School of Planning & Architecture, Bhopal

BACHELOR OF ARCHITECTURE
SCHEME OF EXAMINATION

Y E A R 1 (Semester I)

CODE	SUBJECT	CLASSES		END SEMESTER EVALUATION		MARKS	CREDITS	EXAM HRS
		L	T/ ST					
BARC-0101	DESIGN -I	2	6	WR	VV	**100**	**3**	6
BARC-0102	BUILDING MATERIALS & CONSTRUCTION -I	2	4	WR	VV	**100**	**2**	3
BARC-0103	GRAPHICS-I	2	4	WR	VV	**100**	**1.5**	3
BARC-0104	STRUCTRE-I (APPLIED MECHANICS)	2	2	WR	-	**100**	**1**	3
BARC-0105	SURVEYING & LEVELLING	1	2	WR	-	**100**	**1**	3
BARC-0106	MATHEMATICS	2	-	WR	-	**100**	**1**	3
BARC-0107	COMPUTER APPLICATION-I	-	3	-	VV	**100**	**0.5**	-
	TOTAL	**11**	**21**				**10**	

Y E A R 1 (Semester II)

CODE	SUBJECT	CLASSES		END SEMESTER EVALUATION		MARKS	CREDITS	EXAM HRS
		L	T/ ST					
BARC-0201	DESIGN –II	2	6	WR	VV	**100**	3	6
BARC-0202	BUILDING MATERIALS & CONSTRUCTION -II	2	4	WR	VV	**100**	2	3
BARC-0203	GRAPHICS-II	2	4	WR	VV	**100**	1	3
BARC-0204	STRUCTURE- II	2	2	WR	_	**100**	1	3
BARC-0205	THEORY OF DESIGN-I	2	-	WR	_	**100**	1	3
BARC-0206	CLIMATOLOGY	2	-	WR	_	**100**	1	3
BARC-0207	WORKSHOP PRACTICES	-	2	_	VV	**100**	0.5	_
BARC-0208	COMPUTER APPLICATIONS-II	1	2	_	VV	**100**	0.5	_
TOTAL		**13**	**20**				**10**	_

SCHOOL OF PLANNING AND ARCHITECTURE, BHOPAL
SYLLABUS: BACHELORS OF ARCHITECTURE

YEAR ONE SEMESTER ONE

BARC-0101: ARCHITECTURAL DESIGN – I

INTENT:

- Architectural Design is the core subject in architecture thus the main objective of this subject is to make the students familiar with design & the architectural design process.
- To familiarize the students with the basic design elements & principles.
- Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct in the students.
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METHODOLOGY:

- Orientation about the profession with the help of Audio/Video presentations.
- Studio lectures.
- Individual/ Group studio exercises.

CONTENTS:

Introduction to Design

Principles of design and elements of design.
Functionality of space and sequential function.
Exploration of patterns with 2 D compositions.
Exploration of form through 3 D compositions.

Study of Anthropometrics:

Exercises to increase perception and sensitivity of the students about space. This can be best understood through one or two short exercises in anthropometrics. Presentations should be made through simple sketches and drawings.
Short exercises in design and layout of personal space, rooms etc.

BARC-0102: BUILDING CONSTRUCTION & MATERIALS -I

INTENT:
Introduction to elementary building construction methods and their applications.

METHODOLOGY:

- Introduction to materials and construction through lectures and studio exercises.
- Site visits to gain knowledge about construction details.
- Introduction to some basic construction methods and elements.

CONTENTS:

Construction

- Basic Tools: Introduction to Basic tools used by masons and carpenters.
- Elementary Carpentry: Different types of common joints.
- Brick Work: Terminology: Bricks, bats and closures

- Bonding: Types of bonds: English, Single and double Flemish
- Offset functions and quoins: right angled and angular quoins, tee and cross-junctions for various thickness, attach and other piers, coping.
- Corbelling, String courses and decorative brickwork.
- Stonework: Stone masonry, dressing, Random Rubble, Coursed Rubble, Ashlar.

Materials

Introduction

Basic building materials like lime, sand, brick, cement, grit, steel, stone etc.

Importance of climate in architecture:

Factors affecting climate. Measurement and recording of elements of climate like solar radiation, temperature, wind, humidity, and precipitation.
Different types of climatic zones and their characteristics.
Macro and microclimate. Application of climatic principles for design of buildings in hot and dry, warm, humid, composite and tropical climates.

Thermal behavior of buildings and materials:

Study of body's heat production and heat loss.
Time lag of different materials for heat transfer.
Thermal comfort, effective temperature, bio-climatic analysis, Isopleths,
Direct and indirect insulation, Reflectivity and emissivity.

BARC-0103: GRAPHICS -I

INTENT:

- Introduction and familiarization with drafting tools and accessories.
- To give basic knowledge of good drafting and lettering techniques.
- To develop comprehension and Visualization of geometric forms.

METHODOLOGY: Studio assignments and lectures. Demonstration of 3D Geometrical objects and their 2D representation on sheets

CONTENTS:

Introduction:

Drawing Instruments and their uses.
Sheet layout and sketching.
Lettering: - Exercises in drafted and freehand architectural lettering.
Lines: Concept and types of lines. Line thickness. Dimension lines.

Scales:

Scales: Engineers scale, Graphical scale and Representation factor (R.F.)
Scales on drawings. Types of scales: Plain scale and Diagonal scale.

Orthographic Projections:

Definition, Meaning & concept. Principles and Methods of projection.
Orthographic projection. Planes of projection.
Four Quadrants. First angle projection. Third angle projection.
Projection of points, lines & planes.

Projections of solids:

Axis perpendicular to the H.P. , Axis perpendicular to the V.P.
Axis parallel to both the H.P. & V.P.
Projection of solids- axis inclined to one reference plane and parallel to other.

Projections of solids with axis inclined to H.P. and V.P.

BARC-0104: STRUCTURE –I (APPLIED MECHANICS)

INTENT:

To understand the basic principles of structural mechanics that would be pertinent to simple design elements.
To also understand the structural behavior of building elements.

METHODOLOGY:

Lectures and computation exercises.

CONTENTS:

Simple stresses and Strains:

Elasticity. Stress. Strain, Types of stress, Elastic limit, Hook's Law, Modulus of Elasticity, Stresses in Composite Bars, Linear Strain, Poison's ratio, Shear stress, principal stresses and strains.

Center of Gravity:

Calculating Center of Gravity of figures.
Center of Parallel Forces.

Moment of Inertia:

Section Modulus.
Calculation of Moment of inertia by first principle and its application.
Moment of Inertia of Composite sections.

Elements of Static:

Parallelogram Law of Forces.
Resolution of forces- Triangular Law of forces, Polygon Forces.
Theorem of Resolved Parts.
Resultant of concurrent coplanar forces.
Equilibrium.
Moment of a Force.
Moment and Arm of a Couple.

Shearing force and bending moments:

Beams.
Shearing force and bending moment.
Shear Force and Bending Moment diagrams of simple cases for concentrated and distributed loads.

BARC-0105: SURVEYING & LEVELLING

INTENT:

- To illustrate the role of Surveying and Leveling in Architecture
- Introduction to the Tools and equipment for Land Surveying.

METHODOLOGY:

Lectures and Practical exercises involving fieldwork and working with survey equipments.

CONTENTS:

Introduction

Introduction to surveying, understanding land topography and its relevance in Architecture.
Types of surveys in practice
Introduction to survey equipments.

Chain Surveying

Principles of survey, equipment required, selection of station, methods of taking offsets. Booking the field notes, obstacles in chaining, errors in chaining, chaining on sloping ground and reciprocal ranging.

Compass Surveying

The prismatic compass, its construction and uses. Other types of compasses.

Reduced and whole circle bearing, magnetic declamation, effects of local attraction. Compass traverse and balancing the closing error.

Leveling

Different types of levels, their temporary and permanent adjustment, leveling staff. Book of the readings and reduction of levels. Errors in leveling.

Curvature and refraction reciprocal leveling profile, leveling cross sections.

Plane Tabling

Equipment and methods. Two points and three points problems.

Contouring

Characteristics of contour lines, direct and indirect methods of contouring and interpolation of contours. Interpretation and preparation of contour maps. Site modeling with total station. Exercises in setting out of building works.

Theodolite Surveying

Theodolite, its temporary and permanent adjustment, measuring of magnetic bearings, horizontal and vertical angles. Theodolite traverse and balancing the closing error.

Tacheometric Surveying

General instruments, different systems of tacheometric measurements, stadia method, Subtense method.

BARC-0106: MATHEMATICS

INTENT: To revise the aspects of Mathematics learned earlier.
METHODOLOGY: Lectures and exercises.
CONTENTS:
a) Differential Calculus

Differentiation and methods of differentiation
Applications to rates of change and small errors
Successive differentiation
Tangents and Normals : Angle of intersection of curves
Radius of curvature in Cartesial coordinates.
Polar coordinates: Angle between radius-vector and tangent
Simple curves tracing and ideas of asymptotes.
Taylor's and Macluaurins's expansions
Maxima and minima of functions of one variable.
Determination: Solution of linear simultaneous equations.
Partial differentiation
Euler's theorem: Total differentials: small errors
Taylor's series for two variables: Maxima and minima of two variables.

b) **Trigonometry:**

Complex number: their representation: Argand's diagram addition, multiplication.
De Mover's theorem and its application to finding nth roots.
Exponential, Logarithmic, circular and hyperbolic functions of a complex variable.
Separation of real and imaginary parts in simple cases.

