Design, Revised and Updated: 125 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach through Design (by William Lidwell, Kritina Holden, Jill Butler)

B. ARCH. SEMESTER – VIII
NAR – 805, ELECTIVE – I (D – VISUAL COMMUNICATION)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To enable an understanding and informed appreciation for the art of communication through visual media. Also, it should give an introduction to the variety of mediums which are used for conveyance of ideas and information in forms that can be read or looked upon.

Module-1 **Anatomy of a Graphic Interface**

Colour - choice of colours in communication, designing for monochrome, bichrome, trichrome and multi chrome colour schemes.
Typefaces - Understanding of types of Typefaces, Font Families, Expressive Typography, Compositions with types and Relationship of Typography to the context.
Layout - Grids (Manuscript, Column, Modular, Hierarchical, Irregular) Relationship between syntactics, semantics and pragmatics; Relationship of colour, form and meaning; Explorations in visual abstraction.
Understanding of Branding, Identity and Logo Design.

Module-2 **Print Media**

A study of evolution of printing technology. Introduction to all the major processes of printing. Influence of printing process on design. Study of packaging using different materials.

Module-3 **Digital Media**

Basics of communication for digital consumption.
Understanding of screen types / resolutions, available screen real estate, associated usage patterns and user expectations.

Module-4 **Interactive Media**

Understanding of affordances which each visual element provides, either on a digital screen or a physical artifact, in the age of interactive interfaces and experiences.
Use of supporting mediums e.g. animations, gestures, video and audio for a holistic experiential communication.

LIST OF ASSIGNMENTS

- Corporate Identity (Print): Designing a complete branding proposal for a corporate house together with the necessary office stationary (e.g. Business Card, Letter Heads, Signages and Identity Cards etc.)
- Information Architecture and Visual Hierarchy (Print): e.g. Way finding tools (i.e. Printed Maps, Signages etc.) for a public space, Packaging Design for a product of everyday use
- Dynamic Graphics: Animated gif images (upto 8 frames) that convey/ reinforce simple ideas based on their usage scenario
- Identity/ Logo Design: Using visual elements to convey complex idea/ aspiration/ perceptions for an organisation/ event/ product in the simplest format possible, which is tied closely on the relevant use case for the resultant identity.
- Presentations by students :
  Typefaces : Serif, Sans Serif, Ornamental, Script, Dingbats etc.
  Principles of Colour Theory
  Types of Layout Grids : Manuscript, Column, Modular, Hierarchical, Irregular

REFERENCE BOOKS

1. The Elements of Graphic Design (by Alex W. White)
2. Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media(by David Dabner, Sandra Stewart, Eric Zempol)

3. Layout Essentials: 100 Design Principles for Using Grids (by Beth Tondreau)
4. 100 Ideas that Changed Graphic Design(by Steven Heller & Veronique Vienne)
5. Typography Sketchbooks (by Steven Heller & Lila Talarico)
6. The Graphic Design Exercise Book (by Jessica Glaser)
7. Universal Principles of Design, Revised and Updated: 125 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach through Design (by William Lidwell, Kritina Holden, Jill Butler)

B. ARCH. SEMESTER – VIII
NAR – 805, ELECTIVE-I (E - ENERGY CONSCIOUS ARCHITECTURE)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS

OBJECTIVES

- Sustainable architecture aims to create environment – friendly and energy efficient building by actively harnessing renewable nature sources of energy (solar energy etc) and utilizing materials that least pollute the environment.
- The objectives include creating awareness of designing energy efficient building envelopes that respond to the climate of a place bldg. lighting of resource – efficient practices in India, advocating of the application of renewable energy system and the promotion of efficient lighting & HVAC system to reduce energy demand.

Module 1	**Climate and Shelter**	Over view of the different Passive Solar Techniques & Climate responsive design features built form – open space relationship & façade articulation & appropriate use of building materials.
Module 2	**Solar Energy and Buildings**	Solar geometry and built form – Various techniques of shading to reduce heat gain in tropical climate. Various methods of Maximising exposure to solar radiation in cold & temperate climate. Heating & cooling loads –Energy conservation methods – Efficient day lighting, Solar Water heating system. Exercises on heating and cooling load calculations in buildings.
Module 3	**Passive Solar Heating**	General principles – Direct gain systems - Glazed walls, Bay windows, Attached sun spaces etc. Indirect gain systems – Trombe wall, Water wall, Solar Chimney, Transwall, Roof pond, Roof radiation trap, Solarium. Case studies on buildings designed with passive heating techniques
Module 4	**Passive Cooling**	General principles – Evaporative cooling, radiation cooling, Passive Desiccant cooling, induced ventilation, earth sheltering, Berming, Wind Towers, earth Air tunnels, Curved Roofs & Air Vents, Insulation , Vary Thermal wall. Case studies on buildings designed with passive cooling techniques.
Module 5	**Site planning and Development**	Land form & orientation, Vegetation & Pattern, Water Bodies, Open Space & Built form, Plan form & Elements, Roof form, Fenestration pattern & Configuration, Building envelope & finishes.

REFERENCE BOOKS

1. Fuller Moore, Environmental Control Systems, McGraw Hill, Inc., New Delhi, 1993.
2. A.Konya, Design Primer for Hot Climates, Architectual Press, London, 1980.
3. Climatically Responsive Energy Efficient Architecture, PLEA/SPA, New Delhi - 1995.
4. Ms.Sudha, N.K.Bansal and M.A.S.Malik - Solar Passive Building - Pergamon Press.
5. V.Gupta - Energy and Habitat - Wiley Easterm Limited, New Delhi.

