

**Scheme of Examination and Syllabus**

**For**

**Bachelor of Architecture**

**July 2006**

**Department of Architecture & Planning  
Maulana Azad National Institute of Technology  
Bhopal 462007**

## SCHEME OF EXAMINATION

### B.Arch. (I Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 101	Architectural Design-I	3	2	1	6	3	2	5
AR 102	Building Materials & Construction-I	1	3	1	3	1	3	4
AR 103	Structures -I	1	2	1	3	1	2	3
AR 104	Architectural Drawing-I	1	4	1	3	1	4	5
AR 105	History of Architecture-I	1	3	1	3	1	3	4
AR 141	Architectural Design-I	1	1	0	0	1	1	2
AR 142	Building Materials & Construction-I	1	2	0	0	1	2	3
AR 143	Art & Graphics-I (Basic Design)	2	1	0	0	2	1	3
AR 144	Computer Application-I	2	1	0	0	2	1	3
AR 145	Workshop-I (Shop Trade)	2	1	0	0	2	1	3
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>20</b>	<b>35</b>

### B.Arch. (II Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 151	Architectural Design-II	3	2	1	6	3	2	5
AR 152	Building Materials & Construction-II	1	3	1	3	1	3	4
AR 153	Structures-II	1	2	1	3	1	2	3
AR 154	Architectural Drawing-II	1	4	1	3	1	4	5
AR 155	History of Architecture-II	1	3	1	3	1	3	4
AR 191	Architectural Design-II	1	1	0	0	1	1	2
AR 192	Building Materials & Construction-II	1	2	0	0	1	2	3
AR 193	Art & Graphics-ii	2	1	0	0	2	1	3
AR194	Computer Application-II	2	1	0	0	2	1	3
AR 195	Workshop-II (Model Making)	2	1	0	0	2	1	3
AR 196	General proficiency	0	0	0	0	0	4	4
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>24</b>	<b>39</b>

## SCHEME OF EXAMINATION

### B.Arch. (III Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 201	Building Materials & Construction- III	1	2	1	3	1	2	3
AR 202	Structures – III	1	2	1	3	1	2	3
AR 203	History of Architecture- III	1	3	1	3	1	3	4
AR 204	Environment Science ( climatology )	1	3	1	3	1	3	4
AR 241	Architectural Design- III	6	3	0	0	6	3	9
AR 242	Building Materials & Construction- III	1	2	0	0	1	2	3
AR 243	Architectural Graphics- III	2	2	0	0	2	2	4
AR 244	Computer Drafting	2	3	0	0	2	3	5
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>20</b>	<b>35</b>

### B.Arch. (IV Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 251	Architectural design-IV	3	3	1	6	3	3	6
AR 252	Building materials & construction-IV	1	3	1	3	1	3	4
AR 253	Structures-IV	1	3	1	3	1	3	4
AR 254	Theory of design	2	2	1	3	2	2	4
AR 255	Surveying & leveling	2	1	1	3	2	1	3
AR 261	Elective-I Traditional & Contemporary Indian Architecture	2	1	0	0	2	1	3
AR 262	Aesthetic Art & Appreciation							
AR 291	Architectural design-IV	1	2	0	0	1	2	3
AR 292	Building Materials & Construction-IV	1	3	0	0	1	3	4
AR 293	Communication Skill	2	2	0	0	2	2	4
AR 294	General proficiency	0	0	0	0	0	4	4
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>24</b>	<b>39</b>

## SCHEME OF EXAMINATION

### B.Arch. (V Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 301	Building materials & construction-V	1	5	1	3	1	5	6
AR 302	Structures -V	1	2	1	3	1	2	3
AR 303	Estimating and costing	2	2	1	3	2	2	4
AR 304	Water supply & sanitation	2	2	1	3	2	2	4
AR 341	Architectural design-V	6	3	0	0	6	3	9
AR 342	Building materials & construction-V	1	3	0	0	1	3	4
AR 343	Specification of Works	1	4	0	0	1	4	5
AR 344	Tour / building appraisal	0	0	0	0	0	2	2
	<b>Total</b>	<b>14</b>	<b>21</b>			<b>14</b>	<b>23</b>	<b>37</b>

### B.Arch. (VI Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 351	Architectural design-VI	3	3	1	12	3	3	6
AR 352	Structures-VI	1	2	1	3	1	2	3
AR 353	Energy & buildings	2	2	1	3	2	2	4
AR 354	Electrical services	2	2	1	3	2	2	4
AR 355	Mechanical services	2	2	1	3	2	2	4
AR 391	Architectural design-VI	1	2	0	0	1	2	3
AR 392	Working drawing	2	6	0	0	2	6	8
AR 393	Building Bye Laws	2	1	0	0	2	1	3
AR 394	General proficiency	0	0	0	0	0	4	4
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>24</b>	<b>39</b>

## SCHEME OF EXAMINATION

### B.Arch. (VII Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 401	Principles of Human Settlements	1	4	1	3	1	4	5
AR 402	Acoustics and Lighting	1	2	1	3	1	2	3
AR 403	Landscape Architecture	2	2	1	3	2	2	4
AR 404	Building Economics and Sociology	2	2	1	3	2	2	4
AR 441	Architectural Design-VII	6	3	0	--	6	3	9
AR 442	Advanced Building Construction	2	4	0	0	2	4	6
AR 443	Structure Design	1	3	0	0	1	3	4
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>20</b>	<b>35</b>

### B.Arch. (VIII Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		credits		Total Credits
		L	S	No.	Hrs.	L	S	
AR 451	Modern building systems	1	2	1	3	1	2	3
AR 452	Town planning	1	3	1	3	1	3	4
AR 453	Project management	2	1	1	3	2	1	3
AR 461	Elective-II CAD & Visualisation	2	4	1	3	2	4	6
AR 462	Valuation & Arbitration							
AR 463	Vastu Shastra							
AR 464	Site Planning & Landscape Architecture							
AR 465	Architectural Journalism							
AR 466	Disaster Management							
AR 467	Visual communication							
AR 468	Sustainable architecture							
AR 491	Architectural design-VIII	5	4	0	0	5	4	9
AR 492	Modern building systems	1	2	0	0	1	2	3
AR 493	Interior design	1	3	0	0	1	3	4
AR 494	Dissertation	2	1	0	0	2	1	3
AR 495	General proficiency	0	0	0	0	0	4	4
	<b>Total</b>	<b>15</b>	<b>20</b>			<b>15</b>	<b>24</b>	<b>39</b>

## SCHEME OF EXAMINATION

### B.Arch. (IX Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Total Credits
		L	S	No.	Hrs.	
AR 541	Training	--	--	0	0	15
	<b>Total</b>	--	--			<b>15</b>

### B.Arch. (X Semester)

Course No.	Subject	Periods per week		No. and Duration of Theory paper		Credits		Total Credits
		L	S	No	Hrs.	L	S	
AR 551	Professional practice	2	2	1	3	2	2	4
AR 561	Elective –III Design of low cost buildings	2	2	1	3	2	2	4
AR 562	Housing design & planning							
AR 563	Hotel services							
AR 564	Energy efficient Architecture							
AR 565	Elective –IV Architectural conservation	2	2	1	3	2	2	4
AR 566	Urban Design							
AR 567	Urban & Regional Planning							
AR 591	Elective –III Design of low cost buildings	1	2	0	0	1	2	3
AR 592	Housing design & planning							
AR 593	Hotel services							
AR 594	Energy efficient Architecture							
AR 595	Elective –IV Architectural conservation	1	2	0	0	1	2	3
AR 596	Urban Design							
AR 597	Urban & Regional Planning							
AR 598	Thesis project	4	9	0	0	4	9	13
AR 599	General proficiency	0	0	0	0	0	6	6
	<b>Total</b>	<b>12</b>	<b>19</b>			<b>12</b>	<b>25</b>	<b>37</b>

## INTRODUCTION

Architecture today is recognised as an intellectual discipline and a profession. Architects have to give their vital contribution in the shaping of environment and society, in the design and technology for a diverse range of situations both in the urban and rural contexts. In India we have further complexities of different social, cultural, geographical, economic and technical aspects, which are unique and typical of every region in the country.

