

SCHOOL OF ARCHITECTURE

SYLLABUS

FOR

B. ARCHITECTURE (SEMESTER: I - II)



SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

- Note: (i) Copy rights are reserved.
Nobody is allowed to print it in any form.
Defaulters will be prosecuted.**
- (ii) Subject to change in the syllabi at any time.
Please visit the University website time to time.**
-

I Semester Syllabus – 2015

**B.ARCHITECTURE-1ST SEMESTER
ARCHITECTURAL DESIGN - I
(AR – 101)**

University Exam Marks - 80
Sessional Marks - 120
Duration of Exam - 06 hrs.
No. of periods – 06 per week

INTENT

To introduce Architectural Design to students through Basic Design. The main aim of the course is to get the students interested in and to familiarize them with the art of design and architecture. To enhance and promote visualization, expressional skills and sensitivity to surrounding environment. Making student learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.

CONTENTS

Two & Three dimensional Design Exercises involving real and imaginary objects, drawing compositions and models made of matchsticks, cardboard, wires, wood pieces etc. to form an appropriate base for subsequent Architectural design and theory.

PART A

1. Introduction to Basic Design
2. Objectives of Design
3. 2D compositions with basic geometric shapes, colour, texture and pattern.
4. Door elevation
5. Carpet design, Backdrop of stage

PART B

1. Basic Elements of Design – Point, Line, Plane, Volume, Scale, Proportion, Colour & Texture.
2. Mural with geometrical shape
3. Floor tile design & paving patterns.
4. Sky line of city/village

PART C

1. Principles of Design – Rhythm, Focus/Emphasis, Balance, Unity, Contrast, Repetition & Variety.
2. Experience in 3D Design, compositions with simple forms like cube, cuboids, cylinder, cone, prism etc.
3. Compositions with 3-D Objects. **(Black & white and colours).**

GUIDELINES

1. **Two questions** are to be set from **each part** and students will be required to attempt **one question** compulsory from each part.
2. Question paper is to be set covering the entire syllabus.

NOTE

Evaluation is to be done through viva voce by external jury appointed by the university at college and answer sheets should be retained at college level.

REFERENCES:

1. V.S.Pramar, Design Fundamentals in Architecture, Somaiya Publications Private Ltd., New Delhi, 1973.
2. Francis D.K.Ching, Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York, 1979.
3. Structure in Nature- Strategy for Design – Peter Pearce
4. Patterns in Nature- Peter Streens

**B.ARCHITECTURE-1ST SEMESTER
BUILDING CONSTRUCTION - I
(AR – 102)**

University Exam Marks - 60
Sessional Marks - 90
Duration of Exam. - 04 Hrs
No. of periods hrs. - 04 per week

INTENT

The overall intent is to study various construction methods.

CONTENTS

PART A

Brick Masonry

1. Terminology used in Brick masonry,
2. Tools used in Brick masonry.
3. Types of Bats and closers in Brick masonry.
4. Bonds in Brick work. L-junctions, T-Junctions, cross junction in brick masonry (4-1/2", 9", 13-1/2" thick brick walls)

PART B

5. Arches-Flat, Segmental and Semicircular Arch in Brick masonry.
6. Lintels, sills, coping and threshold details.
7. Design of simple Brick jalli.

PART C

8. Dressing, laying and bonding in Stone Masonry
 - Random Rubble
 - Coursed Rubble
 - Ashlar
9. Finishing of brick and stone surfaces

GUIDELINES

- **Two questions** are to be set from **each part**, and students will be required to attempt **one question** compulsory from each part.
- Question paper is to be set covering the entire syllabus.

RECOMMENDED BOOKS:

Building construction	W.B. McKay vol. 1 to 4
Construction of buildings.	R.Barry vol. 1 to 4
Construction technology	Chudley vol. 1 to 4
Building Construction illustrated	Ching Francis D.K.
Elementary building Construction	Michell
Engineering materials	Rangwala
National Building Code	

B.ARCHITECTURE-1ST SEMESTER-I
ARCHITECTURAL DRAWING- I
(AR – 103)

University Exam Marks - 60

Sessional Marks - 90

Duration of Exam - 4hrs.