BARC-0107: COMPUTER APPLICATION-I

INTENT: To familiarize the students with the basic computer use;

- General Historical background of computer development.
- Brief description of various Hardware and Software.
- Basic knowledge of different operating systems i.e. Windows, Unix, Linux etc.

METHODLOGY:
Brief lectures followed by application in individual lab exercises.
CONTENTS:

Introduction of various software available for documentation, presentation & drawing purposes.

Familiarizing the use of scanners, printers plotters etc.
Introduction of Auto CAD as drafting tool.

Applications of M.S. Office in presentation:
Microsoft Word
Microsoft Power Point
Microsoft Excel
Adobe Page Maker

YEAR ONE SEMESTER TWO

BARC-0201: DESIGN – II

INTENT:
- Architectural Design is the core subject in architecture thus the main objective of this subject is to make the students familiar with design & the architectural design process.
- To familiarize the students with the basic design elements & principles.
- Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct in the students.
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METHODOLOGY:
- Orientation about the profession with the help of Audio/Video presentations.
- Studio lectures.
- Individual/ Group studio exercises.

CONTENTS:

Small design exercises:

Short exercises in design of milk booth, tea stall, shelter in park, bus stop or designing of students own room etc.

Design exercises to be coupled with parallel drafting and drawing exercises to encourage use of the skills of isometric and axonometric, sciography, perspective drawing and rendering techniques for opaque and transparent mediums.

BARC-0202: BUILDING CONSTRUCTION & MATERIALS -II

INTENT:
Introduction to elementary building construction methods and their applications.

METHODOLOGY:
- Introduction to materials and construction through lectures and studio exercises.
- Site visits to gain knowledge about construction details.
- Introduction to some basic construction methods and elements.

CONTENTS:

Construction
- Foundations: Need for foundations, preliminary design criteria. Foundation brickwork and concrete.
- Detail of spread foundation for load bearing walls of various thicknesses.
- DPC: Laying of Horizontal D.P.C.
- Arches: Elementary principles of Arch construction. Definition of various technical terms and Types of Arches. Construction of Brick and Stone Arches.

Materials
- Timber- seasoning of wood, types of wood used in construction.
- Identification of basic woods like teak, sal, sheesham, mango, eucalyptus etc.

BARC-0203: GRAPHICS - II

INTENT:
- To give basic knowledge of good drafting and lettering techniques.
- To develop comprehension and Visualization of geometric forms.

METHODOLOGY: Studio assignments and lectures. Demonstration of 3D Geometrical objects and their 2D representation on sheets

CONTENTS:

Section of Solids:

Section plans, Sections, True shape of a section.
Section of solids (Prisms, Pyramids, Cylinders, Cones, Spheres.)

Development Of Surfaces:

Introduction and Methods of development of surfaces.
Development of lateral surfaces of right solids like Cubes, Prisms, Cylinders.
Method of drawing the development of the lateral surface of a pyramid & Cone.

Sciography:

Introduction/ Meaning of sciography
Projection of sciography in plan and elevations.

BARC-0204: STRUCTURES -II

INTENT:
To understand the basic principles of structural mechanics that would be pertinent to simple design elements.
To understand the structural behavior of buildings.

METHODOLOGY:
Lectures and computation exercises.

CONTENTS:

Stresses in Trusses:
Forces in members- analytical method
Method of joints
Method of sections

Bending stresses:
Bending equation
Bending stresses in symmetrical and unsymmetrical sections

Shear Stress: Shear stress distribution in various sections.

Deflection of Beams:
Differential Equation of deflected beam.
Double Integration method,
Macaulay's method.
Statically determinate beams and propped Cantilever.
Moment Area Method.
Conjugate beam method.

Column and Struts:
End conditions
Effective length
Slenderness ratio.
Euler's formula

BARC-0205: THEORY OF DESIGN-I

INTENT:
The courses in Design theory aims to evolve a conceptual framework for intelligent appreciation of Architecture and to develop a vocabulary for discussing design ideas.

METHODOLOGY:
The structure of courses consists of set of lecturers and prescribed reading followed by group discussioins and seminars.

Introduction

The genesis of indigenous architecture:
The genesis of indigenous architecture, its geographical and cultural sign posts. Evolution of ideals and design principles in modern architecture. Influences governing the formation of attitudes as a prelude to the act of design. The translation of design ideas into architectural expression.

Architecture as socially useful discipline:

The concept of measuring, function, style, type, social purpose and ideology, the relationship of architecture to the sciences, arts, economics and politics. Study of selected writing and buildings in monumental and vernacular scales. Manmade design at all levels including objects of daily use.

BARC-0206: CLIMATOLOGY

INTENT: To familiarize the students with the climatological aspects associated with the Architectural Design.

METHODOLOGY: The concepts of the climatological aspects shall be taught with the help of lectures, practical examples lab exercises.

CONTENTS;

Human Comfort:

Human heat balance and comfort, thermal comfort, heat stress, effective temperature, bioclimatic analysis, individuals' variation.

Climatology:

Tropics, climatic zones, macro climate, elements of climate, sun, temperature, wind, precipitation, and climatological data needed for planning of buildings.

Solar Radiation:

Direct and indirect insulation, types of waves infrared, visible light, ultraviolet, reflectivity and emissivity. Methods of recording sun's position, Rediation gains on various walls and roofs in various seasons. Application of solar change in the design of sun control device. Sun machine and their uses.

Day light:

Glare, colour,amount of light, sky as a source of light, day light factor, effect of size and shape of opening in different planes with and without obstructions, Intensity of light spred,penetration, design and setting of buildings for day light.

Air temperatures:

Factors that influence temperatures, sun latitude, season, land, water, wind, altitude, atmospheric impurities, green open areas, trees and urban areas. Inversion of temperature. Insulation, resistance insulation , capacity Insulation thermal diffusivity, thermal conductivity, heat transmission through building components, time lag, i.e. value AIR heat transmittance co-efficient, scale , temperature.

Wind:

Study of diurnal and seasonal variations, heating and cooling effect, effect of topography, effect of wind on location of industrial areas, airport and other landuses and road patterns. Air patterns around buildings, within buildings, wind eddies, size and position of openings with and without overlays and other architectural elements. Effect of wind on design and siting of buildings

BARC-0207: WORKSHOP PRACTICES

IN TENT:

To equip students with the basic skills necessary to represent their ideas in a rudimentary model format using simple materials like paper, thermocol, hardwood, Metals, glass fiber etc.

METHODOLOGY:

Exercises in cutting, finishing and joinery etc. with simple blocks, composition of basic geometrical forms etc. Introduction to the various tools and equipment available for executing these exercises. The section on joinery details will be dealt with in an engineering lab.

CONTENTS:

Joinery

Simple joinery details in wood.
Pipes and sleeve joints.
Metal- welded joints, nut-bolt joints. Types of welded joints.

Architectural Modeling:

General information about various materials and tools to be used in model making. Development of the skill to use the tools with precision to obtain desired results in model making.

Introduction to types of model

Block models, detailed model, construction model and interior models etc.

Introduction to various materials

Experimentation with these materials for different geometries and scales of models.

BARC-0208: COMPUTER APPLICATION-II

INTENT: Introduction and the use of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

Introduction

Introduction of various software available for Architectural presentation such as Photoshop & Corel

Basic commands for 2-D Graphics

Learning of softwares like Photoshop & Corel.
Understanding the basic composition in 2D and prepare attractive compositions using software's.

YEAR TWO SEMESTER THREE

BARC- 0301: ARCHITECTURAL DESIGN – II

OBJECTIVES:

- To foster understanding about land and landforms and the elements of built space. Experimentation with shapes and forms to evolve sensitivity to built volumes.
- Focus on studying patterns in horizontal circulation in built areas.
- Introduction to vernacular architecture, use of local materials and appreciation of the socio-economics of the users.

METHODOLOGY:

- Site analysis at the beginning of each design problem. This would develop sensitivity to existing site conditions and context and help students evolve design directives to guide the design process.
- Block models at every design stage for three-dimensional visualization.

Y E A R 2 (Semester III)

CODE	SUBJECT	CLASSES		END SEMESTER EVALUATION		MARKS	CREDITS	EXAM HRS
		L	T/ ST					
BARC-0301	DESIGN -III	2	6	WR	VV	**100**	3	6
BARC-0302	BUILDING MATERIALS & CONSTRUCTION -III	2	4	WR	VV	**100**	2	3
BARC-0303	GRAPHICS-III	2	4	WR	VV	**100**	1	3
BARC-0304	STRUCTURE- III	2	-	WR	-	**100**	1	3
BARC-0305	HISTORY OF ARCHITECTURE-II	2	-	WR	-	**100**	1	3
BARC-0306	BUILDING SERVICES-I (WATER SUPPLY & SANITATION)	2	-	WR	-	**100**	0.5	3
BARC-0307	THEORY OF SETTLEMENTS	1	2	WR	-	**100**	1	3
BARC-0308	ART APPRECIATION	1	2	-	VV	**100**	0.5	
TOTAL		**14**	**18**				**10**	

Y E AR 2 (Semester IV)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HRS
		L	T/ ST	WR	VV	TOT		
BARC-0401	DESIGN –IV	2	6	WR	VV	**100**	3	6
BARC-0402	BUILDING MATERIALS & CONSTRUCTION –IV	2	4	WR	VV	**100**	2	3
BARC-0403	THEORY OF DESIGN-II	2	1	WR	–	**100**	0.5	3
BARC-0404	STRUCTURE- IV	2	1	WR	–	**100**	1	3
BARC-0405	HISTORY OF ARCHITECTURE-II	2	-	WR	–	**100**	1	3
BARC-0406	BUILDING SERVICES- II (ELECTRICAL)	2	-	WR	–	**100**	1	3
BARC-0407	VISUAL & WRITTEN COMMUNICATION	2	1	–	VV	**100**	1	–
BARC-0408	CAAD LAB - I	1	2	–	VV	**100**	0.5	–
TOTAL		**15**	**15**				**10**	–

Joinery

Simple joinery details in wood.
Pipes and sleeve joints.
Metal- welded joints, nut-bolt joints. Types of welded joints.