Given the complexities of present day design projects, the architect's role is that of a team leader and coordinator of the input of specialists in various specific disciplines. He needs to possess a sound knowledge of all aspects of modern building technology, project management and execution to be able to draw up an integrated framework for activities of other members of the team, to direct them and to assume overall responsibility for the collective efforts. This is manifest in the courses in the technological and professional streams.

### **Objectives:**

1. To impart quality education to students for their productive career in Architecture through formal classroom teaching and practical field exposure.
2. To reinforce intellectual capabilities, simulate sensitivity, unveil creative talents and develop proficiency in professional skills to enable graduates to competently pursue various specializations within the broad spectrum of architecture.
3. To provide opportunities to students to try out the role they will eventually play as responsible members of society and profession

In this context the architect are required to be equipped with appropriate skills, understanding & knowledge and also deep commitment to professed ideals.

Further the programme aims at attaining a high level of excellence in architectural design, seeing it as a core of the programme with supportive inputs of the courses in the stream. The emphasis is on development of decision making of students with the aid of both objective information through IT and subjective attitudes through experiences of practicing architects and faculty.

**Course structure:**

The course structure is divided in two stages; 1<sup>st</sup> stage of 1<sup>st</sup> to 3<sup>rd</sup> year, second stage of 4<sup>th</sup> and final year.

To achieve excellence in architectural design emphasis is given for working as a team and individually.

For correct and instant decision making and as per market demand emphasis is now given to work on computers and IT based information.

## **SYLLABUS BACHELOR OF ARCHITECTURE, M.A.N.I.T, BHOPAL**

**Syllabus of B.Arch is divided strategically in following sub sections:**

### **1 ARCHITECTURE DESIGN**

Architectural Design is seen as the central discipline of the B. Arch program. The-studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses of the Humanities, Technological and Professional streams. The students will endeavor to acquire an understanding of the determinants of the built form such as social imperatives, Environmental concerns and the craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other people involved in the process *of* design viz. the user, the client and the public at large. Derivation of concepts and strategies will then lead to a deliberate response in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience of the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habitat to multiple use urban mega structures.

Each Architectural Design course shall include both minor problem (Time problems or sketch schemes) and major problems (fully developed schemes). A six-hour Design test on a topic unrelated to the major problem, but of a similar level of understanding will also be taken. This is to encourage students to hone their skills and invigorate their creative faculties to come up with quick. Intuitive responses to difficult situations, as happens in the real world minor problems will be allocated to the development of a particular aspect of design, such as structures, services, historicism, economics, management etc as theoretically dealt with in the other concurrent courses. The internal assessment in this subject shall be on basis of the following distribution of marks:

1. 60% of the marks for internal assessment shall be allotted to the major Design problem.
2. 20% marks shall be allotted to minor problems.
3. 20% marks shall be allotted to the Design test.

At every stage, topics concerned with the design problem, shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational Design approach.

The studio program of various design problems shall be set well in advanced of the commencement of the term by the design coordinator in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

The test in Architectural Design shall be of six (6) hours duration in two sessions of three hours each. The intent of this examination is, to test the candidates' ability to address, the problem, with conceptual or thematic solutions in a limited response time, and communicate them effectively. What is sought is the germ or seed of an idea rather than the tree itself. Practical examination will include portfolio submission of student's work of the entire semester assessed by an open Jury followed by Viva-Voce.

## **2 BUILDING CONSTRUCTION**

This course is designed to expose students to the process of building construction, the components of building; and the materials, skills and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a taste for good workmanship and quality.

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

- A lecture course in materials and methods of construction
- A construction studio wherein principles and practices shall be applied to the production of meaningful working details and drawings
- A demonstration series to be conducted either in the construction field in the school premises or at specific venues outside incorporating a firsthand experience of important stages of building construction, to complement the studio work.

## **3. THEORY OF STRUCTURES**

The objective of the course is to develop a feel for structural principles as they relate to building design. In current architectural practice and after the recent natural calamities Structural Engineering is a specialist discipline. The architect therefore should be able to appreciate his consultants' concerns and make an informed choice regarding the most appropriate structural system for his building in the given situation. He should have a reasonable understanding of its operational and economic implications.

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

- lecture series introducing theories and principles,
- studio in which these will be applied in demonstrative exercise to determine preliminary sizes of simple and commonly used structural elements and preparing drawings for the same

Laboratory studies for testing of structural materials and systems models.

## **4. BUILDING SCIENCE & SERVICES**

The objective of the course is to provide a wide exposure to environmental support systems as they apply to human habitat. The subjects cover climate, environmental control and energy consumption, with special emphasis on alternative methods of energy use and its conservation. Integration with the demonstrations Building construction will be sought at various stages.

## **5. BUILDING MANAGEMENT**

This course deals with the entire gamut of activities concerned, with the implementation process of building works subsequent to the preparation of the design and construction drawings as also the process leading up to the definition of a design brief. The sequence shall begin with the framing of work specifications and progressively lead to concepts of scheduling, construction management and project planning.

## **6. HISTORY OF ARCHITECTURE**

The course is designed to arouse students curiosity and sharpen his powers of observation. The timelessness of good architecture shall be emphasized. Students shall undertake a chronological study of world architecture with emphasis on the Indian sub-continent and comparison of the different stages of developments in India and other parts of the world. The architectural study is to be linked with the social developments of civilizations, geographical factors, materials and structures etc with specific reference to the Asian exocrine.

## **7. ARCHITECTURAL DRAWING.**

The course aims at developing the requisite level of proficiency in drawing which is seen as a primary communication tool in the practice of architecture just like language. Students shall be familiarized with a range of techniques of expression beginning with manual drawing and going up to the latest electronic media.

## **8. COMPUTER & SOFTWARE LAB.**

## **9. WORKSHOP PRACTICE**

This course is aimed at imparting basic skills necessary for preparing architectural model and art project while in calculation value for good craftsmanship. To be conducted at the workshop on campus under the supervision the workshop coordinator.

## **10. ARCHITECTURAL APPRECIATION**

## **11. THEORY OF SETTLEMENT PLANNING**

The course aims at familiarizing the students with the social, economic and organizational perspectives at national regional and local levels as a context in which his architectural product is likely to be placed. This will also provide the necessary background for making informed choices for further studies in related specialized disciplines. Special reference will be made to the problems of urbanization in India and global environmental concerns.

## **12. DESIGN APPLICATIONS**

## **13. TRAINING**

## **14. THESIS PROJECT**

## **15. GENERAL PROFICIENCY**

## FIRST SEMESTER

SUBJECT CODE :	AR 101& AR 141
SUBJECT NAME:	<b>Architecture Design-I</b>

- **Parameters of design**, Anthropometrics, human activity and the use of spaces  
Interrelationship of architectural space to form, structure, materials and to nature as a contextual setting.
- Problems related to the understanding of the elements of architectural design, concepts of space and form and their perception.
- Study of a given space through elementary measured drawings, sketching and Photography. Synthesis of observations in design of a basic shelter, an architectural form with a specific function.
- Study Tour- A study tour shall be conducted in the semester break preceding the II Semester for measured drawing of a chosen structure and the document shall be assessed as part of the internal assessment of the 201A.

SUBJECT CODE:	AR 102 & AR 142
SUBJECT NAME:	<b>Building Material&amp; Construction-I</b>

- Introduction to Building components and materials.
- Study of properties of constituent components, manufacturing process, quality test of bricks and stones
- Study of properties of constituent components, manufacturing process, quality tests of Cement, Lime, Sand, Aggregates, Concrete and Mortar
- Superstructure
- Masonry
  - Bricks: type of bonds, end and functions, attached & detached piers, jointing and pointing.
  - Stone: type of walling and joints, facing of bricks over stone work, lintels, coping.
- Spanning component : Arches, type of Arches in brick and stone, centering for arches
- Plinth and foundation
  - Timbering to Trenches
  - Brick foundation for wall and piers
  - Stone foundation for wall and piers
  - Plinth filling
  - D.P.C

Detail of entrance showing steps and piers

Note: sessionals will be in the form of reports, drawings and models. There shall be regular visits to construction sites.