B. ARCH. SEMESTER – VIII
NAR – 805, ELECTIVE-I (F - UNIVERSAL DESIGN)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS

OBJECTIVES

- Understanding the concepts of universal design.
- Familiarization with key aspects and systems of universal design.
- Awareness to design norms and regulations of universal design.

Module 1	**Introduction to Universal Design**	Need of Universal Design, Definition of universal design, Universal design and equal status, The Principle of equal status, The situation today, The paradox. Complete understanding of Universal design, Barrier free & Inclusive design.
Module 2	**Type of Effected Persons & Their Needs**	Various disabilities - Non Ambulatory, Semi Ambulatory, Sight, Hearing etc. Old age persons, Women & Children in terms of effected persons, Dependency, Repercussions and Psychological needs.
Module 3	**Universal Design Principles**	The changing paradigm, Basic concepts of universal design, Challenges to Architects, Principles of universal design.
Module 4	**Design & Planning Standards for Universal Design**	Universal Design standards, Bye Laws. Space requirements for persons with various disabilities - Non Ambulatory, Semi ambulatory, Sight, Hearing etc. Old age persons, Women & Children.
Module 5	**Case Studies**	Documentation & presentation of case studies to understand the universal design principles; implemented in various building projects & spaces.
Module 6	**Universal Design Implementation**	Design Exercise of a small building project & space while incorporating Universal design standards & Bye laws.

REFERENCE BOOKS

1. Universal Design : Creating Inclusive Environment by Edward Steinfeld & Jordana Maisel
2. Universal Design for Learning : Theory & Practice by Anne Meyer, David H.Rose and David Gordon
3. Universal Design Handbook, 2E by Wolfgang Preiser, Korydon H. Smith
4. Barrier Free Design Guide: design for independence and dignity for everyone by Alberta
5. Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons – Central Public Works Department, Ministry of Urban Affairs & Employment, India, 1998
6. IS – 4963 (1987), Recommendations for buildings and facilities for Physically Handicapped
7. Barrier-Free Design: Principles Planning, Examples, by Oliver Heiss, Christine Degenhardt, Johann Ebe (Birkhauser Architecture, 2010)

B. ARCH. SEMESTER – VIII
NAR – 806, ADVANCED SERVICES

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	**50**	50	0	**50**	**100**	2	3 HRS.

OBJECTIVES

- To develop an understanding of the advanced building services and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CONTENTS

Module 1	**Gas Installation**	L.P.G / Bio-gas installations, their location and layouts in residential and non-residential buildings
Module 2	**Automated Parking System**	Introduction, Types, Working and Advantages of automated parking system.
Module 3	**Mechanical Ventilation**	Standard requirements of ventilation for different conditions of living and works. Conditions for comfort. Control of quality, quantity, temperature and humidity of air.
Module 4	**Control Room**	Code of Safety prescribed in NBC.
Module 5	**Waste Treatment & Management**	Introduction, Reduce–Reuse–Recycle, Waste collection, Treatment & disposal. Thermal treatment Dumps and Landfills. Biological waste treatment. Waste water treatment
Module 6	**Integrated Building Management System**	The objectives of the Integrated Building Management System (IBMS), the list of utility, safety and security systems that are generally monitored and controlled through IBMS, the various components of IBMS, types of integration with the utility, safety and security systems and the basic knowledge on how they are designed and installed.

SUGGESTED EXCERCISES

- Site visits of buildings where different types of advanced services equipments have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-stroried building installation of these systems and the location of their parts and how they will be connected.

APPROACH

- Specialized lectures from technical people in the field.
- Practical and site based exercises to make the data more comprehensive.

REFERENCES

1. Understanding Building Automation Systems (Direct Digital Control, Energy Management, Life Safety, Security, Access Control, Lighting, Building Management Programs) by Reinhold A. Carlson, Robert A. Di Giandomenico
2. Building Automation: Control Devices and Applications by In Partnership with NJATC (2008)
3. Building Control Systems, Applications Guide (CIBSE Guide) by The CIBSE (2000)
4. Building Automation Online by McGowan; McGowan, John J.

B. ARCH. SEMESTER – VIII
NAR – 807, PROFESSIONAL PRACTICE – I

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice.
- To familiarize a student with requirements of Architectural Competitions and appointment of a contractor through tenders.
- To familiarize the students with Easement rights.

Module-1	**Role of Professional Bodies**	The Indian Institute of Architects, its working constitution and byelaws, categories of membership, election procedures. The Uttar Pradesh Architects Association.
Module-2	**Architects' Act 1972**	Detail study of the Act, Council of Architecture; Procedures of membership.
Module-3	**Scale of charges**	Conditions of engagement of an architect – Duties; Responsibilities and liabilities of a professional architect; Scale of charges, mode of payment etc.
Module4	**Code of Professional conduct & Architectural Competition**	Clauses governing conduct of professional architect. Types of competitions; need and procedure for conducting competitions.
Module-5	**Tender and Contract**	Type of building contracts, their demands. Preparation of tender documents, method of inviting tenders, opening of tenders, preparation of comparative statement recommendation and award of projects, preparation of contract documents, general conditions of contract, interim certificates, defect liability period, retention amount and virtual completion.
Module-6	**Easements**	Introduction to various easement process and precautions to protect easement rights.

APPROACH:

- The course will be covered through lectures citing practical examples.
- Specialist should supplement the course through extension lectures.,

REFERENCE BOOKS

1. Dr. Roshan H. Namavati, Professional practice
2. Council of Architecture, handbook of professional document.
3. The Indian Institute of architects, The handbook of Professional Practice.
4. Madhav Devshaktu, Professional Practice

B. ARCH. SEMESTER – VIII
NAR – 808, DISSERTATION

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
0	5	0	-	-	**50**	-	-	**50**	**100**	5	-

OBJECTIVES

- To research on a theoretical topic which may be relevant to the final thesis topic and do the necessary background work.
- Present the findings in report form

Module-1 DISSERTATION Preparation of an Architectural Dissertation including reference to an extensive study of architectural examples and precedents in the selected field of study. This can be a related study for the final thesis next semester.

