

**SECOND YEAR
THIRD SEMESTER**

B. ARCH, B. ARCH (ID), B. ARCH (BCT)

Code	Subject	HOURS / WEEKS					Exam	T.W	Total Marks
		L	S	WS LAB	Viva	Total			
AR-301	Design Studio – I (Climate)	-	10	-	-	10	-	400	400
AR-302	Building Construction – III	2	4	-	-	6	100	100	200
AR-303	Structures-III	2	-	-	-	2	50	50	100
AR-304	History of Architecture-II	2	-	-	-	2	50	50	100
AR-305	Survey & Leveling	2	-	-	-	2	50	50	100
AR-306	Climatology	2	-	-	-	2	50	50	100
AR-307	Special Subjects – I	-	-	3	-	3	-	100	100 *
AR-308	Special Subjects - II	-	-	3	-	3	-	100	100 *
	TOTAL					30			1200

AR – 301

DESIGN STUDIO – I (climate)

CONTENTS:

- Vernacular-Climate Relationship
- Climate & Vernacular Architecture
- Vernacular Architecture and Typology
- Climate and evolution of forms
- Function and form

PROJECT: Residential with single function in different climatic zones.

AR-302

Building Construction – III

CONTENTS:

- Doors and Windows in different materials
- Stair and Staircase in different materials
- Compound Wall and Gate
- Steel roofs structures and its roof coverings.

AR – 303

STRUCTURE - III

CONTENTS:

- Analysis of Fixed Beam
- Analysis of Continuous Beam by Clapeyron's theorem
- Analysis of Continuous Beam by Moment Distribution Method
- Analysis of Truss- Method of Joints and section (graphical funicular drawings)
- Analysis of non-sway type Portal frames by Moment Distribution Method Analysis of three hinges parabolic Arch

PROJECT: Theory and Examples on related topics and viva-voce exam

AR-304

History of Architecture-II

CONTENTS: **Early Hindu architecture:**
Early Temples and other buildings in India (until 1200AD).
Medieval architecture in India.
Islamic Sultanate architecture.
Regional Islamic architecture.
Late Hindu temples till 1400 A.D.

European Antiquity:

The Greek World

The Roman World

Medieval architecture in Europe.

Early Christian & Byzantine Architecture

Romanesque Architecture

Gothic Architecture

FOCUS: Understanding the development of early techniques in diff. cultures.
Analysis of ancient buildings to understand various principles of design such as scale, proportions, forms, functions,
Use of buildings – elements and their contribution to morphology.

AR-305

SURVEY AND LEVELLING

CONTENTS: Introduction to Various instruments used in Surveying for chain and compass survey
Measure drawing techniques of presenting survey maps.

FOCUS: Techniques for presentation of measure drawing and setting out Building on site.

AR-306

CLIMATOLOGY

CONTENTS:

- Solar Geometry
- Comfort and its measurements
- Ventilation and Air Movement
- Light Principles and Lighting
- Sound and Noise control.
- Different Shading devices
- Passive Design aids for different climate

FOCUS:

- Understanding basic Climatologic based on the criteria of climate responsible for different climatic zone as well as passive controls devices so used here.
- Understanding Light and Sound principles affecting the built environment.

AR-307

SPECIAL SUBJECTS - I

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

ID students shall choose any subjects from the list A

BCT students shall choose any subjects from the list B

Architecture students shall choose any subjects either from list A or B

AR-308

SPECIAL SUBJECTS - II

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

Students shall choose any subject from list C

**SECOND YEAR
FOURTH SEMESTER**

B. ARCH, B. ARCH (ID), B. ARCH (BCT)

Code	Subject	HOURS / WEEKS					Exam	T.W	Total Marks
		L	S	WS LAB	Viva	Total			
AR-401	Design Studio – II (Group of Buildings)	-	10	-	-	10	-	400	400
AR-402	Building Construction –IV	2	4	-	-	6	100	100	200
AR-403	Structures-IV	2	-	-	-	2	50	50	100
AR-404	History of Architecture-III	2	-	-	-	2	50	50	100
AR-405	Building Services-I	2	-	-	-	2	50	50	100
AR-406	Landscaping	2	-	-	-	2	50	50	100
AR-407	Special Subjects – I	-		3	-	3	-	100	100 *
AR-408	Special Subjects - II	-		3	-	3	-	100	100 *
	TOTAL					30			1200

AR – 401

DESIGN STUDIO – II (group of bldg)

CONTENTS:

- Group of Buildings with different functions (campus)
- Varied functions and user groups
- Hierarchy of spaces and clusters
- Movement and circulation
- Landscaping

PROJECT:

Small and medium sized group of buildings with basic functions such as school, office, Store, workshop, hostel, house, etc.