SUBJECT CODE :	AR 103
SUBJECT NAME:	<b>Structures-I</b>

- Concurrent and non-concurrent coplanar forces, moment, conditions of equilibrium.
- Statically determinant plane frames, determination of forces in members of pin-jointed frames by analytical and graphical methods, wind forces on frames.
- Stress, strain, hook's law, lateral strain, Poisson's ratio, young's modulus, modulus of rigidity, bulk modulus and their relationships.
- Shear force and bending moment diagrams for strained beams subjected to concentrated and distributed loadings
- Centroid and moment of inertia of plain areas, parallel axis theorem, moment of inertia, principal axis
- Bending stresses and deflection in simply supported beams and cantilever beams.
- Combined bending and direct strain, eccentric loading, stability of retaining walls and dams, fixed and continuous beams, theorem of three moment.
- Different types of welded joints, eccentric loading on welded joints, efficiency of joints, eccentric loading on riveted joints. Introduction to various structural forms, viz vaults, domes, shells, folded plates with an understanding through force diagrams. Advantages of folded plate roof, domes, shells etc.

Note: The sessionals shall be in form of reports, drawings and models of structures with the strut membrane.

SUBJECT CODE :	AR 104
SUBJECT NAME:	<b>Architectural Drawing-I</b>

- (a) Induction to drafting procedure, graphics codes, symbol and architecture letterings.
- (b) Construction of architectural scales and application to real object and drawings. (Plain scale, diagonal scale, isometric scale).
- (a) Construction of basic and complex geometrical shapes.
- (b) Orthographic projection of simple regular two dimension shapes.
- Orthographic projections of simple, complex solids and hollow object and sections.
- Study of interpenetration of solids and development of surfaces.
- Isometric axonometric and oblique projections.

**Note:** this subject is intended to develop the skill of conceiving and communicating the ideas through the graphic ideas. Emphasis is given more on instrumental drawings.

The sessional shall be in form of drawings and sketches.-

SUBJECT CODE :	AR 105
SUBJECT NAME:	<b>History of Architecture-I</b>

- Art & culture of pre historic man, Harrapan civilization, Egypt, Mesopotamia, Greece, Roman and pre Columbian American cultures.

- Art & culture of Ancient India (Vedic, Buddhist, Jain and Hindu). Art and Architecture of Rajput and Mughals, spread of Indian culture sub continent either China, Japan, Indonesia, Korea etc.
- Impact of Christianity on Europe- (Byzantine, Gothic etc.), development and spread of Islam and its influence on art & culture, renaissance, French and Russian revolution and their influence on art.
- Folk and tribal art traditions, study of art from Africa, Australia etc.
- Industrial Revolution and its influence on art and culture, modern art movement in India and West.

**NOTE:** Sessionals shall be done in the form of small exercise, written assignments, sketches and visits of the relevant sites.

SUBJECT CODE :	AR 143
SUBJECT NAME:	<b>Art &amp; Graphics-I (Basic Design)</b>

- Composition- Basic Design: Chaos to order scale, proportion, proximity, surface tension, balance and rhythm co-ordination skills (eye-mind-hand/perceptual) drawing and painting: drawing with both the hands-lines and geometrical shapes, plants and man made objects. Creative skills Media exploration, ideograms and art lettering.
- Basic Design- harmony character, negative and positive space, form-space inter relation, juxtaposition, and a contrast. Co-ordination skills: (Eye-mind-hand/perceptual) drawing and painting: indoor and outdoor sketching, life drawing (Rapid sketching *of* man in action/ motion) creative skills: Sculpture or optics or kinetics.

SUBJECT CODE :	AR 144
SUBJECT NAME:	<b>Computer Application-I</b>

- Introduction to computer, Hardware and software components. computer terminology.
- Introduction to windows and its applications. Introduction to Microsoft. office. word. excel. Introduction to Internet, using e-mail.

**NOTE:** Sessional work should include assignments incorporating the use of AutoCAD, in form of drawings.

SUBJECT CODE :	AR 145
SUBJECT NAME:	<b>Workshop-I (Shop Trade)</b>

- **Carpentry**- Introduction to the carpentry tools, processes, joints and wood working machines.

Preparation of various carpentry joints, fixing of plywood, blackboards, commercial boards etc. and their application in furniture.

- **Foundry** –Introduction, type of patterns, pattern making, preparation of moulds and moulding equipment details
- **Fabrication** –Introduction to welding equipments, processes and its applications.
- **Painting and polishing**- Classification of paints, varnishes ingredients of paints , painting methods-brush, spray , hot spray etc.

## SECOND SEMESTER

SUBJECT CODE:	AR 151 & AR 191
SUBJECT NAME:	<b>Architecture Design-II</b>

- **Design of a simple building** in the immediate or observable environment. Exercise relating personal experiences to behavioral needs and translating them into architectural program requirements.
- Systematic introduction to issues related with the design of human habitat, its components and space standards.

SUBJECT CODE:	AR 152 & AR 192
SUBJECT NAME:	<b>Building Material&amp; Construction -II</b>

- Study of properties of timber, seasoning process, quality tests.
- Study of properties of constituent components, manufacturing process, quality test of ferrous and non-ferrous metals, glass
- Timber doors and windows:  
Doors: ledged, braced and battened, panel, glazed, flush doors  
Windows: Fixed, side and top hung, pivoted, louvered, ventilators and fanlights
- Metal (pressed steel and z-section) doors and windows:  
Doors: with and without fanlight  
Windows: Fixed, side and top hung, pivoted, louvered, ventilators and fanlights
- Miscellaneous: Jamb casing, skirting, architrave, pelmet, mouldings.

Note: sessionals will be in the form of reports, drawings and models. There shall be regular visits to construction sites.

SUBJECT CODE:	AR 153
SUBJECT NAME:	<b>Structures-II</b>

- Introduction to Structures.:Understanding of design of timber with various components, their functions and inter relationships through force diagram
- Types of beams, columns and foundations in timber, including joints and connections.
- Types of roof trusses in timber with joints and connections
- Floors, staircases and balconies in timber, their joints and connections.
- Design in timber: design of simple trusses, beams and columns in timber
- Understanding of design in steel with various components, their functions and inter relationships

Note: The sessionals shall be in form of reports, drawings and models of structures

SUBJECT CODE:	AR 154
SUBJECT NAME:	<b>Architectural Drawing-II</b>

- Architectural presentation techniques, isometric and oblique three dimensional views, Conical projections, perspectives, one point and two point

### Sciography

- Introduction of basic principles of sciography and it's application to the field of Architecture.
- Sciography of two dimensional objects in plan and elevation.
- Sciography of three dimensional objects in plan and elevation and views. (isometric, Axonometric and Perspective)
- Sciography of simple building elements.

### Perspective

- Introduction to basic terms, principles, types and techniques of perspective drawing: realistic expression of ideas.
- Two point perspective of simple objects.( drafted and free hand)presentation of interior and exterior views in one point perspective .( drafted and free hand).

**NOTE:** The sessionals will be in the form of Drawings and sketches.

SUBJECT CODE:	AR 155
SUBJECT NAME:	<b>History of Architecture-II</b>

- Early Indian Architecture upto 3<sup>rd</sup> century A.D..
- Study of Harrapan architecture and Planning,
- Buddhist Architecture in India
- Vastu Purush Mandala and other canons of hindu Architecture
- 3<sup>rd</sup> to 11<sup>th</sup> century Architecture. A D.: Gupta, Dravidian and Rajput Architecture .
- 11<sup>th</sup> to 17<sup>th</sup> century A.D.: Early Indo-Islamic and Mughal Architecture
- Medieval Hindu and Jain Architecture, Rajput palaces
- 18<sup>th</sup> century A.D. and beyond: Post Islamic and Colonial Architecture in India.
- Oriental and pre Colombian American Architecture
- Introduction to Chinese and Japanese Architecture
- Mayan and Inca Architecture.