EVALUATION OF DISSERTATION
It will be through internal evaluation.

REFERENCE BOOKS

1. Raman Meenakshi and Sharma Sangeeta, "Technical Communications – Principles and Practices", Oxford UniversityPress, New Delhi.
2. Kate L.Tourabian, A manual for Writers of Research Papers, Theses and Dissertation, 8th edition.
3. Joseph Gibaldi, MLA handbook for Writers of Research Papers.

B. ARCH. SEMESTER – IX
NAR – 901, ARCHITECTURAL THESIS

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	23	-	-	**400**	-	-	**250**	**650**	24	-

OBJECTIVES

- To prepare a student to independently handle and present all aspects of an architectural design, from its evolution to final solution in totality.
- To understand the importance of the evolutionary stages of a design process and various techniques required for a successful presentation of an architectural design.
- To develop in students the ability to handle specific aspects / thrust area of design relevant to the topic.

INTRODUCTION

- The multiple challenges of 'built environment' offer unlimited scope for the choice of an architectural design thesis. The selection of the thesis subject may result either from issue/s involved, or from the challenges of design, or the inherent and acquired aptitude of a student, which he/she wishes to perfect and present. The variety of the intentions give students the choice to select the topic of the thesis from a purely hypothetical to a 'live' programme, as long as the topic can result in tangible 'built environment' solution. Consequently, the size of the project has no relevance in the selection of the topic; the riding clause being the topic's relevance to serve the laid down specific objectives inherent in the philosophy of the institution.
- For reasons of maintenance of uniformity in results and standards, the thesis presentation shall be in two distinct compartments: a report comprising of all the preliminary studies required for the thesis topic, and the final design solution.
- The Thesis report shall consist of all relevant contextual studies: of user, place and time to enable the formulation of design criteria.
- The design solution shall be in the form of drawings and models of the concept and design and shall further include the presentation of at least one specific aspect relevant to the selected topic in complete detail.
- The report, in duplicate, shall be submitted in bound form together with prints/photographs of all the drawings and model/s.
- All relevant/ pertinent drawings, sketches, models from previous stages to be put up for the jury to show evolution of design.

Module-1	**Stage I** **Marks = 100**	Thesis Plan; Project/client brief; Inventory and Site Study; Site Analysis; Selection Criteria of Case studies and Literature studies - Their Critical Analysis and Inferences; Development of the Design Criteria for the selected thesis project.
Module-2	**Stage II** **Marks = 100**	Revised Design Criteria; Concept and Sketch Design through drawings and models.
Module-3	**Pre- Final** **Marks = 100**	Design development in form of Site Plan(s), floor Plan(s), Sections and Elevations, Views and Working Models fully explaining the design, Structural Systems, Services Compliance. Selection of Elective; Criteria, Objectives, Methods, Scope and Limitations.
Module-4	**Final (Internal)** **Marks = 100**	Finalized Detailed Drawings complete with electives and models with Final Thesis report

COMPOSITION OF JURY PANEL FOR EVALUATION OF THESIS

INTERNAL EXAMINERS -

- An ArchitectDirector / Principal / Head of the Department of the parent institution.
- The Thesis Guide.

EXTERNAL EXAMINERS -

- An ArchitectDirector / Principal / Head of the Department / Professor of other than the parent institution.
- An eminent architect from the profession with at least 15 years of field experience.

Further the Thesis Coordinator will act as facilitator.

B. ARCH. SEMESTER – IX
NAR – 902, PROFESSIONAL PRACTICE–II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To acquaint the students with most of the general aspects of valuation and arbitration.
- To familiarize the students with organization of an architect's office**.**
- To familiarize the student about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

Module-1	**Valuation**	Valuation of immovable properties, elements of valuation and factors affecting valuation; Techniques of valuation of landed and building property; Value classification and types of valuation.
Module-2	**Arbitration**	Arbitration, Arbitrator, Umpire, Nature of arbitration. Appointment, Conduct, Powers, and duties of arbitrators and umpires; Procedure of arbitration and preparation of awards.
Module-3	**Law related to Land**	The land acquisition Act, UP Urban Development Act 1973
Module-4	**Law of Control**	The Partnership Act, 1932
Module-5	**Law related to Conservation**	The elements of the Ancient monument,(site remains) Act 1956
Module-6	**Office Organization & Management**	Professional organization, setting of practice, salaried appointments, public sector, private sector jobs, procedure of operation in government organization.

APPROACH

- The spectrum of lectures will be covered through lectures citing practical examples. Specialist should supplement the courses through extension lectures**.**

REFERENCE BOOKS

1. Dr. Roshan H. Namavati, Professional practice
2. Council of Architecture, handbook of professional document.
3. The Indian Institute of architects, The handbook of Professional Practice.
4. Madhav Devshaktu, Professional Practice
5. Governance of Societies under Multistoried buildings/housing

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE–II (A – CONSTRUCTION MANAGEMENT)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To provide an insight into Management of Building/Construction projects involving management of money, manpower and machinery.
- To enhance the professional ability of an Architect about the methodology of executing a Project.
- To expose the students to the currently prevalent techniques in the planning, programming and management of a project.