Architectural Modeling:

General information about various materials and tools to be used in model making. Development of the skill to use the tools with precision to obtain desired results in model making.

Introduction to types of model

Block models, detailed model, construction model and interior models etc.

Introduction to various materials

Experimentation with these materials for different geometries and scales of models.

BARC-0208: COMPUTER APPLICATION-II

INTENT: Introduction and the use of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

Introduction

Introduction of various software available for Architectural presentation such as Photoshop & Corel

Basic commands for 2-D Graphics

Learning of softwares like Photoshop & Corel.
Understanding the basic composition in 2D and prepare attractive compositions using software's.

YEAR TWO SEMESTER THREE

BARC- 0301: ARCHITECTURAL DESIGN – II

OBJECTIVES:

- To foster understanding about land and landforms and the elements of built space. Experimentation with shapes and forms to evolve sensitivity to built volumes.
- Focus on studying patterns in horizontal circulation in built areas.
- Introduction to vernacular architecture, use of local materials and appreciation of the socio-economics of the users.

METHODOLOGY:

- Site analysis at the beginning of each design problem. This would develop sensitivity to existing site conditions and context and help students evolve design directives to guide the design process.
- Block models at every design stage for three-dimensional visualization.

CONTENTS:

Design projects related to different climatic conditions

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

Design of a simple building for public activity in a non urban setting, or a situation without urban regulatory controls. Introduction to other role players in the Architectural process viz; the client and the user. Appreciation of the non personal view as a process resources.

Study of the social and physical environment and methods of construction in vernacular architecture, emerging out of the traditional way of life of the people in a given place including topographic survey. This may be a village or part of a small town.

BARC-0302 : BUILDING CONSTRUCTION & MATERIALS -III

OBJECTIVE: To introduce construction principles and materials used for the basic elements of a building like doors, windows, stairs etc.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Construction

- Doors: Types of doors, construction techniques, decorative panel doors, glazed doors, flush doors, doors with fanlight, and calculation of woodwork.
- Windows: Detail of timber frames & shutters, fixed shutters, Calculation of woodwork.
- Roofs and Trusses: Timber roofs: lean to roof, closed couple roof, collar roof for small spans. Large timber trusses (12 meter span).

Materials

- Glass and glass products: Plain, sheet, plate, textured, laminated, wired and shock resistant glass. Glass blocks, glass tiles, mirrors, heat reflecting glasses and Glass wool.
- Plastics, Nylon, PVC, Bakelite, Polythene, glass fiber reinforced plastic.
- Paints and surface finishes: Composition, properties and methods of application of different types of paints: Oil, synthetic enamels, acrylic and other plastic emulsions and formulations, interior and exterior grade paints. Cement based paints.

BARC- 0303: GRAPHICS- III

INTENT:

- To introduce the students to graphic treatment of two-dimensional drawings.
- To develop perception and presentation of simple architectural forms and building.
- To familiarize the students with preparation of perspectives by innovative methods.
- To introduce the students with perspectives of interiors.

- To develop innovative presentation techniques.

METHODOLOGY: Studio assignments and lectures.

CONTENTS:

Metric drawing:

Types used & advantage
Isometric, Axonometric & oblique view.
Metric drawings, projections and their dimensions.

Perspective Drawing:

Difference with metric projections.
Anatomy of perspective: Station point, Eye level, Cone of vision, Picture plane, Horizon line, Ground line, Vanishing points,
Types of perspectives : One point, Two point, Three point
Perspectives of simple and complex blocks
Perspectives of simple household furniture items
Perspectives of Residences.

Perspective Drawing By Innovative Methods:

Preparation of Perspective by innovative methods like approximate method, Diagonal Method, Grid Method etc.
Other innovative methods of perspective presentation.
One point and two points perspectives of interiors.
Introduction to shortcut methods in perspective drawing.
Freehand perspective drawing.

Presentation Techniques:

Introduction to represent different textures and finishes in plan and elevation.
Graphical representation of furniture, automobiles, human figures, etc. in plans and elevations and 3 dimensions

Preparation of presentation drawings of small buildings. Through planes, elevation, site plan. Etc. using various rendering techniques and media incorporating sciagraphy creating three-dimensional effects.

BARC-0304: STRUCTURES –III

INTENT: To understand the analysis of indeterminate structures and their use.

METHODOLOGY: Lectures and computation exercises.

CONTENTS:

Determinacy and Indeterminacy Determinate and Indeterminate structures.

Energy Principles

Introduction, forms of Elastic Strain Energy, Strain energy in members, Energy relation in structural theory, Virtual work, Betti's and Maxwell's laws of reciprocal deflection, Application of Virtual work, Castigliano's theorems.

Three-moment theorem Analysis of fixed and continuous beams

Slope Deflection method

Introduction, Analysis of fixed and continuous beams, yielding of supports.

Moment Distribution

Introduction, analysis of indeterminate beams and simple frames, Sway frames

Approximate methods of Analysis Substitute frame method

Overview of construction Cement, aggregate, Water, reinforcement, materials.

BARC-0305: HISTORY OF ARCHITECTURE- I

INTENT: Introduction to the architecture of the ancient world. To generate an understanding about the development of civilization and its architectural implications.

METHODOLOGY: Visually intensive lectures using power point presentations to acquaint students with historic sites and buildings. Site visits and seminar presentations and model making

CONTENTS:

Civilizations of the Ancient Western World

- Growth of early civilizations from Stone Age to Neolithic settlements in Europe. Examples – Carnec, Stonehenge etc.
- Egyptian: Early tomb architecture and later temple architecture, great pyramids of Giza, Mastabas, Funerary temples and later temples like Khons etc.
- Mesopotamia: Cities of Mesopotamia like Ninveh, Khorsabad and Babylon.
- Greek: Hellenistic period, classical orders, temples and public buildings, geometry and symmetry in their buildings, Acropolis, Agora, temples, tombs and house forms.
- Roman: Construction systems using vaults and domes. Building types like temples, forums, basilica, theatres, aqua ducts, bridges, roads, sewage system and fountains.
- Early Christian: Basilican churches, centralized and longitudinal churches, interiors and articulation of the churches, pictures and biblical scenes.
- Byzantine: Development of dome over square or polygonal plans.
- Romanesque: New construction methods, massiveness, verticality and ornamentation of churches, integration of centralized and longitudinal plans.
- Gothic: Continued integration of centralized and longitudinal plans, flying buttress, ribbed vault, sensitivity towards light, use of stained glass. Cathedrals and churches.
- Central Asia: cities of Bukhara, Samarkand etc.

BARC-0306: BUILDING SERVICES-I (WATER SUPPLY AND SANITATION)

INTENT: Introduction to elementary building services of water supply, sanitation and roads.

METHODOLOGY: Exercises in layout of simple drainage systems for small buildings. Planning of bathrooms and lavatory blocks in domestic and multi-storied buildings. Exercises can also be clubbed with design studio project.

CONTENTS:

Water supply

Sources of water supply. Impurities of water and systems of water supply. Various kinds of water meters. Water storage tanks, their capacity and location. Calculation of water consumption. Domestic hot and cold water supply systems. Size of pies and their joining details. Connections of different sanitary fittings like ferrule, stopcocks, bibcocks etc.

Sanitation

Basic principles of sanitation and disposal of waste matter from buildings.

Dry and wet carriage systems.
Sanitary fittings- washbasins, WC's, bathtubs, sink, urinals, bidets, flushing cistern, traps etc.
Various types of joints, manholes and septic tanks.
Proper location and ventilation of intercepting chambers and inspection chambers.

Drainage systems- separate, combined and partially combined systems.
Single stack system.
One pipe and two pipe systems.
Testing of house drains.
Gradients used in laying drains and sewers.
Self-cleaning and non-scouring velocities for drain pipes.
Size of drainpipes and materials used.

Roads

Description and suitability of roads and comparative cost analysis.
WBM (water bound macadam) road, tar, bitumen, asphalt and RCC roads.
Soil stabilized, brick and stone paving.
Drainage- sub drains, culverts, ditches, gutters , drop inlets and catch basins.

BARC-0307: HUMAN SETTLEMENTS

INTENT: To study the patterns of human settlements and their relevance to architecture.
METHODOLOGY: Lectures, assignments and library studies.
CONTENTS:

Man and Environment

Biological and behavioral responses to human settlements.
Design for living, natural and built- environment.

History of human settlements

Origin and growth of human settlement.
Role of River Banks in growth of human settlement.
Historical survey of the city as an expression of the vitality of a civilization.
Western world: River valley settlements, Greek, Roman, Medieval, Renaissance and modern.

Ancient texts and treatises on settlement and area planning in India.
Human settlements during ancient medieval and modern periods India, Europe and other parts of the world.
Characteristics of human settlements built by Hindu and Islamic Rulers in India.

Study of ancient Indian settlements like Mohenjodaro, Taxila, Nalanda.
Study of ancient Indian cave settlements of Ajanta, Ellora, Elephanta.
Comparative study of Indus Valley and town planning in ancient and medieval India.

BARC-0308: ART APPRECIATION

INTENT: The course is considered as a medium of understanding architecture as one of the principal art in the patheon of human creativity. The flowering of aesthetic sensibilities and a taste for the visual and sensory appeal of physical form. The emphasis is to make students into connoisseurs of art rather than consummate artists themselves.