No. of contact hrs. - 04 per week

INTENT

To familiarize the students with basic knowledge of good drafting and lettering techniques and architectural drawing i.e. orthographic projections of simple geometrical forms.

CONTENTS

PART A

- Drafting Technique &, Principles of Drafting,
- Dimensioning and types of Lines
- Lettering (free hand & block lettering)
- Scales & its Use in the Architectural Drawing.

PART B

- Orthographic Projections of the Point, Lines, Planes and Solid in various positions in the First Quadrant.
- Section of Solids e.g. Cube, Cuboid, Cone, Cylinder, Pyramid, Prism etc.

PART C

- Development of Surfaces: Simple Geometrical Solids e.g. Cube, Cuboid, Cone, Cylinder, Pyramid, Prism etc.
- Interpenetration of Solids.

GUIDELINES

- A total of **four questions** are to be set, out of which students will be required to attempt **three questions**.
- Question paper is to be set covering the entire syllabus.

REFERENCES:

1. Engineering Drawing – N.D. Bhatt
2. Engineering Graphics – K.R. Mohan
3. Engineering Drawing – R.K. Dhawan

**B.ARCHITECTURE-1ST SEMESTER
ARCHITECTURAL GRAPHICS- I
(AR – 104)**

University Exam Marks - 40
Sessional Marks - 60
Duration of Exam - 04 hrs.
No. of periods - 03 per week

INTENT

To learn the utility and art of using the potential of Pencil as a powerful tool of Graphic Communication.
To understand the fundamentals, use, role and importance of Colours in Graphics.

CONTENTS

PART A

Pencil as an effective presentation tool.

- Free hand line work with different strokes/grades in pencil.
- Effect of light and shade on simple geometrical solids.
- Textures of different building materials in pencil through shading.

PART B

- Freehand sketching of human figures, trees and vehicles on an appropriate scale.
- Outdoor sketching of simple building forms.
- Sketches of scenes and activities from memory involving public spaces, markets, festivals, recreational spaces etc.

PART C

Poster Colours and its use

- Colour Wheel showing Primary, Secondary and Tertiary colours.
- Colour Schemes & Charts showing Tints and Shades of various colours.
- Effect of colours in relief compositions.

GUIDELINES

- A total of **four questions** are to be set, out of which students will be required to attempt any **three questions**.
- **One compulsory question** is to be set.
- Question paper is to be set covering the entire syllabus.

REFERENCES:

1. **Graphic Illustrations in Black and White** by Jaccueline, Design Press, New York, 1991
2. **Architectural Rendering**, Crowe Philip- Rofovision S.A.Switzerland, 1991
3. **Rendering with Pen & Ink**, Robert W. Gill, Thames & Hudson London, 2008.

**B.ARCHITECTURE-I SEM.
STRUCTURE SYSTEM - I
(AR - 105)**

Sessional Marks - 60
Uni.Exam.Marks - 40
Duration of Exam. - 03 hrs.
No. of periods – 03 per week

INTENT:

To make students aware about the design methodology adopted and principles involved in designing the structural elements used in the built environment with focus on steel

CONTENTS

PART A

Cellular system

1. Cell as a natural unit of space.
2. Cell transformation.
3. Polygonal Cellular Systems leading to evolution of Geodesic Domes
4. Applications of Cellular System in Building

PART B

Bulk Active Structure System:

- Framed structure
- Slabs (one way and two way)
- Flat slab
- Waffle slab

Vector Active Structure System:

- Trusses
- Space frames
- Geodesic Dome

PART C

Form Active Structure System:

- Funicular structures (Cables and Arches)
- Tents
- Pneumatic structures

Surface Active Structure System:

- Singly curved shells
- Doubly curved shells
- Hyperbolic paraboloids
- Folded plates
- Y-beams

TEACHING METHODOLOGY

Emphasis shall be on making students understand the principles and systems involved in various topics. The students should be made to Co-Coordinate the fabrication of atleast four models to demonstrate the various structural system. Students be taken to Pragati Maidan & other Building centres in New Delhi for better exposure.