AR – 402

Building Construction –IV

CONTENTS:

Anti termite treatment and procedure
 Underground structures (retaining walls, underground sumps)
 RCC Structures for long span (one way slab, two way slab, waffle slab, rib beam slab, composite beam slab, Jack arch)
 Movement and circulation
 Form work, Scaffolding, shoring and strutting for the building.

AR – 403

STRUCTURE - IV

CONTENTS:

- Design of RCC structures by limit state method.
- Design of Beams: Singly and Doubly reinforced beam,
- Design of Slab: One Way slab, Two Way slab, One Way and two way Continuous slab (based on studio drawings)
- Design of Column: Axially Loaded (only), other types of footing drawing
- Design of Isolated footing (Only axial loaded)
- Design of stair case (Waist slab type) (based on studio drawings)

PROJECT: Theory and Examples on related topics and viva-voce exam

AR-404

History of Architecture-III

CONTENTS:

Indian context:

- Mughal architecture
- Post Islamic Hindu religious & secular architecture.
- Palaces, Civil buildings, Forts and Step wells in India.

European context:

- Early & Classical Renaissance in Italy, Greater Europe
- Mannerism in Italy & in Europe
- Baroque in Italy
- Rococo & its interpretation in France, Italy & Russia
- Baroque & Rococo in Austria & Germany

FOCUS: Classical Architecture

AR-405

BUILDING SERVICES-I (Electrical-Mechanical)

CONTENTS:

- The study of Electrical services-Power connection, A.C &D.C currents, Distribution boards and types of wiring systems for buildings.
- Daylight and interior lighting design, calculation of day light factor. Principles of architectural lighting. Calculation of luminance and glare. Concept of Luminance design. Electric light sources. Principles of electric installation in smaller building with specific symbols for graphical presentation.
- Understanding of Humidity, saturation ratio, dry bulb-wet bulb temperature, vapour pressure in the atmosphere, Study of psychromatic chart and its application.
- Principles of refrigeration, refrigeration cycle. Definition of Air conditioning, Necessity, Meaning of complete air conditioning, Types of air conditioning, components of air conditioning, various ducting layouts, Advancement in air conditioning systems. Difference between Air condition and Air coolers.

AR-406

LANDSCAPING

CONTENTS:

- Elements of landscape: land forms, plants, material, water, rocks, and lighting.
- Types of soils, plant materials (tree, shrubs, ground covers, creepers, flowering and non flowering species), water bodies, surfacing materials, creating levels and changing landforms, manmade elements.
- Historical and contemporary attitudes to landscape (India and elsewhere).
- Principles of landscape design: surfacing, enclosure, vistas,
- Composition of plant and other material etc. Preparing design drawing (using standard notations & symbols).

FOCUS:

Principles of landscape design, techniques & application.

AR-407

SPECIAL SUBJECTS - I

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

ID students shall choose any subjects from the list A

BCT students shall choose any subjects from the list B

Architecture students shall choose any subjects either from list A or B

AR-408

SPECIAL SUBJECTS - II

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

Students shall choose any subject from list C

**THIRD YEAR
FIFTH SEMESTER**

B. ARCH, B. ARCH (ID), B. ARCH (BCT)

Code	Subject	HOURS / WEEKS					Exam	T.W	Total Marks
		L	S	WS LAB	Viva	Total			
AR-501	Design Studio – III (Insti. Bldg)	-	12	-	-	12	-	400	400
AR-502	Building Construction – V	2	2	-	-	4	100	100	200
AR-503	Structures-V	2	-	-	-	2	50	50	100
AR-504	History of Architecture-IV	2	-	-	-	2	50	50	100
AR-505	Building Services-II	2	-	-	-	2	50	50	100
AR-506	Building Regulations	2	-	-	-	2	50	50	100
AR-507	Special Subjects – I	-	-	3	-	3	-	100	100 *
AR-508	Special Subjects - II	-	-	3	-	3	-	100	100 *
	TOTAL					30			1200

AR – 501

DESIGN STUDIO – III (inst. Bldg)

CONTENTS:

- Institutional buildings
- Programming
- Function and form
- Development of spaces / Interrelationship of spaces
- Scale and proportions
- Development of design through plan, sections & elevations

PROJECT:

Public, Institutional, Commercial, Educational, Health, etc.