METHODOLOGY: Lectures and library studies and assignments to understand and appreciate art.

Content:

History of Art:

Art through ages, architecture as art, milestones in art from the Prehistoric, Paleolithic, Neolithic, Classical, Medieval, Renaissance and modern periods. Indian art heritage, Indus valley to present day.

Art consciousness; Aesthetics, perception, symbolism, expression, style, fashion, appropriateness and values.

Critical appraisal of examples from the visual as well as performing arts.

YEAR TWO SEMESTER FOUR

BARC- 0401: ARCHITECTURAL DESIGN – IV

INTENT:

- To foster understanding about land and landforms and the elements of built space. Experimentation with shapes and forms to evolve sensitivity to built volumes.
- Focus on studying patterns in horizontal circulation in built areas.
- Introduction to vernacular architecture, use of local materials and appreciation of the socio-economics of the users.

METHODOLOGY:

- Site analysis at the beginning of each design problem. This would develop sensitivity to existing site conditions and context and help students evolve design directives to guide the design process.
- Block models at every design stage for three-dimensional visualization.

CONTENTS:

Design projects related to different climatic conditions

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

One complex design problem

The project would involve the study of simple repetitive type of spaces like schools, hostels, shops and offices. The focus would be on the evolution of form through a detailed site analysis. Other design issues that the problem must address are:

- Detailing of selected areas to introduce a working understanding of services.
- Integration of design ideas with structural feasibility.
- Evolving working solutions for parking and circulation patterns.

BARC-0402 : BUILDING CONSTRUCTION & MATERIALS -IV

INTENT: To introduce construction principles and materials used for the basic elements of a building like doors, windows, stairs etc.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Construction

- Pitched bamboo & timber roofs.
- Staircases: Design and details of construction of staircases in timber, stone and RCC. Different types of staircases-Dog legged, Circular, Open Well, Spiral etc.
- Lift well details.
- Partitions: Construction of partition in timber and timber products, gypsum boards etc. for use in offices and restaurants.

Materials

- Varnishes: Natural and synthetic clear varnishes, French polish.
- Floor finishes: PCC, terrazzo, stone slabs, brick and terracotta tiles, Synthetic materials (PVC, Timber). Floors of industrial buildings & warehouses. Ceramic wall & floor tiles
- Roofing materials: Burnt clay tiles, slates, AC sheets, GI and Aluminium sheets.

BARC- 0403: THEORY OF DESIGN

INTENT:

The courses in Design theory aims to evolve a conceptual framework for intelligent appreciation of Architecture and to develop a vocabulary for discussing design ideas.

METHODOLOGY:

The structure of courses consists of set of lecturers and prescribed reading followed by group discussioins and seminars.

CONTENTS:

Design methodology:

Design as a multi-variety problem solving process. Theories of program and fuction, thinking techniques, information processing and research methods, generators of creativity, design metrics and system integration.

Design Evaluation and Criticism:

Value judgments in design. Appreciation of designer skills, theories of perception and variability of perception. Theoretical issues in contemporary architecture, Seminars on the works of selected Indian and International Architects and related topics.

BARC-0404: STRUCTURES –IV

INTENT:

To understand the basic principles of structural mechanics that would be pertinent to simple design elements. To also understand the structural behavior of building elements.

METHODOLOGY:

Lectures and computation exercises.

CONTENTS:

Design philosophies

Strength and serviceability requirements, design methods, working stress , ultimate strength and limit state.

Analysis and Design

Analysis and design of sections for flexure by working stress and limit state method- singly and doubly reinforced sections, T and L sections, introduction and used of design aids (SP: 16 to 456)

Shear bond

Introduction. Shear stress, Diagonal tension, shear reinforcement Development Length, Anchorage Bond, Flexural bond.

Detailing of Reinforcement

Introduction, Requirement or good detailing, Cover lo reinforcement. spacing or reinforcement, reinforcement requirements, Reinforcement splicing.

Slabs Introduction. Design of One-Way slab. Two way slab.

BARC-0405 : HISTORY OF ARCHITECTURE-II

INTENT: Introduction to the architecture of the ancient world. To generate an understanding about the development of civilization and its architectural implications.

METHODOLOGY: Visually intensive lectures using power point presentations to acquaint students with historic sites and buildings. Site visits and seminar presentations and model making

Civilizations and Architecture of Ancient India

- Indus Valley Civilization: Town planning principles, typical building layouts, sewage system, public buildings, the Great Bath etc. Examples from Harappa and Mohenjodaro
- Aryan Civilizaton: Vedic culture, town planning, its motifs and patterns.
- Buddhist Architecture: Pillars, edicts, stupas, viharas and chaityas.
- North Indian Temple forms: Three Schools -Gujarat, Khajuraho & Orissa.
- South Indian temple forms: Chalukya, Pallava, Pandya and Chola Rulers.
- Jain architecture: Jain temples and temple cities such as Palitana and Girnar.

BARC-0406: BUILDING SERVICES – II (ELECTRICAL)

INTENT: To teach the schematic layout of simple electrical, illumination, lift and fire fighting system for domestic and office buildings.

METHODOLOGY: Lectures and studio exercises. Exercises can be clubbed with design studio project

CONTENTS:

Electrical Services

Laws of electrical circuit- Ohm's and Kirchoff's laws and basic principles.
Circuits- series and parallel.
Common domestic installations- water heater, radiator etc.
Wires- specifications and carrying capacity and calculation of electrical loads.
Types of switches, sockets and fixtures.
Distribution boards, circuit breakers, fuses, electrical meters and their layout.
Design considerations for electrical installations.
Protection against overload, short circuit, earth fault, lightening conductors and other safety measures for buildings.
Wiring systems- methods of wiring, joint and loop in.
Types of electrical wiring- batten, capping & casing, concealed conduits etc.
Wiring material- types, sizes and specifications, main switch, MCB, DB meter.

Fire fighting

Causes and spread of fire. Combustibility of materials and safety norms.
Fire detection and fire fighting equipment- smoke detectors, monitoring devices, alarm systems. Etc.
Design of Fire escapes for high-rise buildings.

Illumination

Light and its propagation, reflection, radiation, transmission and absorption.
Definitions and units of flux, solid angles, luminous intensity, brightness.
Laws of illumination, types of illumination schemes – direct, semi direct, indirect and diffused lighting and their design considerations.
Light flux method for calculation of number of lamps for illumination.
Incandescent, sodium vapor, mercury vapor, fluorescent and neon lamps etc.
Types of Luminaries for interior and exterior lighting.
Residential, commercial, industry, flood and street lighting.
Tests before commissioning of electrical services.

Lifts

Types of lifts, their control and operation.
Definition of average lift carrying capacity, rated load, rated speed, RTT etc.
Details of lift section, machine room, equipment, lift well and lift pit.
Design standards for lifts lobby, lift cars size etc from building codes.
Escalators and conveyors.

BARC-0407: VISUAL AND WRITTEN COMMUNICATION

INTENT:

- Attuning students to a pictorial understanding of spaces.
- Exploring methods of presentation for design through photographs.
- Understanding the language and aesthetics of photography, as an inter-disciplinary art form and its relevance in architectural communication.
- Brainstorming on ideas of representing spaces through photographs.
- To develop skills of written communication.

METHODOLOGY:

- Lecture and post lecture discussions.
- Practical assignments and student presentations.
- Presentation by students on different themes.

CONTENTS:

Introduction to Devices

Introduction to devices used for visual communication.

Introduction to different types of cameras, (still and moving), optical and magnetic, their parts and their use.

Communication Graphics

Introduction to the elements, principles, and techniques that underlie and inform the analysis, creation, and evaluation of visual organizations and are crucial to the process and product of form- making.

Translation of concept into form using word, image, and layout.

Presentation of Designs through photographs, understanding the language and aesthetics of photography, as an inter-disciplinary art form and its relevance in modern architecture.

Photographic studies:

A practical introduction to the theory and application of cameras, metering devices and lighting

Studio and darkroom techniques, developing a print and processing.

Using digital cameras.

Mounting of photographs.

Slide presentation.

Written communication

BARC 0408: CAAD LAB

OBJECTIVE: Introduction and the use of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

Introduction

Introduction of various software available for Architectural application, like Auto CAD, Architectural desktop, Revit, Micro station etc. Stress should be given on Auto CAD.

Basic commands for 2-D AutoCAD

Learning basic 2D commands their function and application.

Working on layers and colors.

Understanding of Text, and dimension styles etc, supported with suitable exercise. Understanding complex commands like Pline, spline, x-refs, Attributes, Model space & Paper space etc.

At least one working plan, elevation and section should be completed.

Basic commands for 3D

Introduction of basic 3D commands.

Different types of modeling in Auto CAD.

Exercise on wire mesh modeling.