**NOTE:** The study shall be through selected samples of buildings under various historic civilizations in chronological order. Sessionals shall be submitted in the form of sketches, notes, audio-visual and reports of visits to historical buildings etc. as per programme scheduled by the department per session.

SUBJECT CODE:	AR 193
SUBJECT NAME:	<b>Art &amp; Graphics-II</b>

- Graphic representation of ideas, concepts and design principles (two dimensional and three dimensional composition) Co-ordination skills (eye-mind-hand/perceptual) drawing ,and painting, indoor and out door sketching in colour pencil pestles, ink, poster colour and water colour-creative skills -three dimensional perception using liquid transparent, reflective, opaque, flexible and hard materials.
- Structure form-space, Relation, animated graphics-frame/space relation. Co-ordination skills eye-mind-hand perceptual, photography.

SUBJECT CODE:	AR 194
SUBJECT NAME:	<b>Computer Application-II</b>

Introduction to basic graphical softwares like Photoshop, Coreldraw, powerpoint, etc.

SUBJECT CODE:	AR 195
SUBJECT NAME:	<b>Workshop -II (Model Making)</b>

- Use of clay, Plaster of Paris, metal scrap, jute fiber etc. for study of forms.
- Development of surfaces of simple and composite forms using paper, thermocole, wire,
- Wax, plaster of Paris, plaster, acrylic, sheets and similar materials.
- Introduction to metallic sections, joinery tools joinery processes and working with them
- Models in appropriate materials for understanding joinery in wooden construction and bonds in masonry based on the programme of building, construction.

SUBJECT CODE:	AR 196
SUBJECT NAME:	<b>General Proficiency</b>

General Proficiency is meant for developing co-curricular activities in individual student. By this they are encouraged to participate in ASA / NASA activities, NSS, NCC, Debates, Dramas, Sports and Games etc. at Dept./College/ University level.

### THIRD SEMESTER

SUBJECT CODE:	AR 201& AR 242
SUBJECT NAME:	<b>Building Material&amp; Construction -III</b>

- Techniques of preserving and finishing of timber
- Study of materials for roofing ( manglore tile, slate, corrugated asbestos sheet etc.)
- Timber floor: single, double and triple
- Timber roofs: flat, lean-to –type, couple, close couple
- Timber trussed roof, king post, queen post, built in truss
- Timber canopies, staircase and balcony
- Shoring

Note: sessionals will be in the form of reports, drawings and models. There shall be regular visits to construction sites.

**Study tour** shall-be conducted in the semester break immediately preceding the semester IV. The report to be submitted by the student shall be assessed as part of the Internal Assessment of 401A.

SUBJECT CODE:	AR 202
SUBJECT NAME:	<b>Structures-III</b>

- Introduction to concepts of R.C.C. structure and structural components like tie, stirrups, beams, arch, vault, dome etc. Type of structures and structural framing, rigid jointed, pin jointed.
- Moment of resistance of homogenous beams of rectangular cross section- under / over and balanced sections for various grades of concrete and types of steel , design on doubly reinforced bams and design of cantilevers
- Design of shear, development length and anchor length. Design of cantilevered slabs spanning in one direction, cantilever.
- Colmns axially loaded, short and long columns, excentive loaded.
- Isolated column footings.

Note: Sessional work should include design and analysis of simple elements as stated above along with the drawings.

SUBJECT CODE:	AR 203
SUBJECT NAME:	<b>History of Architecture-III</b>

- This course is studied in order to see how builders in the past solved their structural, functional, and aesthetic problems. This survey of history gives the students Architecture chance to study the structural basis of great styles, methods of admitting daylight, decoration. Importance is also attached to the sociological background I.e. political, religious, technical and philosophical ideas which lie behind all buildings.
- This will be studied with the help of selected examples of buildings of various historical civilizations in Europe and the west in chronological order.

- Egyptian, west Asiatic and Greco Roman.
- Early Christian Architecture: (Architecture) Byzantine (b) Gothic (c) Early medieval
- Renaissance, Romanesque, Baroque, and Rococo.
- Modern and contemporary Architecture
- Comparative study of Indian and world Architecture

**NOTE:** Sessional work will be submitted in the form of sketches. Notes, audio visuals and report of site visits to some historical buildings etc as per programme scheduled by the department per session.

SUBJECT CODE:	AR 204
SUBJECT NAME:	<b>Environmental Science ( Climatology)</b>

- a) Basics of Ecology and Environment: Study of various natural resources like forest, Water bodies etc.
- b) Global environmental issues such as global warming, ozone depletion, green house effect, etc
- Elements and types of climate, including the practical measurements of climatic parameters, Built environment, conditions, impact and issues of climate balance in traditional and contemporary built environment.
- Human comfort (body & thermal), thermal comfort factors and indices .
- Principles of thermal design, structural and ventilation controls and their application in building.
- Illumination and day lighting. Use of shading angles for lighting and radiation techniques and their application in buildings.

SUBJECT CODE:	AR 241
SUBJECT NAME:	<b>Architecture Design-III</b>

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

SUBJECT CODE:	AR 243
SUBJECT NAME:	<b>Architectural Graphics – III</b>

- Introduction to various presentation techniques and mediums. Methods of rendering and presentation of various elements, textures, designing formats, selection of lettering styles etc.
- Rendering two dimensional building drawing i.e. plans, site plans, elevations etc. with shade and shadows
- Techniques of drawing and rendering one point, two point, and three point perspectives and interior views for buildings with shade and shadows

- Use of photography, screen printing and model making for architectural presentation

SUBJECT CODE:	AR 244
SUBJECT NAME:	<b>Computer Drafting</b>

- Introduction to computer aided drafting fundamentals, CAD software .
- Drafting with CAD software, fundamentals and procedures of drafting geometric shapes in two dimensions, including lettering, hatching, dimensioning and filling.
- Fundamentals and procedures of editing Architecture drawing i.e. modifying geometry of the objects, changing properties of the objects, changing views and work planes etc.
- Fundamentals of drafting and editing complex geometrical shapes (combination of two or more geometrical shapes) in two dimensions.
- Fundamentals of drafting and editing of 3D objects (planes and solids).

Note : Sessional work includes assignments incorporating the use of CAD in form of drawings. Submission in both soft & hard copies.

## FOURTH SEMESTER

SUBJECT CODE:	AR 251 & AR 291
SUBJECT NAME:	<b>Architecture Design-IV</b>

- **Design of a group of residential and ancillary** buildings set in the context studied in the study tour- Introduction to concepts of shared open space, clustering, community, aggregation and economy. Use of Computers to prepare a set of presentation drawings.

SUBJECT CODE:	AR 252 & AR 292
SUBJECT NAME:	<b>Building material&amp; Construction -IV</b>

- Study of properties of R.C.C. and stone
- R.C.C. slab beams, lintels chajjas including cantilevers
- R.C.C. columns, footing, staircase canopies
- Precast components i.e. masonry blocks, hollow blocks, jallis, shelving units, slabs and prestressed units
- Miscellaneous – stone slab flooring, stone balcony, stairs jack arch

Note: sessionals will be in the form of reports, drawings and models. There shall be regular visits to construction sites.

SUBJECT CODE:	AR 253
SUBJECT NAME:	<b>Structures-IV</b>

- T and L beams and other sections.
- Slabs spanning in two directions, flat slab.
- Staircases of different types.
- Combined footings
- Introduction of typical structures like – Coffer slabs, Folded plates, Domes, Vaults and shells.

Note: Sessional work shall include designing and analysis of simple elements as stated.