GUIDELINES FOR PAPER SETTER

Two questions are to be set from each part, out of each part & only one question is to be attempted by the candidate.

REFERENCE BOOKS:

- RCC:- Krishna Murthy
- R. K. Bansal, "Engineering Mechanics & Strength of Materials Publisher, Laxmi Publications Pvt Limited, 1998.
- Khurmi-Structure Mechanics
- Prof.Harbhajan Singh-Theory of Structure

**B.ARCHITECTURE-I SEM.
BUILDING SCIENCE – I
(BUILDING MATERIALS)
(AR - 106)**

Sessional Marks - 40
Uni.Exam.Marks - 60
Duration of Exam. - 03 hrs.
No. of periods – 03 per week

Contents:

PART A

- Elementary elements of a building; their functions and characteristics.
- Basic building material – Brick, Timber.

PART B

- Basic building materials –Stone, Lime, Cement.

PART C

- Basic building materials –Concrete.
- Basic finishing materials – Paints and varnishes.

General Guidelines for the teacher:

Stress is to be laid on the use and behaviour of building materials in given situations than on manufacture.

Instructions for Examiner / Paper Setter:

Two questions are to be set from each part. Out of each unit only one question is to be attempted by the candidate.

REFERENCE BOOKS:

Engineering materials
Building Construction

Rangwala
Punmia, B.C.

**B.ARCHITECTURE-1ST SEMESTER
WORKSHOP- I
(AR - 107)**

University Exam Marks – 00 (No Exam)
Sessional Marks - 50
No. of periods - 02 per week

INTENT

To acquaint the students with the basic skills of Carpentry and Brick Masonry.

CONTENTS

TOPICS

- **Carpentry** – Introduction to the use of different types of Tools used in Carpentry.
- **Joints** – Different types of Joints, Joinery details commonly used in Timber construction and interiors.
- **Model**-- Preparation of wooden base for model making.
- **Form Work** - Use of Clay, Brick and Soap for creating three dimensional forms in space.
- **Brick Masonry** – Small brick masonry construction models for understanding of various bonds, jallies etc.
- **Block Making**- Three dimensional building blocks and forms using different materials.

GUIDELINES

Continuous Evaluation shall be made of students work based on various models, assignments and market surveys.

**B.ARCHITECTURE – I SEM.
COMMUNICATIVE ENGLISH
(BTHU - 101)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam - 3 hrs.

No. of periods – 03 per week

Objective/s and Expected outcome:

The objective is to help the students to become independent users of English language. Students should be able to understand spoken and written English language of varied complexity on most including some abstract topics; particularly the language of their chosen technical field. They must show awareness of appropriate format and a capacity for explaining their views in a rational manner. The students should be able to converse fluently, without strain with international speakers of English in an accent and lexis that is widely understood across the globe. They will be able to produce on their own texts which are clear and coherent.

1. Reading: Reading texts of varied complexity; speed reading for global and detailed meaning; processing factual and implied meanings

2. Vocabulary: Building up and expansion of vocabulary; active use of the prescribed expressions in the appropriate context

3. Grammar: Revising and practicing a prescribed set of grammar items; using grammar actively while processing or producing language

4. Writing: The qualities of good writing; Learning the prescribed written expressions of conventional use; writing business letters, emails; reports, summaries and various forms of descriptive and argumentative essays

Learning and Teaching Activities:

PART A (Reading)

The prescribed reading textbook for students will be S. P. Dhanavel English and Communication Skills for Students of Science and Engineering (with audio CD), Orient Blackswan. They will go through the reading texts themselves with the help of a dictionary or word power as given at the end. As they progress from one reading to another they should learn to read fast with greater degree of understanding of both concrete and abstract topics. While taking up the textbook lessons in the classroom, the teacher shall ensure that students can do the following:

i. Identify the significant points and conclusions as given in the text.