Module 1	**Introduction**	Aim, objectives and functions of construction management. Role of Architect & Construction/Project Manager in Construction Management. Resources of construction Industry. Various stages of construction.
Module 2	**Organization**	Organization, types of organization study of organizational structures suitable for building and construction projects, the roles of the various members of a typical construction organization, responsibility & authority, functions in the management process, qualities of an ideal construction organization and ethics in construction industry.
Module 3	**Construction Management Techniques**	Construction Planning scheduling and controlling phases. Levels of details & time scale Resource scheduling, Smoothing & levelling, Project execution, Monitoring & progress reporting. Use of Management techniques – Bar charts and limitations of bar charts. Mile Stone Chart.
Module 4	**PERT and CPM**	Use of Management techniques –PERT and CPM; event, activity, dummy, network rules, graphical guidelines for network, numbering of events. CPM network analysis & PERT time estimates, time computation & network analysis. Cost time analysis in network planning using CPM.
Module 5	**Mechanization**	Advanced and automated technology in construction Introduction to construction equipment, performance, characteristics of equipment. The role of equipment /machinery in construction industry, factors affecting selection of construction machinery, standard versus special equipment, and understanding of the various issues involved in owning, operating and maintaining of construction equipment, economic life of equipment.
Module 6	**Resource Allocation & Quality Control**	Resource usage profile - Histogram, Resource smoothing and Resource levelling. Planning of temporary services at the site, Safety precautions at construction sites, Security of materials at building site, Stages of inspection and quality control. Computer applications in construction management. Introduction to IT in construction industry-software packages.

REFERENCES:

1. Construction Planning, Equipment and Methods by RL Peurifoy
2. Project Management for Architects by S P Mukopadhyay
3. Part and CPM by L S Srinath
4. Project management through network technologies M. Thyagarajah
5. Construction Project Management Planning, Scheduling & Controlling -K. Chitkara – Tata McGrawhill

6. Dr. B.C.Punmia et al. *Project planning and control with PERT and CPM*, Laxmi Publications, New Delhi
7. Jerome D.Wiest and Ferdinand K.Levy, A Management Guide to PERT, CPM, prentice Hall of India Pub,Ltd., New Delhi, 1982
8. R.A. Burgess and G.White, *Building production and project Management*, The construction press, London,1979
9. Sharma JC, Construction Management and Accounts, Satya Prakashan, New Delhi

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE–II (B – HOUSING)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To create awareness about the causes and consequences of housing problems and to impart knowledge about the possible solutions.
- Understanding of the various issues involved in urban and rural housing and knowledge about the planning and design solutions for low income groups

Module 1	**Introduction& Terminology**	Housing Need and Demandin India -Present and Future. House, Housing and Settlement. Detached and Attached House Types. Net & Gross Residential Density, Perceived Density, Zoning.
Module 2	**Issues Affecting Housing**	Issues Affecting Housing- Climate Change, Social factors, Affordability, Health, Safety & Security, Noise Control, Utilities and Services.
Module 3	**Objectives of Housing Agencies**	Objectives and role of government, urban local bodies and other agencies in housing development: Census, NSSO, HUDCO, State Housing Board, NBO, National Housing Bank (NHB).
Module 4	**Housing Schemes**	Understanding of various housing schemes- Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Rajiv Awas Yojana (RAY), Basic Services for the Urban Poor (BSUP), Integrated Housing & Slum Development Programme (IHSDP), and Site & Services Scheme.
Module 5	**Housing Development & Design**	Understanding of various Housing categories through case studies e.g., Condominiums, Co-operative Housing, Rental Housing, Affordable Housing, Rural Housing, – Their Advantages and Disadvantages. Understanding of Neighbourhood. Exercises of moderate magnitude on Neighbourhood Planning.

REFERENCE BOOKS:

1. Babur Mumtaz and Patweikly, Urban Housing Strategies, Pitman Publishing, London, 1976.
2. Geofrey K.Payne, Low Income Housing in the Development World, John Wiley and Sons, Chichester, 1984.
3. John F.C.Turner, Housing by people, Marison Boyars, London, 1976.
4. Martin Evans, Housing, Climate and Ocmfort, Architectural Press, London, 1980.
5. Forbes Davidson and Geoff Payne, Urban Projects Manual, Liverpool University Press, Liverpool, 1983. PatrikSchumacher : 2004, Digital Hadid.
6. Miglani O.P., Urban Housing in Developing Economy.
7. Jain A.K., Urban Housing and Slums.

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE–II (C – URBAN DESIGN)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- The overall goal of the course is to help students formulate an understanding of the urban forms and spaces. Cityhistory 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 control.

Module-1	**Introduction**	Emergence of urban design as a discipline, definitions and its ambiguities.
Module-2	**Urban Space Study**	Historical and contemporary example of urban space. Piazza del campo, St. Peters, Campidglio, St. Marco. Yerba Buena garden, san Francisco, pike place market, Seattle Washington
Module-3	**Urban design Parameters**	Space and place, morphology, urban form and structure, fabric, texture, grain, enclosure, human scale, complexity, etc**.**
Module-4	**Basic Principles and Theories of Urban Design**	Theories related to visual or perception aspect (Gorden Cullen) Theories related to physical aspect (Kevin lynch) Theories related to social aspect (Jane Jacob) (after understanding above aspect student will explain above theory on Indian space and context)
Module-5	**Urban Design Details**	Urban outdoor lighting, urban green infrastructure, acoustic consideration for urban fabric, air quality at street level.