SUBJECT CODE :	AR 254
SUBJECT NAME:	<b>Theory of Design</b>

- Studies of Folk and crafts, indigenous Architectural studies, Influence of tradition, culture and socio- economic developments on art and Architecture. Introduction to enquires initiated by various western and Indian Philosophers.
- Understanding of determinants of physical form such as concepts of space, structure, organization, symbolism, mass, surface, scale, order, proportion, rhythm, datum, axis, etc. In relation to place time and society with due consideration for perceptual qualities as affected by colours, light conditions, vision angles etc.
- Communication and interpretations in Architecture. The eloquence and style in Architecture, their judgment and design.

- Developments in world Architecture, environmental design and technology with reference to trends setting work of Architects, designers, ecologists, engineers etc.
- Design parameters, principles, processes, methods and programme formulation.
- Design matrices and system integration. Process of Design synthesis.

NOTE: The sessionals will be in the form of drawings, technical report writing and presented in the departmental seminars along with the audio visuals which will be based on Building assigned or identified during site visits.

SUBJECT CODE:	AR 255
SUBJECT NAME:	<b>Surveying and Levelling</b>

- Aspects of surveying instruments and the study if their use
- Scales: Plain scales, Diagonal scales, comparative scale, shrunk scale, vernier scale
- Study ,test, degree of accuracy, use and care of survey instruments and accessories
- Chain Survey
- Compass survey
- Plane table method and surveying with theodolite
- Leveling and contouring

SUBJECT CODE:	AR 261- AR 262
SUBJECT NAME:	<b>Elective-I</b>

SUBJECT CODE:	AR 261
SUBJECT NAME:	<b>Traditional and Contemporary Indian Architecture</b>

This subject intends to develop an understanding in Contemporary Architecture in India.

- Colonial Architecture in India, emerging trends, works of Le Corbusier and Louis Kahn in India and their influence of Indian architecture.
- Meaning and element of vernacular architecture and related terms
- Chronological development of vernacular architecture in India
- Contemporary Indian architects: A.P.Kanvinde, Charles Correa, Anant Raje, Raj Rewal and others, their philosophies and examples.
- Postmodern architecture in India, examples.

SUBJECT CODE:	AR 262
SUBJECT NAME:	<b>Aesthetic Art &amp; Appreciation</b>

- Introduction of aesthetic relevant to architecture & study of influence of culture and socio economic development of architecture & art through history
- Study of various masterpiece of art and architecture through building sculpture painting etc.
- Development in environment design and technology with reference to world architecture through study of building materials

- Study to evolve the concept and framework for understanding architecture. It should lead to vocabulary and ancillary to discussing architecture ideas
- Discussion on Architecture and social function philosophical basis of architecture. Illustrate through example through both traditional and contemporary buildings
- Identifying the issue regarding traditional, ethnic, vernacular and social aspect for explaining Indian identity.

SUBJECT CODE:	AR 293
SUBJECT NAME:	<b>Communication Skills</b>

- Language and communication:  
Spoken English and grammar. Technical composition (e.g., reports, papers essays) writing
- Public Speaking  
Making sequences and framework for presentation, importance of posture, gesture, pronunciation, tone etc. on Presentation quality
- Architectural communications  
Presenting simple, complex architectural concepts and proposal with the help of text, drawings, transparencies, slides, video, photographs, models etc
- Computer aided presentation  
Preparing simple and interactive slide shows and presentations using computer software  
Article review, presentations and seminars
- Individual and group work on selected theme.

SUBJECT CODE:	AR 294
SUBJECT NAME:	<b>General Proficiency</b>

General Proficiency is meant for developing co-curricular activities in individual student. By this they are encouraged to participate in ASA / NASA activities, NSS, NCC, Debates, Dramas, Sports and Games etc. at Dept./College/ University level.

## FIFTH SEMESTER

SUBJECT CODE:	AR 301 & AR 342
SUBJECT NAME:	<b>Building Material&amp; Construction -V</b>

- Building materials  
Study of aluminum, steel plastic etc.
- Building construction  
Study of Aluminum sections – doors, windows , grills etc.  
Doors-sliding- folding, revolving, revolving, swing, self closing etc.
- Form work – steel and timber
- Trusses – north light, monitor, tubular, built in trusses, patent glazing etc.

Note: sessionals will be in the form of reports, drawings and scaled models. There shall be regular visits to construction sites.

SUBJECT CODE:	AR 302
SUBJECT NAME:	<b>Structures-V</b>

- Limit state analysis design of RCC beams, slabs and columns.
- Design of water tanks, circular tanks with flexible and rigid bases, rectangular and square tanks resting on ground.
- Analysis of continuous beams and rigid jointed plans frames by moment distribution.
- Approximate analysis pre-stressed concrete.
- Design projects in timber with stress on joint designing for door and window frames and trusses.

Note: Sessional work shall include designing and analysis of simple elements as stated above with drawings.

SUBJECT CODE:	AR 303
SUBJECT NAME:	<b>Estimation and Costing</b>

- Introduction to quantity surveying, method of preparing estimates, Data required for framing estimate and type of estimates.
- Mensuration, standard mode of measurements, schedule of rates, Administrative approval, Technical sanction, Competent authority, Issue rate, Interest, Indent of work, etc.
- Method and procedure of working out abstracts, and bills. Examples and exercise for working out quantities for items from excavation to the final finishing.
- Rate analysis, cost of material and labour for various works, detailed rate analysis of important items of construction work. Measurement of work for interim and final certificate of payment.
- Detailed estimate of project given in the case and use of computers for the same.

**NOTE:** Sessional shall be submitted in the form of drawings and estimate report.

SUBJECT CODE:	AR 304
SUBJECT NAME:	<b>Water Supply and Sanitation</b>

- Sanitation: Basic principles of sanitation;
  - Modern plumbing systems- Urban, semi-urban, rural (CBRI, Sulabh techniques etc.)
  - Standards in Sanitation
  - Sanitary fixtures and fittings (including traps etc.), Placement and functions.
  - Types of sanitary pipes, joints and laying.
- Internal and external drainage:
  - Stage of disposal of domestic effluent from fixtures to sewer- line, types of sanitary systems for a single residence, multistoried buildings and cluster houses.
  - Ducts for sanitary purpose.
  - Inspection chambers, septic tank, soak pits, etc.
  - Rain water disposal
- Municipal level sanitation:
  - Disposal of city effluent: Public sewer lines, manholes etc.
  - Treatment of city effluent and recycling of waste water.
  - Study of refuse chutes in multi-storied buildings.
  - Collection of refuse and recycling of city solid waste
- Water Supply: Sources of water, treatment for domestic use, study of quality of potable water
  - Standards in water supply.
  - Water Supply, fittings, types of water supply pipes and joints.
- Water Supply distribution networks at municipal and colony level.
  - Water Supply, storage and plumbing for residences (including multistoried buildings)

**NOTE:** For standards IS codes, NBC, BIS special publications etc. are to be referred . Sessionals should also include detailed sanitation, water supply and rain water disposal proposals

SUBJECT CODE:	AR 341
SUBJECT NAME:	<b>Architecture Design-V</b>

- **Study of an urban environment in use.** Urban activities, services and construction methods, social utilization, growth and change shall be the focus of the study centered in a medium sized town poised for major changes in the near future.
- **Design of a multi-functional public building** in the urban setting. Introduction to urban development controls, codes and bye-laws. Exercise in articulation and manipulation of programmed needs criticism and evaluation of alternative concepts, decision-making process. Use of computers as an aid to Design.
- **Study** may be conducted in the semester break immediately preceding the semester VI. The report to be submitted by the student shall be assessed as part of the Internal Assessment of 601A.