YEAR 3 (Semester V)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HRS
		L	T/ ST	WR	VV	TOT		
BARC-0501	DESIGN –V	2	6	WR	VV	**100**	3	6
BARC-0502	BUILDING MATERIALS & CONSTRUCTION –V	2	4	WR	VV	**100**	2	3
BARC-0503	WORKING DRAWINGS	1	4	-	VV	**100**	1	_
BARC-0504	STRUCTURE- V	2	-	WR	-	**100**	1	3
BARC-0505	HISTORY OF ARCHITECTURE-IV	2	-	WR	-	**100**	1	3
BARC-0506	BUILDING SERVICES- III (ACOUSTICS & HVAC)	2	-	WR	-	**100**	0.5	3
BARC-0507	ESTIMATING & COSTING	1	2	WR	-	**100**	1	3
BARC-0508	CAAD LAB- II	1	2	-	VV	**100**	0.5	_
TOTAL		**13**	**18**				**10**	_

Y E A R 3 (Semester VI)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	WR	VV	TOT		
BARC-0601	DESIGN –VI	2	6	WR	VV	**100**	**3**	6
BARC-0602	BUILDING MATERIALS & CONSTRUCTION –VI	2	4	WR	VV	**100**	**2**	3
BARC-0603	TOWN PLANNING	1	3	WR	VV	**100**	**1**	3
BARC-0604	STRUCTURE- VI	2	-	WR	-	**100**	**1**	3
BARC-0605	HOUSING	1	3	WR	VV	**100**	**1**	3
BARC-0606	BUILDING ECONOMICS	2	-	WR	-	**100**	**1**	3
BARC-0607	CAAD LAB - III	1	2	-	VV	**100**	**0.5**	-
BARC-0608	SEMINAR-I	-	2	-	VV	**100**	**0.5**	-
TOTAL		**11**	**20**				**10**	**-**

YEAR THREE SEMESTER FIVE

BARC- 0501: ARCHITECTURAL DESIGN – V

INTENT:

- Exploring and designing structural spanning systems for different requirements.
- To develop sensitivity to building by laws. To understand varied structural building systems
- To develop understanding about how to design in an urban setting.

METHODOLOGY:

- Case studies to be clubbed with library research and live surveys
- Site restrictions should be imposed in framing design problems.
- Detailed models to be generated with key submissions to communicate details of parking, landscaping and elevation features. Perspectives and sketches to be included in all key submissions for the development of communication skills.

CONTENTS:

Design exercise related to structural design

The project would focus on exploring structural spanning systems for large covered areas (temporary or permanent) and their integration with form. Design exercises could be sports area, exhibition hall, temporary canopy etc. The design should be formulated to increase awareness and application about advanced structural systems and latest building material.

- Arcuated- corbelled, radiating arch, vault and dome, squinch and pendentives.
- Vector structures- trusses and space frames, slabs, one way and two-way coffers.
- Form structures- folded slabs, shells, hyperbola and parabola.
- Tensile- tents, cables and pneumatic vis-à-vis materials and plan shapes.

Emphasis of the problems would be on the design parameters and graphical presentation rather than detailed structural analysis.

BARC-0502 : BUILDING CONSTRUCTION & MATERIALS -V

OBJECTIVE: Introduction to a wide range of modern building construction systems incorporating the use of metals like steel and aluminium and composite materials.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Construction

- Doors: Different types of doors in steel, Aluminium and Glass. Sliding, Sliding and folding, revolving doors. Fire proof and Sound proof doors. Types of Rolling Shutters.
- Windows: Different types of windows in Steel, Aluminium and Glass. Sliding windows in Steel and Aluminium.
- Staircases: Special staircases in steel. Fire Escape Stair Cases.

Materials

- Composite materials: R.C.C. and R.B.W. Use of Bamboo for Reinforcement.
- Water proofing materials and systems for basement.

- Sections of doors and windows (I.S. 1038 etc)

BARC- 0503: WORKING DRAWING

INTENT: To Familiarize the students with the drawings which are prepared for the actual construction/ execution of the buildings.

METHODOLOGY:

- Lectures and Studio assignments for understanding working drawings.
- Site visits and to understand the practical applications of working drawings.

CONTENTS:

Building drawings are to be prepared as part of the contract documents with proper labeling and dimensioning techniques. The drawings shall be based on building design prepared as design studio assignment. Drawings shall include: Plan/s, foundation plan/s, layout plan showing different buildings, internal roads, water supply, sewerage including area drainage plan. Elevations: Elevations of all sides (front, back and both sides). Sections: Transverse and longitudinal sections, sections through staircase, lift and sanitary units.

Architectural details:
Scheduling of different finishes, doors, windows including hardware fixtures. Preparation of roof drainage system layout, layout of sanitary and plumbing lines and scheduling the fixtures in toilets and kitchen etc. Layout of electrical lines and fixtures.

BARC-0504: STRUCTURES –V

OBJECTIVE: To understand the design elements of Reinforced Cement Concrete, Steel structures along with soil mechanics and foundation engineering

METHODOLOGY: Lectures and exercises in independent design of structural elements.

CONTENTS:

Design of Column

Detail of axially and eccentrically loaded short and long columns by working stress and the limit state methods.
Design for direct and uni-axial bending, use of design aids

Elements of Soil Mechanics

Properties of Soil, Safe bearing capacity, active and passive earth pressures

Foundation Engineering and types of foundation

Design of footing; strip footing for walls, isolated column footing, combined rectangular and trapezoidal footing
Raft foundation
Deep foundation
Pile & well foundation.

Complete Design of continuous beams & Portal Frames

Requirement of joints in RC.C. Construction
Construction joints
Expansion joints.

BARC-0505 : HISTORY OF ARCHITECTURE-IV

INTENT: To study the architecture of the medieval and modern world with a focus on India. The architectural styles and buildings would be discussed in context of their period, geographical/climatic conditions, economic and political conditions, social and religious customs, construction and technology, building material and structure.

METHODOLOGY: Lectures and site visits to acquaint students with historic sites and buildings of Delhi.

CONTENTS:

Architecture of Medieval & Modern Western World

- Islamic architecture: Islam and its philosophy, its implementation in various building types such as mosque, tomb, fort and their elements like domes, minarets, arch etc.

- **Renaissance, Mannerism (Monumentality and spatial effects of forms, use of orders), Post Renaissance: Baroque & Neo-classicism in parts of Europe.**

- Modern architecture: Various modern movements in different parts of the Western world and their role in defining Modern architecture such as Post Impressionism, Expressionism, Art Nouveau, Surrealism, Abstract Expressionism, Cubism etc.

BARC-0506: BUILDING SERVICES – III (HVAC)

OBJECTIVES:

- To understand the schematic layout of simple air conditioning system for domestic and office buildings.
- Understanding of intelligent buildings and devices used in them.

METHODOLOGY: Lectures and schematic layouts exercises. Exercises can be clubbed with design studio project.

CONTENTS:

Air Conditioning

Principles of air conditioning.
Psychometric chart, comfort zone.
Refrigeration cycle and air cycle.
Methods of cooling and heating
Evaporative cooling systems of air conditioning.
Unit air conditioners and central air conditioning plants.
Standards and prescribed locations for various parts.
Descriptive details of plants and duct layout.
Air distribution system- fans, filters, ductwork, outlets, dampers.
Natural and artificial ventilation.
Cooling load for AC.
Definition of average lift carrying capacity, rated load, rated speed, RTT etc.
Details of lift section, machine room, equipment, lift well and lift pit.
Design standards for lifts lobby, lift cars size etc from building codes.
Escalators and conveyors.

BARC-0507: ESTIMATING AND COSTING

INTENT: To equip students with the necessary technical knowledge for calculating estimates and detailed costing for small to medium scale projects.

METHODOLOGY: Small-scale projects to be undertaken to understand costing principles and terms. Final costing exercise to be carried out where students can undertake the costing of their studio design project.

CONTENTS:

Systems

Systems of taking quantities and estimating for all trades involved in construction of medium complexity project.

Specification

Writing of Specification for Quantities.
Items of work and Materials.

Classification of areas

Plinth area, Covered area, Floor area, Carpet area and Projection area.

Types of Estimates

Preliminary, Detailed.

Methods of taking out quantities for building works.

Preparation of Bill of Quantities (BOQ).
Mode of measurements of quantities.
Market rates of labor and building materials.
Labor turnout and norms for consumption of basic materials.

Schedule of rates

CPWD, PWD, Cost Index.
Analysis of rates for common items of work like Cement concrete, Brick work, Painting etc.
Methods for preparation and submission of preliminary estimates and detailed estimates.

Tender

Tender notices and tender documents.
Types of tendering in practice.Process of tendering. Preparation of tender notes/ documents and comparative statements
Award of Tenders

BARC- 0508: CAAD LAB

OBJECTIVE: Advanced learning of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

AutoCAD 3D

Understanding Co-ordinate systems.
Introduction of solid modeling.
Learning solid modeling commands, editing solid modeling.
Working on different planes.
At least one exercise should be completed in 3D modeling.

Revit

Introduction of Revit.
Advantages of Revit over Auto CAD.
Learning various 2D & 3D Commands supported with suitable exercise.
Basic working commands for Adobe Photoshop, Adobe Pagemaker and Corel Draw as applications helpful in Architectural presentations.

YEAR THREE SEMESTER SIX

BARC- 0601: ARCHITECTURAL DESIGN – VI

OBJECTIVES:

- Exploring and designing structural spanning systems for different requirements.
- To develop sensitivity to building by laws. To understand varied structural building systems
- To develop understanding about how to design in an urban setting.

METHODOLOGY:

- Case studies to be clubbed with library research and live surveys
- Site restrictions should be imposed in framing design problems.
- Detailed models to be generated with key submissions to communicate details of parking, landscaping and elevation features. Perspectives and sketches to be included in all key submissions for the development of communication skills.

CONTENTS:

One complex design problem

The project would involve the study and design of a multi-storied building like office building, shopping mall, hotel, college and hostel, commercial complex, small hospital etc. The focus would be on understanding how to design for an urban setting. Other design issues are:

- Detailing of circulation areas like lifts, staircases etc. to develop sensitivity to horizontal as well as vertical circulation requirements in a multi story building.
- Integration of design with structural and construction details. For this, the project should be integrated with the structures and building construction classes. One set of detailed working drawings must be generated at the end of the design process.