AR – 502

Building Construction – V

CONTENTS:

- Long Span structures (shell roofs, folded plate, Portal frame, Space frame structures, Pre-fabricated Structures).
- Earthquake resistant structures.
- Different types of joints in the buildings (construction joints, expansion joints, structural joints, seismic joints)
- Lifts and ramps

AR – 503

STRUCTURE -V

CONTENTS:

- Introduction to structural Steel
- Analysis and Design of Steel Beams (Check for deflection and shear Only)
- Analysis and Design of Plate Girder
- Structural concept of Gantry Girder, sketch design (site report)
- Structural concept of castellated section, virendeel truss
- Analysis and Design of Steel Columns and concept of Compound Columns
- Concept of structural steel connections
- Grillage foundation concept of drawing, concept of raft and pile foundation.

PROJECT:

Theory and Examples on related topics and viva. Report on Industrial Visit

AR-504

History of Architecture-IV

CONTENTS:

- Technical progress In England and the Industrial revolution.
- Neoclassicism in France and Gothic revival
- Artistic movements like Bauhaus, De Stijl, Art Nouveau, CIAM etc.
- Modernism in Europe & the US (Louis Sullivan, Frank Lloyd Wright, Mies Van Der Rohe, Le Corbousier, etc)
- Works of Architects like Alvar Aalto, Eero Saarinen, Louis Kahn, Robert Venturi
- Post Modernism: Philip Johnson, Charles Moore, Michael Graves, Richard Mier, James Sterling & others
- Architecture and Deconstructionism and Post-structuralism
- Contemporary Architecture

FOCUS:

Architectural developments during 19th & Early 20th cent.
Mid & Late 20th cent to Contemporary Architecture

AR-505

BUILDING SERVICES – II (water supply and drainage)

CONTENTS:

- Theory and concept of water supply systems, Intake units, storage capacity etc. (different type of system layout design for residential and high rise building planning).
- Determination of water requirements.
- Types of waste, storm water, garbage, different types of drains and sewer.
- Explanation of plumbing and sanitary fittings and fixtures with their functions, fixing details and dimensions.(Actual site study and market study).
- Rural water supply and sanitation schemes.
- Theory of sewage disposal, septic tanks, design of septic tank.
- Toilet design considerations for residential toilets, w.c, bath and public toilet.
- Standard dimensions for location of various drainage, plumbing components. (as per IS code)

FOCUS:

Plumbing-drainage layout plans for large and small-scale design of studio work.
Toilet layout design for various buildings.

AR-506

BUILDING REGULATIONS

CONTENTS:

- Need for development and building control, Brief about prevailing legislation.
- Introduction of National building code.
- Definitions and Explanation of various terms like, Act, Rules, Regulatory development plan, planning authority, local authority, Built up area, FSI, Dwelling units, plot coverage, Margin, setback, building control line, Town planning scheme and its concepts.
- Introduction of development requirements and regulations for gamtal, urban areas, industrial areas, types of housing, costal areas.
- Procedure for securing Development permission and documents required.
- Various colour codes used for indication in municipal drawings.

METHODS:

Lectures and various case study of actual building plans approved by various authorities.