SUBJECT CODE:	AR 343
SUBJECT NAME:	<b>Specifications of Works</b>

- Art of writing specifications of material along with emphasis on the quality of the materials and proper sequence of construction works.
- Specification of materials
- Importance of specification in the building activities, method of writing correct order and sequence of use of materials. Use of Indian Standard specification and P.W.D specifications.
- Primary consideration for selection of material for various applications.
- Specification of basic materials required in residential buildings , such as bricks, stone, concrete, R.C.C, plastering and various finishes, timber work, flooring materials, glazing, metals such as steel, brass, aluminium, etc.
- Specification for materials used in roofing and roof such as tiles, A.C sheets, G.I and aluminium sheets, etc. Specifications for fixtures and fastenings, specification of works.
- Specification of works for a residential building- load-bearing type and/ or R.C.C framed type , construction of steel and R.C.C structure, ceiling and partition , paneling, insulation and water- proofing, specification for services such as drainage, water-supply, electrical installation.
- Specification for demolition work, temporary construction like sheds, exhibition stalls, gateways, etc. Study of proprietary building materials along with manufactures specification, trade name of such materials.

**NOTE** : Sessional shall be done in the form of notes, home assignments, tests on above topics.

SUBJECT CODE:	AR 344
SUBJECT NAME:	<b>Tour and Building Apparasal</b>

An educational tour to the places of architectural interest / building appraisal shall be organized as per the programme approved by the department. The documentation shall be done in the form of photographs / slides and sketches presented in form of a seminar and written report immediately after the tour / building appraisal.

## SIXTH SEMESTER

SUBJECT CODE:	AR 351 & AR 391
SUBJECT NAME:	<b>Architecture Design-VI</b>

- **Design of closed environments**, with emphasis on the articulation of interior spaces detailing and finishing materials, textures. Colour and light, acoustics and air-conditioning, Exterior spaces formed by buildings, Elevations, Fenestration and build form as a moderator of urban space, site planning and landscaping. The problems may be in the context studied during study tour.

SUBJECT CODE:	AR 352
SUBJECT NAME:	<b>Structures-VI</b>

- I.S. Structural section, study of steel tables, steel joints and connections.
- Tension members: single and built up sections, beams and built up, plate girders.
- Compression members: single and built up sections.
- Design of column bases (slab base and gusseted base) and grillage foundation.
- Design of roof trusses includes design using tubular sections.

SUBJECT CODE:	AR 353
SUBJECT NAME:	<b>Energy and Buildings</b>

This course is intended to understand the implication of energy in building design:

- Type of energy , energy sources, energy requirements in buildings.
- Method of energy conservation through passive cooling, heating and ventilation systems.
- Design of low energy lighting systems in buildings.
- Work examples of various Architects in this area through history.
- Implication of above in design of energy conscious buildings.

Note: Sessionals shall be done in the form of technical reports and drawing forms.

SUBJECT CODE:	AR 354
SUBJECT NAME:	<b>Electrical Services</b>

- This course is intended to integrate the knowledge of electrical services in buildings.
- Introduction to electrical services, its internal and external components, their functions and principles of writing.
- Assessment of electricity requirements in buildings , and schematic diagrams for it's distribution.
- Fittings and accessories used in electrical installations including water- proof and sparkproof installations.
- Internal and external illumination – direct, indirect, and semi –direct writing, reflectors , flood lighting and study of colour index.
- Communication networking and electrical in special buildings like exhibitions , cinemas, theatres and stadium, etc.

**NOTE:** Sessional shall be done in the form of reports and project drawings.

SUBJECT CODE:	AR 355
SUBJECT NAME:	<b>Mechanical Services</b>

This course is intended to integrate the knowledge of mechanical services in buildings.

- Introduction of mechanical services, it's internal and external components, their functions and principles of air- conditioning.
- Air- conditioning methods , equipments and ducting: their space requirements and placements.
- L.P.G / Bio-gas installations, their location and layouts in residential and non-residential buildings.
- Vertical transportation ; lifts, moving walkways and escalators, their layouts.
- Fire escape staircases and fire fighting equipments/ alarms- their spatial requirements and locations.

**NOTE:** Sessional shall be done in the form of reports and project drawings.

SUBJECT CODE:	AR 392
SUBJECT NAME:	<b>Working Drawing</b>

- Introduction to need and relevance of Working Drawing set and municipal drawings and their comparison to presentation drawing. Preparation of corporation drawing: Check list as a guide for information in a municipal drawing. Introduction to various components and their precise function in a set of working drawing. Preparation of check list as guide for list of working drawing. Method of representing various contents and specific information in working drawing. Preparation of details for various building units.
- Time problem for specified building units (manually or on computer).

Note: sessional shall be presented in form of full set of presentation, municipal and working drawings

SUBJECT CODE:	AR 393
SUBJECT NAME:	<b>Building Bye - Laws</b>

- Introduction to Building bye laws and regulations, their need and relevance.
- Study of structure of Building bye laws, national building codes, bhumi vikas adhiniyam etc..
- General building requirements.
- Building bye laws framed by local bodies such as corporation, municipal board's and panchayats.
- Procedural method for use of bye laws.

**NOTE:** Sessional shall be in the form of case studies and reports.

SUBJECT CODE:	AR 394
SUBJECT NAME:	<b>General Proficiency</b>

General Proficiency is meant for developing co-curricular activities in individual student. By this they are encouraged to participate in ASA / NASA activities, NSS, NCC, Debates, Dramas, Sports and Games etc. at Dept./College/ University level.

## SEVENTH SEMESTER

SUBJECT CODE:	AR 401
SUBJECT NAME:	<b>Principles of Human Settlements</b>

The course aims at introducing the history of development of settlement planning and also gives emphasis on tracing broad principles of settlement design.

- Man's role in designing and developing settlements. Various factors influencing development of settlements.
- Introduction to settlement planning followed during various river valley civilizations.
- General information of various settlement planning principles and examples from ancient India and study of the principles described in the ancient Indian text. Planning in the pre independent India i.e. contribution of mughal and British .
- Settlement planning principles developed and contributed by Egyptians, greeks and roman etc. study of city planning during medieval and renaissance period.
- Study of selected historical examples of villages, towns , forts,palaces gardens, public places etc.

Note: the sessionals will be in the form of report, seminars and presentations.

SUBJECT CODE:	AR 402
SUBJECT NAME:	<b>Acoustics and Lighting</b>

- Introduction to acoustics and general principles of sound , its origin, propagation and sensation.
- Behavior of sound with respect to various surfaces and in an enclosed space. Sound absorbing materials, single and in combination for various frequencies of sound. (Panel and porous materials and cavity resonators)
- Reverberation time and sound levels and their calculations.
- Constructional and planning measures for good acoustical design.
- Acoustical defects and remedies. Sound application systems. Case studies for the above aspects.
- Structure borne and air borne noise, their effects and control.

**NOTE;** Sessionals shall be based on practical, case studies and design proposals.

SUBJECT CODE:	AR 403
SUBJECT NAME:	<b>Landscape Architecture</b>

This course intends to build an understanding of Landscape Architecture to compliment Architectural Design.

- Introduction of landscape architecture, its scope and role in architecture & planning
- The landscape elements, major revolution in landscape architecture, study of works of pioneers of various revolutions
- Major garden styles: Hindu, Buddhist, Mughal, Japanese, Italian etc.
- Their design philosophy, structure components and planting design
- Landscape design process
- Preparation of technical data sheets, study of plant material and preparation and herbarium

- Landforms: modification, alteration accentuation, grading etc.
- Study of work of major landscape architects
- Design exercise that covers all the above.

Note: the sessional shall be in form of reports, drawings, models and examples.

SUBJECT CODE:	AR 404
SUBJECT NAME:	<b>Building Economics and Sociology</b>

- Economics
  - Broad features of Indian Economy, Economic significance of building, features of development plans, Money and banking functions, factors of production, macro economic theory, demand and supply, Indifference curve analysis, Equilibrium of firm, laws of returns, macro economic concepts and system, theory of growth and models.
  - Land economics: Land as limited resource, demand for land acquisition. Economics of regional Development: Economic development in relation to the regional planning, regional economic theories, problems and prospects of balanced regional development.
  - Building Economics: Building efficiency and cost reduction through planning, design of building components, use of new materials and innovative construction techniques etc., rent and other building acts, economics of high rise buildings etc.
- Sociology
  - Introduction – man his social and physical environment, social group and social structure , utility and relation with architecture.  
Indian communities – rural and urban communities their social structures and problems, cultural heritage , rituals and community gathering etc.  
Urbanisation – trend and characteristics, dynamics of urban growth and social change, urban attitude, value and behaviour, review of planning commission reports.
  - Social aspect of physical environment, its implications and limitations in buildings, neighbourhood planning, slum improvements and city fabric. Significance of public opinion and participation.  
Case study: sociological study of communities with their habitat and built environment.