BARC-0602 : BUILDING CONSTRUCTION & MATERIALS -VI

INTENT: Introduction to a wide range of modern building construction systems incorporating the use of metals like steel and aluminium and composite materials.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Construction

- Roofs and Trusses: Steel Trusses.
- Detail of terracing for flat roofs.
- Water proofing and rain water disposal.

Materials

- Metals used in buildings: Properties constituents and uses of cast iron, Wrought iron, Steel, Stainless Steel, Bronze, Aluminium and Copper.
- Hot rolled sections, cold forming of sheets into sections.
- Materials for Terracing: Mud- phaska and Brick Tiles and other new systems for terracing.
- Common sections in Brass and Aluminium.
- Pipes in Mild Steel, Stainless steel, cast iron, brass and copper.

BARC- 0603: TOWN PLANNING

OBJECTIVE: Introduction to settlement and town planning.

METHODOLOGY: Lectures and seminar presentations.

CONTENTS:

Pioneers of modern town planning

Patrick Geddes
Kevin Lynch
Clarence Perry
Frank Lloyd Wright
Ebenezer Howard
Le Corbusier
Soria Y Mata

City plan patterns

Linear, Radial and Grid Iron layout patterns.
Planning theories of the twentieth century.
Industrial revolution and modern city.
Garden City, Satellite town.
Democratic city.

Case studies of some recent planned cities like New Delhi, Canberra, Brazillia, Chandigarh.

Current theories on physical planning.
Socio-economic dynamics of urbanization.

Methodology of conducting town planning, surveys and analysis of data collected, use of G.I.S.
Preparation of Master plans.
Zoning and development controls.

Traffic Characteristics

Composition, speed, volume and direction of movement.
Urban road systems and geometry.
Capacity of roads and intersections.

BARC-0604: STRUCTURES –VI

OBJECTIVE: To understand the design elements of Reinforced Cement Concrete, Steel structures along with soil mechanics and foundation engineering

METHODOLOGY: Lectures and exercises in independent design of structural elements.

CONTENTS:

Theory & Design of Cantilever Retaining walls.

Design of stairs

Effective span of stairs

Distribution of Loading on stairs
Simple case of design of stairs.

Steel Structures

Design of Riveted & welded connections (Simple cases only).
Tension & Compression members.
Beam & Plate, Girder
Introduction to grillage foundation.
Trusses

BARC-0605 : HOUSING

INTENT: To understand the fundamentals of housing design

METHODOLOGY: Lectures and exercises

Content:

Introduction to Housing

Definition of house and housing. Housing and its importance in Architecture; Housing and its relationship with neighborhood and city plan.
Housing Design and Site Planning;
Type of new dwelling structures
House detached, semidetached.
Flats and multistoried classification according to the type of access-corridor, gallery, direct grouped, combination of these access types. Definition of each of the above types, their suitability, advantages, disadvantages and social, economic and aesthetic implications.
Selection of site for the housing.
Considerations of physical characteristics of site, location factors, legal and financial factors, community and neighborhood factors.
Importance of orientation and topography in housing design.
Orientation: definition, choice ofn direction and factors to be considered, sunlight, spacing of blocks.
Topography: Problems inherent in steeply sloping sites economic and aesthetic implications of the building along and against the contours, silhouette problems on a sloping site.
Landscaping and topography; effects of plantation in the background and front of buildings on a sloping site
Sub- division techniques; proportions of plots and need of roads. Garages and parking areas, conservation of beauty spots. Access to the residence and residebntial colony from roads. Road sections. Roads in residential areas.

BARC-0606: BUILDING ECONOMICS

INTENT: To understand the economic principles associated with building design

METHODOLOGY: Lectures and exercises

CONTENTS:

Building Economics:

1. Elements of Economics: An idea of fundamental concepts of economics Science and their application in industry.
2. Micro Economics: Factor of production-Characteristics and importance, demand supply analysis, competitive market and determination.

3. Micro Economics: National income and its distribution, inequalities of income distribution, its causes and measures,
4. Money and Banking: Meaning and function of money, value of money and its functions. Types and functions of banks in India, Central Banking in India, Bank financing and industry, Foreign Trade Implication of currency devaluation.
5. Economic development of India: Characterics of Indian Economy, industrial resources in India, poverty and the measures to overcome it, Economic planning in India, Board features of India's Five Year plans.

BARC- 0607: CAAD LAB

OBJECTIVE: Advanced learning of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

MAX

Understanding Co-ordinate systems.
Introduction of solid modeling.
Learning solid modeling commands, editing solid modeling.
Working on different planes.
At least one exercise should be completed in 3D modeling.

ARCHICAD

Introduction of ARCHICAD
Advantages of ARCHICAD.
Learning various 2D & 3D Commands supported with suitable exercise.

BARC- 0608: SEMINAR-I

INTENT: To equip the students with the art of paper presentations and preparation of report.
METHODOLOGY: The students will be preparing paper presentations with guidance under a faculty for the paper presentation.

CONTENTS:

Independent study and documentation of architectural and allied subjects by individual student alongwith oral and visual presentation**.**

The seminar shall be a research paper on a current topic related to Architecture. The overall supervision shall be done by the seminar coordinator and the individual guidance may be provided by the experts in the subject.

YEAR FOUR SEMESTER SEVEN

BARC- 0701: ARCHITECTURAL DESIGN – VI

INTENT:

Y E A R 4 (Semester VII)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	WR	VV	TOT		
BARC-0701	DESIGN –VII	2	4	WR	VV	**100**	**3**	6
BARC-0702	BUILDING MATERIALS & CONSTRUCTION –VII	2	4	WR	VV	**100**	**2**	3
BARC-0703	URBAN AND RURAL PLANNING	2	4	WR	-	**100**	**1**	3
BARC-0704	STRUCTURE- VII	2	-	WR	-	**100**	**1**	3
BARC-0705	LANDSCAPE ARCHITECTURE	1	3	WR	VV	**100**	**1**	3
BARC-0706	PROJECT MANAGEMENT	2	-	WR	-	**100**	**1**	3
BARC-0707	BEHAVORIAL PSCYCHOLOGY	2	-	WR	-	**100**	**0.5**	3
BARC-0708	SEMINAR-II	-	2	-	VV	**100**	**0.5**	_
TOTAL		**13**	**17**				**10**	_

YEAR 4 (Semester VIII)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	IA	VV	TOT		
BARC-0801	ARCHITECTURAL TRAINING	-	-	IA	VV	**100**	**10**	-
TOTAL		**-**	**-**	**-**			**10**	**-**

YEAR 5 (Semester IX)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	WR	VV	TOT		
BARC-0901	DESIGN -VIII	2	4	WR	VV	**100**	**3**	6
BARC-0902	ADVANCED BUILDING TECHNOLOGY	2	4	WR	VV	**100**	**2**	3
BARC-0903	ECOLOGY & ENVIORONMENT	2	2	WR	_	**100**	**1**	3
BARC-0904	ADVANCED STRUCTURES	2	-	WR	_	**100**	**1**	3
BARC-0905	ELECTIVE-I	1	3	WR	_	**100**	**1**	3
BARC-0906	ELECTIVE-I	1	3	WR	_	**100**	**1**	3
BARC-0907	SEMINAR- III		3	-	VV	**100**	**1**	_
TOTAL		**10**	**19**				**10**	_

3. Micro Economics: National income and its distribution, inequalities of income distribution, its causes and measures,
4. Money and Banking: Meaning and function of money, value of money and its functions. Types and functions of banks in India, Central Banking in India, Bank financing and industry, Foreign Trade Implication of currency devaluation.
5. Economic development of India: Characterics of Indian Economy, industrial resources in India, poverty and the measures to overcome it, Economic planning in India, Board features of India's Five Year plans.

BARC- 0607: CAAD LAB

OBJECTIVE: Advanced learning of software available for architectural applications.

METHODOLOGY: Integration of practical exercises along with the design studio project.

CONTENTS:

MAX

Understanding Co-ordinate systems.
Introduction of solid modeling.
Learning solid modeling commands, editing solid modeling.
Working on different planes.
At least one exercise should be completed in 3D modeling.

ARCHICAD

Introduction of ARCHICAD
Advantages of ARCHICAD.
Learning various 2D & 3D Commands supported with suitable exercise.

BARC- 0608: SEMINAR-I

INTENT: To equip the students with the art of paper presentations and preparation of report.
METHODOLOGY: The students will be preparing paper presentations with guidance under a faculty for the paper presentation.

CONTENTS:

Independent study and documentation of architectural and allied subjects by individual student alongwith oral and visual presentation**.**

The seminar shall be a research paper on a current topic related to Architecture. The overall supervision shall be done by the seminar coordinator and the individual guidance may be provided by the experts in the subject.

YEAR FOUR SEMESTER SEVEN

BARC- 0701: ARCHITECTURAL DESIGN – VI

INTENT:

- Integration of all aspects about a building design and its workings- including service details, assessment of environmental impact, innovative structural systems and materials etc.
- Evolving sensitivity to design of spaces at the urban scale – creation of nodes and links, visual landmarks, activity and interaction zones, relationship between commercial, recreational and residential areas.

METHODOLOGY:

- Site studies to be carried out on a larger scale to analyze implications of the entire context within which the project is to be executed.
- Large scale models to be used for assessing site conditions and restrictions.
- Design process to incorporate panel discussion and seminar presentations.
- Presentations to be made using 3-D visualization.

CONTENTS:

Group Housing

One project would address the solution to a large-scale multi story project like group housing, commercial complex etc. Design proposals should study and address issues like movement of people and traffic, services, waste disposal management through detailed case studies. Sensitivity to use of materials, lighting, landscape and services must be a part of the solution.