REFERENCE BOOKS

1. Whyte, William H. *The Social Life of Small Urban Spaces*. Washington D.C.: Conservation Foundation, 1980.
2. Alexander, C. (1987) *A New Theory of Urban Design*
3. Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), *55*.
4. Jacobs, A. B. (1993). *Great streets*. Cambridge, MA: MIT Press.
5. Appleyard, D. (1981). *Livable streets*. Berkeley: University of California Press.
6. Lynch K, 1960 *The Image of the City* (Cambridge, Mass: MIT Press)
7. Lynch k, Good city form(Cambridge, Mass:MIT Press)
8. Goden Cullen,*the concise townscape.*
9. Rob krier, *urban space*
10. Bernard tshumi, *Manhattan transcript*
11. Deeependra Prasad,*New architecture and urbanism*,
12. John Lang,Architecture and Independence
13. Bill Hiller, *Social logic of space*
14. Paul D. Speriregon Architecture of town and cities, The MIT press
15. jan gehl , Life between buildings: using public space
16. ian geh,l Cities for people
17. Christopher Alexander, Public spaces public lifePattern language
18. *The City of Tomorrow and its Planning* by F. Etchells, London, Architectural Press, 1929,
19. Lewis mumford – city in history
20. Rapoport, amos history and precedent in environmental design
21. Rapoport, amos the meaning of built environment.
22. Watson D. et al (ed), Time saver standards of urban design, McGraw Hill,2003

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE–II (D – SUSTAINABLE AND INTELLIGENT BUILDING)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To provide knowledge on the underlying concepts of intelligent buildings; to provide the working principles of and hands-on experience on building automation systems, office automation systems, and communication systems; and to provide basic knowledge of the construction and installation of the structured cabling system enabling integrated system connections.

Module-1	**Introduction to sustainability &Intelligent buildings**	Social, economic, environmental factors, ecological footprint, local and worldwide sustainable benchmarks, building ecosystem, building life-cycleConcept. Concept of intelligent buildings, energy efficiency, vertical transportation systems, communication systems, security systems, building automation and lighting systems.
Module-2	**Sustainable design**	Principles and strategies, site design, energy management, renewable energy, sustainable material selection, water management, indoor air quality, alternative energy, environmental systems, environmental assessment methods.
Module-3	**Building Management Systems (BMS)**	Methods to control, monitor and optimize building services, eg., lighting, heating, security, CCTV and alarm systems, access control, audio-visual and entertainment systems, ventilation, filtration and climate control, etc., even time & attendance control and reporting (notably staff movement and availability).
Module-4	**Energy management in services**	Energy in building design - Energy efficient and environment friendly building - Thermal phenomena - thermal comfort - Indoor Air quality - passive heating and cooling systems.

APPROACH

- The students are expected to study the selected topic In depth, Including the basic principles, and their application In built projects by undertaking case studies, necessary site visits, and collecting all the relevant Information to make It an exhaustive study and present It in a well documented format having A-3/ A-4 size papers

REFERENCE BOOKS

1. Moore F., Environmental Control System McGraw Hill, Inc., 1994.
2. Brown, G Z, Sun, Wind and Light: Architectural design strategies, John Wiley, 1985.
3. Cook, J, Award - Winning passive Solar Design, McGraw Hill, 1984
4. Intelligent Buildings: An Introduction by Derek Clements-Croome
5. Intelligent Buildings: Design, Management and Operation BY Professor Derek ClementsCroome

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE–II (E – CONSERVATION)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVE:

- To understand what is heritage and its importance in terms of Architecture, structure, materiality and its significance in the evolution of the mankind in understanding nature and adapt and make its dwelling units respecting the nature and local climatic conditions.
- The overall goal is to conserve our rich heritage specially built heritage to showcase the richness of our Architecture, culture & society during various period of time and regime and promote conservation of our heritage for our future generations to see and learn evolution in building architecture and technologies during various time periods.
- Our main objective will be to document the heritage of our city and make guidelines, policies, conservation plans for built heritage structures, Heritage precincts and region with respect to its economic viability and spread awareness in the locals and institutions through workshops which will help in sustainable development of the societies.

Module-1	**Introduction to Architectural Conservation**	Definition of heritage, what is an historic building?Introduction to architectural conservation of buildings of importance – definition, nature, purpose and scope. Values in conservation; Ethics of conservation building conservation legislation etc.
Module-2	**Defects in Heritage**	Causes of defects and decay of a heritage structure.Natural agents of deterioration and loss.
Module-3	**Preparatory Procedures for Conservation.**	Preparatory procedures for conservation. Initial inspection, Continuing Documentation, Analysis of the documentation. Role or need of documentation for the conservation & restoration of the any Heritage built form, Heritage precincts or any sort of tangible and Intangible heritage. - Listing of the Region or Precincts for generating a data base of the heritage properties. - Development of regional level maps for various types of heritages. (Heritage site maps, Heritage land-use maps). - Buildings and Precincts typology study according to is usage, Architectural style, religion (study of demography and its comparison past and present) study. - Building material, Construction techniques of Heritage structures in various typologies of buildings with respect to time.
Module-4	**Introduction to International Charters**	Introduction to various charters their significance and their role in guiding our conservation policies and guidelines or regional level and structural level (special reference to Barra and Venice charter).
Module-5	**Literature Study and Site Visit**	Literature case study of Red Fort (available on ASI web site) and site visit of ASI protected heritage buildings (in local city/town) and along with condition assessment techniques and methods.

REFERENCE BOOKS:

1. An introduction to conservation by Feildon B. M.
2. Conservation of Building by I. H. Harvey.
3. A critical bibliography of Building Conservation by Smith I. H.

B. ARCH. SEMESTER – IX
NAR – 903, ELECTIVE - II(F – ENERGY SIMULATION)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES
Students should able to –

- Apply energy and mass conservation principles in the analysis of energy performance of buildings;
- Conduct design day and annual analysis of energy use in residential and commercial buildings;
- Develop detailed building energy simulations using state-of-theart building energy simulation software packages;
- Propose and evaluate strategies for improving the energy performance of buildings. architects whose works have been influenced by the vernacular architecture of the region.