SUBJECT CODE:	AR 441
SUBJECT NAME:	<b>Architecture Design-VII</b>

- **Design of high density, large-scale housing,** Socio-economic determinants, legislative and economic constraints and technological alternatives shall be studied in detail. Exercises in simulation and conceptual modeling shall be conducted. Application of concepts of community participation, phasing, financing and construction planning Computer aided Project documentation including basic working drawings, preliminary estimates, outline specifications and scheduling aimed at comprehensive understanding of the implementation process.

SUBJECT CODE :	AR 442
SUBJECT NAME:	<b>Advanced Building Construction</b>

- Curtain wall- steel, aluminium
- Advance foundation types- grillage, pile raft etc.
- Exterior finishes and treatments
- Water proofing, sound proofing, fire proofing, thermal insulation etc.
- Expansion joints
- Shop fronts, show windows etc,
- Advance construction system – waffle slab, reinforced brick construction, glass block construction etc.

Note: sessionals will be in the form of reports, drawings and scaled models. There shall be regular visits to construction sites.

SUBJECT CODE:	AR 443
SUBJECT NAME:	<b>Structure Design</b>

The course intends to develop the understanding of structural design buildings.

- RCC Buildings
- Steel buildings
- Composite structures.

Note: The course shall include site visits and short seminars and the sessionals shall be in the form of calculations, drawings and models.

## EIGHTH SEMESTER

SUBJECT CODE:	AR 451 & AR 492
SUBJECT NAME:	<b>Modern Building System</b>

- (a) Domes, shells, vaults, arches.  
(b) Large span roofing for special areas like Gymnasium, airport, stadium, etc.
- (a) Space frames, Geodesic domes, folded plates etc.  
(b) Tensile structures, pneumatic structures.
- Modern construction systems and techniques adopted like lift-slab, slip form, etc.
- (a) Principles applied to the design of high-rise buildings from structural system.  
(b) Structural systems adopted for high-rise buildings like rigid frame system, shear wall system, tubular system, etc.
- (a) Working and structural consideration for disaster-prone areas, coastal areas, structures, subterranean structures etc.  
(b) Earthquake-resistant structures, seismic performance criteria and performance of structure

SUBJECT CODE:	AR 452
SUBJECT NAME:	<b>Town Planning</b>

- Introduction to Town Planning, need, basic term and definition. Development and impact of Industrial revolution on settlement planning; Philosophies of eminent planners and their work.
- Introduction to survey of planning, planning acts and bye laws. New towns and introduction to planning process, zoning and document.

Note: sessional shall be in form of design of small town planning schemes, site layout in urban areas and villages schemes.

SUBJECT CODE:	AR 453
SUBJECT NAME:	<b>Project Management</b>

- Introduction, need and importance of management. Principles, theories, concepts, approaches, softwares in management, Role of manager.
- Project Management Acquiring projects. Scope of work and liasoning, Feasibility studies, project proposal and reports, financial facilities.
- Construction Management planning, monitoring and controlling. Planning techniques, Bar chart, CPM, PERT Selecting appropriate specification, manpower, technology, etc.
- Financial Management, Value of work and cash flow costing and life cycle costing, Time, Value of money.
- Organization and staffing purpose of organizing, Human resources management. Motivation and productivity.

**NOTE:** This subject is to understand through case-studies of building projects. Sessional should be in the form of reports, charts and jury reviews.

SUBJECT CODE:	AR 461- AR 468
SUBJECT NAME:	<b>Elective II</b>

SUBJECT CODE:	AR 461
SUBJECT NAME:	<b>CAAD and Visualization</b>

- This course intends to develop proficiency in CAAD and visualization
- Meaning of CAAD and importance in Architecture, software used in CAAD, introduction to visualization
- Preparation of drawing for visualization, understanding concepts of #D drawings
- Introduction to the modeling techniques using NURBS and surfaces
- Rendering, its concepts, material application, setting up lights, background, importing images
- Generating photo-realistic images and creation of slide of slide shows

SUBJECT CODE:	AR 462
SUBJECT NAME:	<b>Valuation and Arbitration</b>

The objective of this subject is to equip the students with sufficient knowledge of valuation and arbitration

- Valuation(Part A)
  - Importance of valuation for rental, income/wealth tax, selling/ purchasing. Values, sinking fund, capitalized cost year purchase, methods of depreciation and valuation tables
  - Mortgage/ lease, fixation of rent of private/ Govt., residential, commercial buildings etc.
  - Different methods of valuation. Valuation reports, duties and responsibilities as registered government valuer
- Arbitration(Part B)
  - Role and qualities of an arbitrator. Arbitration act-1940 with amendment till date
  - Arbitration with reference to competitions, valuation, contract, land disputes and legal implications.

SUBJECT CODE:	AR 463
SUBJECT NAME:	<b>Vastu Shastra</b>

- This subject is intended to introduce the fundamentals and philosophy of vastu shastra and its application
- Introduction to vastu shastra and its application
- Study of man, functions and structures and their interrelationships
- Application of Vastu Shastra in buildings and planning schemes
- Assessment of building performance
- Interior and exterior design as per Vastu principles

SUBJECT CODE:	AR 464
SUBJECT NAME:	<b>Site Planning And Landscape Architecture</b>

This course intends to develop an understanding of Site Planning and landscape architecture to compliment architectural design

- Introduction to site planning its scope and role
- Environmental/ regional context in site planning and landscape design
- Access network, parking and service planning
- Service layouts and trenching
- Factors effecting Site Planning and landscape design
- Geological setup, Topography, Slope, Drainage network, Flora and fauna. Use of land development softwares
- Landscape constructions
- Pavings, curbs, edgings, drains, trees, plants in paved areas, services, trenches, landscape furniture etc.
- Ponds, pools, waterways and fountains
- Use of land development software
- Design exercise incorporating all /part of the above
- Note: Sessionals shall be in form of reports, drawings, models and examples

SUBJECT CODE:	AR 465
SUBJECT NAME:	<b>Architectural journalism</b>

- Journalism in general
- Theories of journalism
- Techniques and processes
- Contemporary Architectural journalism
- Digital Journalism
- Architecture, Arts and Journalism / Media

SUBJECT CODE:	AR 466
SUBJECT NAME:	<b>Disaster Management</b>

- Types of disaster, meanings and related definitions.
- Causes and effects of natural hazards
- Disaster profile of India.
- Disaster preparedness and response and rehabilitation.
- Roles and responsibilities of different agencies

SUBJECT CODE:	AR 467
SUBJECT NAME:	<b>Visual Communication</b>

- Architecture/ Visuals/ Language meaning psychology.
- Visual theories.
- Architectural implications of virtual environment.
- Digital arts and presentations/ Media
- Elements of Visual design.
- Discussion and analysis of various types of communication media including visual identities.
- Study and application of drawing and other communication skills for architects.

SUBJECT CODE:	AR 468
SUBJECT NAME:	<b>Sustainable Architecture</b>

- Introduction to the ideas, issues and concepts of sustainable Architecture, global environment and the built environment, principles of environmentally and ecologically supportive architecture
- Study of sustainable architecture, use of energy, materials, health and global environment as related to the construction and operation of buildings
- Sustainable and conservation practices – water conservation, sewerage treatment, solid waste treatment, economics and management
- Low energy design, hybrid systems, modeling and simulation of energy systems, integration of PV and wind systems in the building, wind solar and other non conventional energy systems, solar thermal applications for heating and cooling, electricity generation in buildings
- Case studies on specific contemporary sustainable architecture.