The project could also focus on the design for economically weaker section- slum up-gradation projects, site and services schemes etc. In such projects the focus would be on devising economically viable alternative building materials, structural systems and service options.

BARC-0702 : BUILDING CONSTRUCTION & MATERIALS -VII

OBJECTIVE: Introduction to construction details of specialized building elements like skylights, soundproof paneling, pre-cast and pre-stressed concrete elements etc.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Construction:

Doors and Windows: Soundproof doors, Bay windows, Skylights.
Foundations: Pile foundation- details of pile, pile caps and types of piles.
Partitions: Construction and details of glazed, lightweight and soundproof partitions and soft paneling.
Pre-cast and Pre-stressed and post tensioning of concrete members.
Modular construction.

Materials:

Study of various patent materials of construction available under different trade names with their specifications, properties and uses like Vineertex, Marblex, Fixopan, Anchor Boards, Novapan etc.

BARC- 0703: URBAN DESIGN

INTENT : To familiarize students with the aspects of urban design and to give the introductory knowledge about the urban design.

METHODOLOGY:

- The course will be conducted through lectures, studio assignments**.**
- Site studies to be carried out on a larger scale to analyze the aspects of urban design

CONTENT:

INTRODUCTION: Meaning, scope and purpose of Urban design.
Understanding of differentiation of Architecture, Urban design & planning.
Principles of Urban design.
Introduction to analytical techniques in urban design.
Survey techniques in urban design.
Urban design regulations and controls.
Comprehensive role of urban design in planning process.

BARC-0704: STRUCTURES –VII

OBJECTIVE: To understand the modern trends and challenges in building structural systems.

METHODOLOGY: Lectures by the experts in the field will be arranged to make the students to understand advance structure techniques available for construction of complex structures.

CONTENTS:

Earthquake resistant design

Elements of Earthquake Engineering, zoning, base shear, Lateral forces, Ductile detailing
Introduction to new codes.

Introduction to Computer Aided Structural Design

Demo of practical problems using STAAD

BARC-0705 : LANDSCAPE ARCHITECTURE

INTENT:

- Introduction to the role of landscape elements in architectural design.
- Impacts of landscape elements on environment.

METHODOLOGY: Landscape design work shall be conducted as part of Architectural Design Studio.

CONTENTS:

Basic elements of Landscape

- Land
- Water
- Vegetation

Study and detailing of hard and soft landscape

Services related to landscape:

- Plumbing
- Electrical
- Sewage management
- Water supply

Plant Material: A study of Indian vegetation, its characteristics and design aspects

- Trees
- Shrubs
- Ground cover
- Indoor plants

Grading and Slopes

Landscape Design Concepts of

- Europe
- Japan
- India
- China
- Renaissance

BARC-0706: PROJECT MANAGEMENT

INTENT: To equip students with basic management techniques needed for office and project management.

METHODOLOGY: Lectures.

CONTENTS:

Management and the environment

Evolution of management thought.
Managing in a global environment.
Social and ethical responsibility of management.

Managing work and organization

Decision-making and the planning functions including strategic planning.
The organization function, the controlling function.

Managing people

Human resource management- managing work groups.
Leadership: motivation: communication and negotiations.
Organization change and development.

Financial management

Functions of financial management.
Financial objectives, analysis and interpretation of financial information.
Sources of long term and short term finance.
Project appraisal and capital budgeting.

Office management and procedure

Organizing work, staffing, delegation and decentralization.
Filing and Indexing.

IT application in office management and procedure.
Enterprise Resources Planning (ERP).
Customer Relationship Management (CRM) .
Customer satisfaction, Quality and Excellence.

Entrepreneurship

The entrepreneurs' tasks and special challenges of entrepreneurship.
Design office management
Construction management.

Reference:

Donelly, Gibson and Ivancevich, *Fundamentals of Management* Ed. Irwin.
Hellriegel and Slocum*, Management*, 7th ed. South Western College Publishing.
Anderson, *Customer Relationship Management*, Tata McGraw Hill.
Hampton*, Management*, Tata McGraw Hill.

BARC- 0707: BEHAVOURIAL PSCYCHOLOGY

INTENT: To equip students with basic study of human behavior
METHODOLOGY: Lectures and exercises.

CONTENTS:

Man- Environment relationship: Positive and normative theories. Behavioral Science and modem movement. Substantive theory on Environment and human behavior, Social Stimulation and interaction, the affordances of the built Environment ,Gestalt theory of Perception- Cognition and effect, Spatial behavior. Environmental Determinism, Environmental possibilism and Environmental probabilismConce3pt of Fit- adoptability and flexibility. Anthropometries and Ergonometric, Barrier free Environmental design. Territoriality. Defensible space, Social space the Westgate theory, Behavioral concepts in Neighborhood and Urban Design. Speculative aesthetics and symbolic aesthetics. Semantic and Semontic approaches. Contemporary Sociophysical issues in Environmental design.

BARC- 0708: SEMINAR-II

INTENT: To equip the students with the art of paper presentations and preparation of report.
METHODOLOGY: The students will be preparing paper presentations with guidance under a faculty for the paper presentation.

CONTENTS:
Independent study and documentation of architectural and allied subjects by individual student alongwith oral and visual presentation**.**

The seminar shall be a research paper on a current topic related to Architecture. The overall supervision shall be done by the seminar coordinator and the individual guidance may be provided by the experts in the subject.

YEAR FOUR SEMESTER EIGHT

BARC- 0801: TRAINING

Each student shall have to undergo Professional Training for a period of at least 16 Weeks in an establishment approved by the class coordinator and Prof. In charge. The practical training will commence during the VIII semester after passing the VII end semester exams.

A student will be required to submit a performance report from the Architect under whom training was completed as well as a detailed report on the work carried out by him during the training.

The Internal assessment marks for the practical training will be awarded to each student by the Prof. in charge in consultation with the course coordinator on the basis of; The performance report from the Architect under whom the training was carried out.

On the assessment of the report of works rendered by the student during the training. The external Jury will award the marks for the practical training on the basis of Viva-voce examination of the student on the work rendered by the student during training.

YEAR FIVE SEMESTER NINE

BARC- 0901: ARCHITECTURAL DESIGN – VI

OBJECTIVES:

- Integration of all aspects about a building design and its workings- including service details, assessment of environmental impact, innovative structural systems and materials etc.
- Evolving sensitivity to design of spaces at the urban scale – creation of nodes and links, visual landmarks, activity and interaction zones, relationship between commercial, recreational and residential areas.

METHODOLOGY:

- Site studies to be carried out on a larger scale to analyze implications of the entire context within which the project is to be executed.
- Large scale models to be used for assessing site conditions and restrictions.
- Design process to incorporate panel discussion and seminar presentations.
- Presentations to be made using 3-D visualization.

CONTENTS:

Urban Design

The design problem of Urban design scale is to be introduced, example; Redesigning of existing Urban area by studying and identifying the problems associated with it. The project would be a medium sized urban design intervention.

The design solution would address issues like demography, market value, land use patterns etc. Other design issues are the detailing of open and built areas after studying human and vehicular traffic movement patterns. The project should be substantiated by detailed site surveys and reading about urban design principles. Study models must accompany every stage.

BARC-0902 : ADVANCED BUILDING TECHNOLOGY

INTENT: To familiarize the students with the various advanced construction methods and technology.

METHODOLOGY:

- Lectures and Studio assignments for understanding construction details.
- Site visits and library studies to supplement the studio work regarding materials and construction methods.

CONTENTS:

Introduction of pre-stressing, prefabrication and systems building. Jointing, tolerances and modular coordination. Mass production, transportation, storage and handling of materials. Characteristics, performances and application of mechanized construction equipments. Advanced construction techniques.

BARC- 0903: ECOLOGY AND ENVIORNMENT

INTENT: To familiarize students with the concepts of ecology and its importance in architecture

METHODOLOGY: The subject will be taught through lectures, exercises and assignments.

Introduction

Meaning and scope of ecology; evolution of ecology; man, environment and ecosystem; components of nature and basis concepts and processes of ecology; flow of material water energy, invasion, succession, predation, regulatory forces, adaptation, trophic levels, food chain, food web, ecological pyramids; Environmental zones.

Ecosystem and its Relevance to Environment

Resources and human settlements impact of advanced agricultural methods, urbanization and industrialization on nature; urban ecosystem approach evolution and significance; soil, water, land, vegetation and solar, biomas, wind, hydro energy resources; settlement planning and energy conservation; development and management

Quantitative Ecology

Introduction to quantitative ecology, identification of ecological parameters for planning at different levels; site planning, settlement planning and regional planning; data needs and format for data collection; types of analysis required to evolve ecological parameters. Planning for environmentally sensitive areas.

Environmental Impact Studies

EIA - meaning, significance and framework; Methodologies - checklist, matrices, network and social cost-benefit analysis; sources and acquisition of environmental information; Environmental land use classification; Environment impact studies of development projects.

Environmental Policies

Global and national policies on environment; Five year plans in relation to environmental aspects; Legal measure for protection of environment; Environmental awareness and education in India; Agencies involved in environment protection; Public participation; Role of planners in shaping the future environment

BARC-0904: ADVANCED STRUCTURE

OBJECTIVE: To understand the modern trends and challenges in building structural systems.

METHODOLOGY: Lectures by the experts in the field will be arranged to make the students to understand advance structure techniques available for construction of complex structures.

CONTENTS:

Theory of Domes, Shells & Folded Plates.(Following systems and techniques are to be understood conceptually. Calculations / Design for these techniques and systems are not expected.)