Module-1	**Introduction**	Overview: Energy consumption of buildings in the India; Need of energy efficient building in India
Module-2	**Energy Simulation softwares**	Software programs for energy simulation modeling (Ecotect, EnergyPlus, OpenStudio & SketchUp, eQuest, Trnsys, IES/VE, DOE, TRACE).
Module-3	**Energy Codes and Standards**	ECBC Code, LEED, IGBC, GRIHA, BEE. ASHRAE 90.1 – compliance paths
Module-4	**Internal loads in buildings**	Plug loads, lighting, people, equipment. Schedules. Data resources for building sector energy use. Energy Use Intensity (EUI)
Module-5	**eQuest- Energy programming and modelling**	eQuest's interface, basics of Schematic Design Wizard – building footprint, shape, zoning, envelope construction, exterior doors and windows, performing simulations, and basic output. Design Development Wizard. Defining multiple shells. Importing/using CAD floorplans. Detailed edit mode.

REFERENCE BOOKS

- Energy Simulation in Building Design, by J. Clarke Computerized Building Energy Simulation Handbook, by Waltz and Waltz
- Green Building Guidelines: Meeting the Demand for Low-Energy, Resource Efficient
- Contrasting capabilities of building energy performance simulation programs. Research Paper by Drury B. Crawley

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(A – ARCHITECTURAL PEDAGOGY)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- Seeking Responsive Forms of Pedagogy in Architectural Education.
- To develop students' critical thinking abilities about the role of community involvement in different phases of the design process.
- To enhance students' understanding of the core concepts, methods, and techniques that pertain to community design as they relate to different phases of the design process (programming, design, post occupancy evaluation), and as they relate to different types of environments.
- To understand the techniques of teaching a specialized course like architecture.
- The course would attempt encouraging students to evolve individual, creative yet pragmatic thought process.

Module-1	**Introduction To Architectural Pedagogy**	Understanding Pedagogy, Importance of Pedagogy, Role of Pedagogy in Architecture. Nature of Interaction between teacher and students, Level of participation / involvement of both Educators and Students in various subjects / experiences. The routines of students and educators. The rules that govern the relationship between students and teachers.
Module-2	**Instructional Methods and Techniques**	Instructional Methods - Lecture method, Demonstration method, Case Study method, Project method, Programmed Instruction/ Learning, Studio method. Instructional Media - Meaning, Need and importance, Projected media, Non-projected media, Computer Based multimedia.
Module-4	**Field Studies in Architecture**	Learning of various aspects of architecture through site visits. Understanding the methods of learning, observing and experiencing these aspects. Preparation of report of the particular case study.
Module-5	**Hands – on - Studios as a Tool for Learning**	Development of exercises for various subjects in Architectural Studios. Learning about programme making for the various studios and workshops.

REFERENCE BOOKS

1. Transformative Pedagogy in Architecture and Urbanism by Ashraf M. Salama.
2. Art, Architecture, Pedagogy Experiments in Learning by Ken Ehrlich.

REFERENCE WEBSITES

1. http://aap.cornell.edu/news-events/how-we-teach-architecture-pedagogy-featured-puerto-rico-symposium.
2. www.architectural-review.com/...pedagogies...architectural...
3. http://www.edtechpost.ca/readings/davidorr-architecture-as-pedagogy.pdf
4. www.field-journal.org/uploads/file/.../Field%205(1)%20Salama.pdf

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(B – MANAGEMENT& MARKETING SKILLS)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To impart the students latest and relevant knowledge from the field of management theory and practice.
- To provide opportunities to the students for developing necessary managerial skills.

Module-1	**Basic Concepts of Management**	Definition, Need and Scope, Introduction to Management Science, Theory & Practice, Environment of Management, Managers & Entrepreneurs, Managerial Roles & Skills, Manager's Social & Ethical Responsibilities.
Module-2	**Functions of Management**	Planning – Concept, Nature, Importance, Steps, Limitations, Management by objectives Organizing - Concept, Nature, Importance, Principles, Centralization, Decentralization, Organization Structures, Line and Staff Authority, Functional, Leadership & Management, Product, Matrix, Geographical, Customer, New Forms of Organization – Virtual, Organizations as Networks - Types of Network. Organizations/Clusters – SelfOrganizing Systems. Organizational Designs Staffing - Concept, Nature, Importance, Steps. Concept of knowledge worker. Directing – Concept, Nature, Importance. Controlling - Concept, Nature, Importance, Process of controlling, Control Techniques.
Module-3	**Financial Management**	Cost of project, Means of finance, Estimates of sales and production, Cost of production, Working capital requirement and its funding, Profitability projections, Break Even Point(BEP), Projected cash flow statement, Projected balance sheet, Project profitability at market prices, Techniques of financial appraisal, Financial risk and over-all financial viability of the project through Internal Rate of Return (IRR)
Module-4	**Marketing Management and Skills**	Introduction to Marketing concept - Evolution of marketing &customer orientation, Marketing Environment and Evaluation of Market opportunities, Market research & Marketing Information Systems, Demand forecasting, Market potential analysis, Product Life cycle, New Product development process.
Module-5	**Marketing Environment and Planning**	Promotion decisions, Integrated Marketing communications concept, Communication tools, Contents of Marketing Plan, Developing Marketing Plan for variety of goods and services, Promotion decisions, Integrated Marketing communications concept, Communication tools, Personal selling & Sales management