AR-507

SPECIAL SUBJECTS - I

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

ID students shall choose any subjects from the list A

BCT students shall choose any subjects from the list B

Architecture students shall choose any subjects either from list A or B

AR-508

SPECIAL SUBJECTS - II

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

Students shall choose any subject from list C

**THIRD YEAR
SIXTH SEMESTER**

B. ARCH, B. ARCH (ID), B. ARCH (BCT)

Code	Subject	HOURS / WEEKS					Exam	T.W	Total Marks
		L	S	WS LAB	Viva	Total			
AR-601	Design Studio – IV (Housing)	-	12	-	-	12	-	400	400
AR-602	Building Construction – VI	2	2	-	-	4	100	100	200
AR-603	Structures-VI	2	-	-	-	2	50	50	100
AR-604	Design Theory	2	-	-	-	2	50	50	100
AR-605	Estimation Costing & Specifications	2	2	-	-	4	50	50	100
AR-606	Heritage & Conservation	2	-	-	-	2	50	50	100
AR-607	Special Subjects – I	-	-	2	-	2	-	100	100 *
AR-608	Special Subjects - II	-	-	2	-	2	-	100	100 *
	TOTAL					30			1200

AR – 601

DESIGN STUDIO – IV (housing)

CONTENTS:

- Housing
- Urban renewal/ new townships/ city expansion, etc.
- Different income/ class groups
- Community functions and shared functions
- (Club, multipurpose hall, crèche, etc.
- Organizations (water supply, drainage, garbage disposal, water recycling)
- Recreational needs

PROJECT: Settlements, Habitat, Housing

AR-602

Building Construction – VI

CONTENTS:

Ducting and sunk slab in the building for electrical, water supply and drainage, air conditioning pipes, garbage disposal for high rise buildings)
Toilet design and its services
Building finishes (external and internal)
Glass as a building material.

AR – 603

STRUCTURE - VI

CONTENTS:

- Different types of Water tanks, Design of circular water tank resting on ground (flexible base) and open rectangular underground water tank in dry soil (case $L/B > 2$), reinforcement-details.
- Types of retaining wall, design of cantilever retaining wall without surcharge, reinforcement details
- Structural concept of flat slab, waffle slab, folded plate, shells, hyperbolic and paraboloid forms, Shear wall.
- Prestress concrete - construction method, design of simply supported prestressed beam, earthquake tips.
- Structural concept of machine foundation.

PROJECT:

Theory and Examples on related topics and viva-voce exam
Theory of ductility (detailing and its drawing)

AR – 604

DESIGN THEORY

CONTENTS:

- The student is supposed to explore the significance of contemporary design approaches and related issues such as
- Historic sources of Contemporary Ideas
- Theories and Design for the New Towns
- Urban Issues and design guidelines
- Social issues in Housing

FOCUS:

Design Theory will explore significant principles and theoretical issues in the architectural design and practice. The course will consist of lectures and investigation by the students of existing literature and case studies.

PROJECT:

Presentation of design issues and case studies with relevant drawings, models and texts.

AR – 605

ESTIMATION, COSTING AND SPECIFICATIONS

CONTENTS:

- Introduction, Types of Estimates, Definitions of terms. Data required for preparation of estimates.
- Items of work, Mode of measurement of all items of work, Units of measurement. Study of ISI standards of measurements
- Specifications of different building items. General specification and detailed specification of Earthwork, brick masonry, RCC and PCC, plastering, wooden doors and windows/Tiles/Painting

- Rate Analysis of Masonry, BBCC, RCC Slab, Plaster
- Importance, purpose and use of rate analysis. Factors affecting the rate analysis, Rate analysis of major items of building works. Factors effecting cost of work task work, general information regarding S.O.R, Introduction to BOQ.

FOCUS:

The estimation and budgeting with the stresses of cost control, Writing specifications for materials and various items of work. Reports should be prepared on examples floated in the class for the above topics.

AR-606

HERITAGE AND CONSERVATION

CONTENTS:

Understanding architectural heritage by identifying buildings of old historical significance, colonial structures, buildings of local historical relevance, etc.
Critical appraisal of status of the building / buildings.
Proposals for full/partial repairs/maintenance.
Conservation with existing usage/changed usage.

FOCUS:

Developing awareness and sensitivity towards building heritage.

AR-607

SPECIAL SUBJECTS - I

CONTENTS:

To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

ID students shall choose any subjects from the list A

BCT students shall choose any subjects from the list B

Architecture students shall choose any subjects either from list A or B

AR-608

SPECIAL SUBJECTS - II

CONTENTS: To help student to explore their aptitude and develop skill in any related field no. of subjects shall be offered depending on faculties interest and availability.

Students shall choose any subject from list C