Synthesis of force systems to create Structural system.
Vector Active, Surface Active and Bulk Active systems.
Theory of Folded Plates, Domes, Shell, Vault.
Space Frame, Flat Slabs, Hollow Floor.
Portal Frame, Cables and Suspension Structures.
Structure System for Seismic Zone
Inflatable Structure

BARC-0905 : ELECTIVE -I

INTENT: To familiarize students with the various allied subjects of Architecture.

METHODOLOGY: The students will choose from the list of electives any one subject of their choice to do an in-depth study of the selected topic

List of Electives for Elective –I & II

1 Energy efficient design.
2 Real Estate valuation.
3 Low cost Building Techniques.
4 Barrier free Environment.
5 Architectural Conservation Techniques.
6 Vastu Shastra
7 Building Automation and Management system.
8 Advanced theory of Architecture &Research methodology.
9 Sustainable Architecture
10 Energy Conscious Architecture
11 Intelligent Buildings
12 Modular Coordination

BARC-0906: ELECTIVE- II

INTENT: To familiarize students with the various allied subjects of Architecture.

METHODOLOGY: The students will choose from the list of electives any one subject of their choice to do an in-depth study of the selected topic

List of Electives for Elective –I & II

1 Energy efficient design.
2 Real Estate valuation.
3 Low cost Building Techniques.
4 Barrier free Environment.
5 Architectural Conservation Techniques.
6 Vastu Shastra
7 Building Automation and Management system.
8 Advanced theory of Architecture &Research methodology.
9 Sustainable Architecture
10 Energy Conscious Architecture
11 Intelligent Buildings
12 Modular Coordination

BARC- 0907: SEMINAR-III

INTENT: To equip the students with the art of paper presentations and preparation of report.
METHODOLOGY: The students will be preparing paper presentations with guidance under a faculty for the paper presentation.

CONTENTS:

Independent study and documentation of architectural and allied subjects by individual student alongwith oral and visual presentation**.**

The seminar shall be a research paper on a current topic related to Architecture. The overall supervision shall be done by the seminar coordinator and the individual guidance may be provided by the experts in the subjects.

Y E A R 4 (Semester VII)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	WR	VV	TOT		
BARC-0701	DESIGN –VII	2	4	WR	VV	**100**	**3**	6
BARC-0702	BUILDING MATERIALS & CONSTRUCTION –VII	2	4	WR	VV	**100**	**2**	3
BARC-0703	URBAN AND RURAL PLANNING	2	4	WR	-	**100**	**1**	3
BARC-0704	STRUCTURE- VII	2	-	WR	-	**100**	**1**	3
BARC-0705	LANDSCAPE ARCHITECTURE	1	3	WR	VV	**100**	**1**	3
BARC-0706	PROJECT MANAGEMENT	2	-	WR	-	**100**	**1**	3
BARC-0707	BEHAVORIAL PSCYCHOLOGY	2	-	WR	-	**100**	**0.5**	3
BARC-0708	SEMINAR-II	-	2	-	VV	**100**	**0.5**	_
TOTAL		**13**	**17**				**10**	_

YEAR 4 (Semester VIII)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	IA	VV	TOT		
BARC-0801	ARCHITECTURAL TRAINING	-	-	IA	VV	**100**	**10**	-
TOTAL		**-**	**-**	**-**			**10**	**-**

YEAR 5 (Semester IX)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HOURS
		L	T/ ST	WR	VV	TOT		
BARC-0901	DESIGN -VIII	2	4	WR	VV	**100**	**3**	6
BARC-0902	ADVANCED BUILDING TECHNOLOGY	2	4	WR	VV	**100**	**2**	3
BARC-0903	ECOLOGY & ENVIORONMENT	2	2	WR	_	**100**	**1**	3
BARC-0904	ADVANCED STRUCTURES	2	-	WR	_	**100**	**1**	3
BARC-0905	ELECTIVE-I	1	3	WR	_	**100**	**1**	3
BARC-0906	ELECTIVE-I	1	3	WR	_	**100**	**1**	3
BARC-0907	SEMINAR- III		3	-	VV	**100**	**1**	_
TOTAL		**10**	**19**				**10**	_

Y E A R 5 (Semester X)

CODE	SUBJECT	CLASSES					CREDITS	EXAM HRS
		L	T/ ST	WR	VV	TOT		
BARC1001	DESIGN THESIS	-	6	-	VV	**100**	**6**	–
BARC1002	PROFESSIONAL PRACTICE-I	2	-	WR	-	**100**	**1**	3
BARC1003	VALUATION AND ARBITRATION	2	-	WR	-	**100**	**1**	3
BARC1004	SEMINAR-IV	-	2	-	VV	**100**	**2**	–
TOTAL		**4**	**8**				**10**	–

NOTATIONS: L- LECTURES T- THEORY ST- STUDIO WR- WRITTEN VV- VIVA- VOCE

YEAR FIVE SEMESTER TEN

BARC- 1001: THESIS

INTENT: Thesis projects must reflect the culmination of the development of the student's architectural skills and design attitude. The project must be chosen so as to address and resolve, through design, all aspects of the design process.

METHODOLOGY: The student must submit to the department the synopsis of at least two different design/research projects for approval out of which one would be selected depending on its merit for scope of design intervention and its scale.

A guide to supervise the studies will be appointed by the head for each student. Regular progress in studio will be monitored and internal assessment will be carried in six stages during the exercise, each stage will have a presentation to the internal jury for thesis.

The stage submissions must be based and supported by detailed analytical studies that lay down the validity of the design criteria and detailed methodology. The following are the basic guidelines for the planning the thesis design project and its submissions:

1. Detailed site study of existing site conditions and context and evolving design directives and concept.
2. Case studies to be clubbed with library research and surveys.
3. Site restrictions should be followed as applicable for building byelaws of parking, FAR, fire, security and services.
4. Initial concept stage to experiment with shapes and forms to evolve a built volume through block model studies.
5. Incorporating landscape to understand interaction between built and open space.
6. Study and address issues like movement of people and traffic, services, waste disposal management etc.
7. Develop details for use of materials, lighting, landscape and services.
8. Final proposal to include specialized aspects of service details, assessment of environmental impact, innovative structural systems and materials etc.

In special cases depending upon past achievements and aptitude, the institute may allow a research project to be undertaken in lieu of a design project.

SCOPE OF STUDY

The projects chosen could vary in scale from small individual buildings to large complexes to urban design intervention. The project should be such that it highlights the student's individual innovation in the architectural design process.

BARC-1002 : PROFESSIONAL PRACTICE

OBJECTIVE: To introduce aspects of professional conduct, duties and responsibilities and legal rights and procedures of the architectural profession.

METHODOLOGY: Lectures.

CONTENTS:

Architectural Profession today

Registration under Architect Act 1972.
Main provision of Architects Act, AICTE Act.
Architects role in society and careers in architectural profession.
Architects in practice and his office organization.

Basic Account Keeping and preparation of Balance Sheet.
Scale of Professional fees, mode of payment, Professional conduct and ethics.

Indian Institute of Architects

Its role as a professional body for promotion and regulation of the Architectural profession and assisting its members, ARCASIA (Architects Regional Congress of Asia), Common wealth Architects Association, UIA (Union International des Architects).

Law related to the profession

Introduction of following Acts: Contracts, Arbitration, Environmental, Consumer Protection, Negotiable Instrument, Easement, Partnership.
Income Tax, Service Tax, Professional Tax.

Tender and Contracts

Types of building contracts, their merits and demerits.
Preparation of tender documents, inviting and opening of tenders, comparative statements.
Architects recommendations.
Signing of the contract.
Architectural Competitions.

Valuation

Role of Architect as an Evaluator.
General principles and methods of evaluation of buildings.

Arbitration: Role of an Architect as an Arbitrator.
Introduction to agencies related to Architectural Profession
HUDCO, Development Authority, TCPO etc.
Housing financing Agencies: HDFC, Banks, LIC, HUDCO etc.

BARC- 1003: VALUATION AND ARBITRATION:

INTENT: To familiarize students with the aspects of valuation and arbitration.

METHODOLOGY: The course will be conducted through lectures and practical examples of the cases of valuation and arbitrations.

Contents:

Valuation

Introduction:

Techniques of valuation, elements of valuation and factors affecting valuation.

Methods

Valuation of landed properties and building property, rate of interest for sale, purchase, mortgage, capital gains, taxes, estate duties and death duty.

Compensation:

Valuation for compensation on acquisition, compensation under central and state legislation, relevance of town planning act.

Types of Valuation:

Valuation for renewal of lease/ extension of lease, standard rent, easement rights, dilapidation, insurance, estate development and advice of investment policy.

Report:

Preparation of feasibility report, valuation report, awards etc.

Arbitration

Introduction:

Arbitration, arbitrators, umpire, nature of arbitration. Appointment conduct, powers and duties of arbitrators and umpire.

Procedure:
Procedure of arbitration, preparation and publication of awards. Impeachment.
Claims:
Fire insurance and arbitration of insurable value. Claims and damages.
Injunctions:
Easement and its definition. Features of easements, interim, permanent and mandatory injunctions.

BARC- 0907: SEMINAR-IV

INTENT: To equip the students with the art of paper presentations and preparation of report.
METHODOLOGY: The students will be preparing paper presentations with guidance under a faculty for the paper presentation.

CONTENTS:

Independent study and documentation of architectural and allied subjects by individual student alongwith oral and visual presentation**.**

The seminar shall be a research paper on a current topic related to Architecture. The overall supervision shall be done by the seminar coordinator and the individual guidance may be provided by the experts in the subjects.