Note : The sessional will be oriented towards live case studies and modelling

SUBJECT CODE:	AR 491
SUBJECT NAME:	<b>Architecture Design-VIII</b>

**Design of a multi-functional complex of buildings in the metropolitan context.** Issues related to the growing problems of urban areas in third world countries and their future development shall be explored. Emphasis on the design with relation to the contextual environment, traffic and planning controls and impact analysis. An understanding of the architectural implications of such developmental scheme should lead to insights in the formulation of political and administrative policies for the development of the physical environment.

SUBJECT CODE :	AR 493
SUBJECT NAME:	<b>Interior Design</b>

- Theory of interior design. Market survey of modern interior design material , interior design project work.
- Visual perception of interior spaces, function, form, scale, proportion, balance, harmony and rhythm. Modern interior materials and their applications.
- Furniture, color and lighting, object de-art, adaptation of interior design to architectural spaces. Case studies of outstanding interior design examples.
- Project work.

SUBJECT CODE :	AR 494
SUBJECT NAME:	<b>Dissertation</b>

Dissertation is intended to enlighten students on the fundamentals of research methods. The students are expected to choose topics which are of special interest to them and prepare a report after research. It is possible that in keeping with the school's commitments from time to time certain themes may be permitted and students encouraged choosing their subject matter for study or research accordingly.

SUBJECT CODE:	AR 495
SUBJECT NAME:	<b>General Proficiency</b>

General Proficiency is meant for developing co-curricular activities in individual student. By this they are encouraged to participate in ASA / NASA activities, NSS, NCC, Debates, Dramas, Sports and Games etc. at Dept./College/ University level.



## NINTH SEMESTER

SUBJECT CODE:	AR 541
SUBJECT NAME:	<b>Training</b>

- The students shall have to complete the practical training for a period of one semester (six months) so as to qualify for obtaining the final B. Arch degree. The candidate shall have to submit to the dept. of architecture, the practical training report along with the certificates by the firm/ office / organization to the effect that he / she has completed training satisfactorily for a period of one semester. The student has to appear for the viva examination as per the exam schedule announced by the university.

## TENTH SEMESTER

SUBJECT CODE:	AR 551
SUBJECT NAME:	<b>Professional Practice</b>

- Introduction to Architectural profession, Role of professional bodies, The Architect's registration act 1972.
- The duties, liabilities and relationships of client, contractor and other technicians. The code of professional conduct and conditions of engagement of Architects. Scale of remuneration for Architectural services and mode of payments.
- Types of tenders and their process. Execution of contract. Problems in operation of contract
- Architectural competitions.
- Introduction to Valuation, arbitration and dilapidations.

NOTE : Sessional work shall be in the form of Technical reports, notices, certificates, etc.

SUBJECT CODE:	AR 561 –AR 564 & AR 591- AR 594
SUBJECT NAME:	<b>Elective-III</b>

SUBJECT CODE:	AR 561 & AR 591
SUBJECT NAME:	<b>Design of Low -Cost Buildings</b>

Since cost of buildings is rocketing high. This course intends to provide Architecture basic knowledge of cost reduction in building.

- Introduction to Low cost design of building, its definition and concept etc.
- Components of buildings and their cost factor and role of R & D agencies, self help community participation, cooperative and individuals etc.
- Space standards for housing schemes and design concepts for cost reduction, use of prefabrication, modular co- ordination and pre-stressed components etc.
- Survey and detailed case study of low cost study of low cost buildings/ housing schemes.
- Design of low cost residential and public buildings with research output of various organizations.

SUBJECT CODE:	AR 562 & AR 592
SUBJECT NAME:	<b>Housing Design and Planning</b>

- INTRODUCTION: Housing as Architecture basic need, housing as an integral part of urban & rural development, housing problem and statistic, etc.
- HOUSING DESIGN AND POLICIES: Qualitative and quantitative demands of housing, housing estimates, various government policies and programmes, etc
- HOUSING SURVEYS AND STANDARDS: Sources of Data and information, methods and techniques of housing surveys, housing standards, etc.

- HOUSING COOPERATIVE AND FINANCING AGENCIES: Objectives and general principles of cooperatives, self help housing, financing agencies and their functions etc.
- HOUSING DESIGN: Introduction to methods and approaches to housing design. Study analysis and design of housing schemes. Redevelopment of slums and squatters settlements.

SUBJECT CODE:	AR 563 & AR 593
SUBJECT NAME:	<b>Hotel services</b>

This course intends to develop an understanding of integration of services in the Architectural design of hotels.

- Hotel types, size, locational criterion, land and building bye-laws, requirements.
- Site Planning: Traffic and circulation, Parking, Services (Electrical, mechanical, sanitary services, garbage disposal and incinerators etc.)
- Services planning and details in public/ common spaces/ utilities within the hotel building.  
Recreation and administration, Restaurants, dining halls, coffee shops and bars, Conference spaces, meeting rooms, auditoriums, Gymnasiums, Health centers, swimming pools, Dance floors, Discotheques, Shopping, emporia, Kitchens and toilets etc.
- Services planning and detail in the residential spaces and open spaces:  
Single and double rooms, suites, including toilets facilities, Open spaces, viz. Party Lawns, gardens, Terrace gardens, open air dinning areas, visual landscapes, etc.

An exercise in hotel design with an integrated services planning, incorporating all the above.

SUBJECT CODE:	AR 564 & AR 594
SUBJECT NAME:	<b>Energy Efficient Architecture</b>

This is advance course in area of energy conscious Architecture.

- Building design in response to various climates and its impact upon requirements of energy in building.
- Assessment of energy in buildings using computer software.
- Low energy strategies and guidelines.
- Non- conventional energy sources and system integrated building design.
- Building energy management system and energy audit of buildings using computer software.

SUBJECT CODE:	AR 565 – 567 & AR 595 – AR 597
SUBJECT NAME:	<b>Elective-IV</b>

SUBJECT CODE:	AR 565 & AR 595
SUBJECT NAME:	<b>Architectural Conservation</b>

This course intends to develop an understanding in Architectural conservation.

- Meaning of Architectural Conservation, need and degrees of conservation.
- History of conservation in India and West , conservation charters, role of archeological survey of India in conservation of India's cultural heritage
- Listing and documentation, its importance and methods.
- Urban conservation, methodologies to be adopted for conservation management
- Case studies in conservation related to Adoptive reuse, Building in context, Preservation, Urban conservation

SUBJECT CODE:	AR 566 & AR 596
SUBJECT NAME:	<b>Urban Design</b>

- Definition of Urban design, scope of urban design under Indian context and its integration with urban planning.
- Historical development and approach to urban design - spatial organization, classical, functional, ornamental, etc.
- Urban form, its elements, visual order of form, sequence, scale, and visual space dynamics. The various surveys needed to document visual aspects of environs.
- Urban structure and design rational inter - relationship between economic activities, public organization, communication systems, urban conservation and land- use structure.

Review and designing of urban renewal and redevelopment projects for old and new towns.

SUBJECT CODE:	AR 567 & AR 597
SUBJECT NAME:	<b>Urban and Regional Planning</b>

- Basic components of urban areas and Regions.
- Role and working of Urban and Regional planning at different levels like national level, state level, district level etc.
- Different planning theories and models.
- Socio-cultural, economic planning, land use planning etc. General principles and working. Planning norms and development norms for urban and Regional approaches / techniques of development for existing areas, renewal schemes and development.
- Detailed survey and preparation of questionnaire for land use, socio-economic, Transportation planning etc.

SUBJECT CODE:	AR 598
SUBJECT NAME:	<b>THESIS PROJECT</b>

- The thesis project shall include an individual's work on Architecture topic selected by the students and approved by the department.
- Architecture work programme and Architecture thesis manual shall be supplied by the department.

SUBJECT CODE:	AR 599
SUBJECT NAME:	<b>GENERAL PROFICIENCY</b>

General Proficiency is meant for developing co-curricular activities in individual students. By this they are encouraged to participate in ASA/ NASA activities, NSS, NCC, Debates, Dramas, Sports and Games etc. at Dept./College/ University level.