REFERENCE BOOKS

1. Essentials of Management – Koontz – TMGH
2. Essentials of Management- Thomson Southwestern, Andrew J. Dubrin
3. Principles & Practices of Management - Saxena
4. Modern management: concepts and skills- Samuel C. Certo and Tervis Certo,
5. Principles and Practices of Management - Shejwalkar and Ghanekar
6. Management Concepts & Practices – Hannagan
7. Managerial Economics – D. Salvatore, McGraw Hill, New Delhi.
8. Managerial Economics – Pearson and Lewis, Prentice Hall, New Delhi
9. Principles of Marketing - Philip Kotler and Gary Armstrong
10. Fundamentals of Marketing - Stanton
11. Marketing Management – Rajan Saxena

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(C – FUTURISTIC ARCHITECTURE)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES:

- To have an overview of the innovative concepts for future in terms of design, infrastructure and latest technology.
- To understand the limitations in terms of energy and area to build and sustain.

Module-1	**Theoretical and Imaginative Ideas**	Overview of the theoretical texts and drawings of the ideas by architects over the ages, who have imagined beyond today. E.g. Scholari, Archigram (Peter Cook), Raimund Abraham, Boullee, Ledoux Antonio Sant"Elia etc.
Module-2	**Alternate SustainableIdeas through Design and Technology**	Enumerating the varied innovative energy alternatives and their harnessing through design ideas, materials, techniques and functions. Prefabrication as a basic module for building.
Module-3	**Social and Practical implications of a new world**	Comprehending the new social order, modes of transport, physical dimensions of an alternate world.
Module-4	**Futuristic Geometry**	Understanding a highergeometry (minimal surfaces) and its eventual spatial order. Fractals, Fuzzy Logic in architecture.

APPROACH:

- Presentations would be made by the teacher. The students are expected to do library studies and seminars on varied topics to supplement the information base and make it more interactive.

REFERENCE BOOKS:

1. Fantasy Architecture: 1500-2036 [Neil Bingham, Clare Carolin, Rob Wilson, Peter Cook]
2. Visions of the Future: Architecture for the 21st Century, Loft Publications.
3. Futuristic : Visions of Future Living, Caroline Klien (Editor), Stefanie Lieb (Text by)
4. Future Architectue by Eduard Broto

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(D – ARCHITECTURAL JOURNALISM)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To make students aware about Architectural Journalism
- To encourage them for Architectural writing, Documentation and Page Composition
- To familiarize students in preparation of Book Reviews and Articles.

Module-1	**Introduction To Architectural Journalism**	What is Journalism and why it is important? Relation between Architectureand Journalism. Looking at the ways design and the built environment are covered in the media today Reading a broad range of contemporary and historical writings by journalists and critics and discuss how these stories reveal different approaches, attitudes, and biases in covering design.
Module-2	**Introduction To Architectural Writing**	Writing on different kinds of articles - from news stories tocritical essays on particular buildings and social issues. Sometimes students will report on buildings under construction and other times they will reflect on and criticize projects that are completed. Learning how to gather information and do research for stories and then write various kinds of articles about built environment in Architecture, which will help them to understand the built environment and express their ideas on it.
Module-3	**The state of Architectural Criticism**	Introduction to Criticism and Importance of Criticism. Relationship between Architecture andCriticism. Reading the various articles from the magazines, newspapers and websites about the built environment to understand the criticism and social commentary. Failures of Architectural Criticism. Analysis of various critical themes, and their comparison and learn how to criticize a built environment in various aspects and writing about criticism.
Module-4	**Structure of Architectural Journals& Photo Journalism**	Learning of documenting the collected information. Formatting, page composition, editing write-ups, content writing. Learning the techniques of clicking photographs through specific angles of built environment and their editing and modification. Learning the technique of how the photographs are supporting the write-ups about built environment, to help them understand the expression of pictorial, verbal and visual relationship of architecture journalism.
Module-5	**The Built Environment &How We Live Today?**	Looking at and explaining a building in today's scenario. What's happening now and what should be the future. Read article and write an essay on recent projects. Writing about the new technologies in today's architecture and new construction techniques.

APPROACH

- Each week, students will have a reading and a writing assignment. Usually, readings will come from a newspaper, magazine, or website and students will have to respond with their own piece of writing. In class, everyone will discuss the readings and present their ideas about the topic in question.
- Students will be assessed by the quality of their writing, the level of understanding they bring to the readings and topics, and the quality oftheir in-class presentations and participation.
- Writing is a critical skill for all architects, one that they can use to communicate with clients, the public, and other Architects.

REFERENCE BOOKS

1. Dave Sounders, *Professional Advertising Photography*, Merchurst, London 1988
2. Roger Hicks, *Practical photography*, Cassell, London 1996
3. Julian Calder and john Garrett, *The 35mm Photographer's* Handbook, Pan Books, London 1999
4. Julie Adair King, *Digital Photography for Dummies*, COMDEX, New Delhi 1998
5. Architecture and the Journalism of Ideas by Bender, Thomas
6. Architectural Criticism and Journalism by Mohammad al-Asad w/ Majd Musa
7. Nieman Reports: *Architectural Criticism: Dead or Alive* by Blair Kamin.
8. *The Failures of Architecture Criticism*, by Lance Hosey in theHuffington Post.
9. *Writing Architecture: A Practical Guide to Clear Communication about the Built Environment*, byCarter Wiseman

REFERENCE WEBSITES

1. http://niemanreports.org/articles/ar chitecture-criticism-dead-or-alive/
2. http://www.huffingtonpost.com/lanc e-hosey /the-failures-of architect_b_6445858.html
3. Architectural website, such as **archrecord.com**; **archpaper.com**; **archdaily.com**; and **dezeen.com**
4. Grace Farms designed by SANAA, article in Architectural Record by
5. Naomi R. Pollock. http://archrecord.construction.com/ projects/portfolio/2015/1511- Grace-Farms Kazuyo-Sejima- Ryue-Nishizawa-SANAA.asp
6. http://archrecord.construction.com/ tech/techFeatures/2015/1509- Mass-Timber-Construction.asp

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(E – VERNACULAR ARCHITECTURE)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- To highlight the role of Vernacular Architecture & lessons useful in contemporary context.
- To expose students to the varied vernacular and traditional architecture of India and the world.
- To understand the varied methods of using learnings from vernacular architecture by studying contemporary architects whose works have been influenced by the vernacular architecture of the region.

Module-1	**Introduction to Vernacular**	Definitions, Relevance, Role & scope of Vernacular Architecture, Issues of concern in present day architecture and causative forces of the vernacular form.
Module-2	**Lessons from Vernacular Architecture**	Varied Learnings including Sense of Place, Spontaneity &Variation, Control, Open ended form relationship, Symbols & Meanings.
Module-3	**Study of an Existing Settlement**	Detailed study of an existing settlement in the vicinity and analyse it for the aforementioned parameters to develop a design criteria for the studied context.
Module-4	**Case Studies**	Case Studies of Various Projects by Contemporary Architects which have taken inspiration from vernacular architecture. Works of Hasan Fathy, Laurie Baker, Luis Barragan, Charles Correa, B.V.Doshi, Revathi Kamath, Chitra Vishwanath, Auroville Centre, Gerard Cunha, Dean D Cruz and Raj Rewal.

REFERENCE BOOKS:

1. Architecture of the Indian desert, Kulbushan Jain &Meenakshi Jain, Aadi Centre, Ahmedabad
2. Encyclopaedia of Vernacular architecture of the World, Cambridge University Press
3. House, Form & Culture, Amos Rappoport, Prentice Hall Inc, 1969.
4. VISTARA – The architecture of India, Carmen Kagal. Pub : The Festival of India, 1986.
5. Oliver Paul. *Built to meet needs. Cultural issues in vernacular architecture.* Italy: Routledge 2006.Print.
6. Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture by Bernard Rudofsky
7. Bhatia, Gautam,Laurie Baker, Life, Work, Writings, New Delhi, India, 1994 Penguin Books.

B. ARCH. SEMESTER – IX
NAR – 904, ELECTIVE - III(F – ART APPRECIATION)

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	**50**	50	0	**50**	**100**	3	3 HRS.

OBJECTIVES

- The knowledge and understanding of the universal and timeless qualities that identify all great art.
- To introduce the students to the importance of art in today's world and the purposes art has served from pre - historic through modern times in a variety of cultures both western and oriental.
- To understand artistic intent and expression through basic element of art and architecture and to increase appreciation of art in today's society.

Module-1	**Introduction& Terminology**	Grammar of the language of art - Natural, Realistic, Symbolic, Abstract, Modern and Contemporary.
Module-2	**Ideologies of Aesthetics in Art**	Complete understanding of Ideologies of aesthetics in art while discussing the art of Western and Oriental. Plato, Aristotle, Baumgartan, Fredrich Nietzsche, I.A. Richards, Leo Tolstoy, Sigmund Freud. Shadanga: Six limbs of Indian painting. Rasa theory of 'Bharat Muni'. Iconography.
Module-3	**Development of Art**	Development of art over the period of time. Tracking the progress in art in aspects of theFunctional diversity of styles, Art as form of social consciousness, Impact of Cultural and Religion on art, Understanding the role of art in contemporary society.

APPROACH

- Presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials and PPT's) on varied topics to supplement the information base and make more interactive.

REFERENCE BOOKS

1. What Is Art For? (June 1, 1990) by Ellen Dissanayake.
2. Learning to Look: A Handbook for the Visual Arts (Phoenix Books) 2nd Revised ed. Editionby Joshua C. Taylor.
3. More Than Meets The Eye: Seeing Art With All Five Senses (Bob Raczka's Art Adventures) Paperback – October 1, 2003by Bob Raczka.
4. How to Read a Painting: Lessons from the Old Masters Paperback – December 7, 2004by Patrick De Rynck.
5. Learning to Look at Modern Art by Mary Acton.
6. Teaching with Khan Academy: Art for Beginners: A Curriculum Guide to Teaching Beginning Art History and Appreciation with Khan Academy Paperback – Large Print, November 8, 2012by Beverly Fields.
7. Art: Over 2,500 Works from Cave to Contemporary Hardcover – October 20, 2008by Iain Zaczekand Mary Acton.
8. Aesthetics- YURI BOREV.
9. Approaches to Art in Education- LAURA H. CHAPMAN.
10. Panorama of the Arts- RUDEL.

B. ARCH. SEMESTER – X
NAR – 1001, PRACTICAL TRAINING - II

PERIODS			EVALUATION SCHEME						SUBJECT TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESMENT			ESE					
			CT	TA	TOTAL	THEORY	VIVA	TOTAL			
-	-	-	-	-	-	-	-	-	-	-	-

CERTIFICATE OF SATISFACTORY PERFORMANCE & COMPLETION OF TRAINING FROM THE TRAINING OFFICE IS MANDATORY

INTRODUCTION

The tenth semester is for the student to join architectural offices for specialising in specific streams to pave way for master courses or continue working with that specific office after completion of their degree.

Note:

The final mark sheet / degree shall be awarded after the submission of certificate of satisfactory performance and completion of the training, duly signed by the architect of that training office, on a prescribed format provided by the Institute/ University.

The genuinity of certificate should be accessed by the presentation made by the student.