ii. Handle large texts (even outside the prescribed book) with overall comprehension of the links between arguments and the finer distinction between stated and implied meanings.

iii. Generally read the stance or the point of view of the writer and present it in the form of a summary

iv. Use the vocabulary learnt in the lessons (especially given in „word power“) productively in various writing tasks as suggested at the end of each lesson.

v. Profitably use the grammatical items as discussed at the end of each lesson while producing language for communication.

Besides the textbook, the teacher must insist that students extend their reading by taking up additional texts of their own choice.

PART B (Writing)

In addition to the various exercises given at the end of each lesson of Dhanavel's book, the teacher shall use Anne Laws Writing Skills, Orient Blackswan to teach the language and conventions of writing. The students must learn the language that expresses various cognitive functions that are frequently used in writing. With the help of the teacher who will give them adequate practice, the students should be able to:

i. Convey information on concrete or abstract topics with clarity and precision.

ii. Write about objects or events with appropriate detail in both descriptive and narrative form.

iii. Explain ideas and build up arguments with adequate support in a convincing manner.

iv. Use language with some degree of flexibility in consideration to the reader.

v. Produce effectively such forms of professional writing as business letter, emails, notes, memos, reports summaries etc.

While teaching, the teacher must inculcate in students the habit of revising their writing. The teacher can also use and recommend the relevant sections of the following books for developing writing skills in students.

Suggested Readings/ Books

1. Vandana R Singh, The Written Word, Oxford University Press, New Delhi

2. KK Ramchandran, et al Business Communication, Macmillan, New Delhi

II Semester Syllabus - 2015

**B.ARCHITECTURE- II SEM.
ARCHITECTURAL DESIGN- II
(AR - 201)**

Uni.Exam.Marks - 80

Sessional Marks - 120

Duration of Exam. – 06 hours (Evaluation to be done through university viva- voce by external jury)

No. of periods – 06 per week

INTENT

To appreciate the constraints in the Architectural design of a small building with reference to function, form and structures.

CONTENTS

Importance of physical factors in Architectural design e.g. orientation, ventilation, adequate protection from rain, dust, insects etc. and human dimensions in various postures (in applied form), their relation to everyday utilities like the table, chair, bed, sink etc. Understanding measured drawing of an existing small unit.

TOPICS

PART A

Design of small buildings involving functional, structure system & constructional methods e.g. Milk booths, Kiosks, Bus stop, Cafes, Drinking water fountains, Canopy, Cycle stand, Security Check post, Installations for Circulation etc.

PART B

A small single storied dwelling unit like Bachelor house, Tourist cottage, dog house, gardener's House etc.

PART C

Acquainting, the students with drawing the plans sections and elevations of a room. Layouts of furniture, fixtures in various spaces like dining room, Bed room, Class room, Office etc.

Minimum 1 exercise to be taken from each part.

All buildings should have accessibility to the physically challenged persons.

Design Teaching Methodology:

The Basic methodology of teaching should be based on

- Library study to understand the basic functions of building and anthropometric.
- Case Study to understand the similar buildings in similar context.
- The emphasis of design should be on the space organisation and built form.

GUIDELINES FOR PAPER SETTER

1. One compulsory question is to be set from the entire syllabus
2. The topic of the project is to be displayed on College Notice Board fifteen days in advance.

NOTE : Evaluation is to be done through viva voce by external jury appointed by the university at college. Answer sheets after the university exam shall be retained at college level for the viva- voce.

REFERENCES:

1. V.S.Pramar, Design Fundamentals in Architecture, Somaiya Publications Private Ltd., New Delhi, 1973.
2. Francis D.K.Ching, Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York,

**B.ARCHITECTURE- II SEM.
BUILDING CONSTRUCTION-II
(AR - 202)**

Uni.Exam.Marks - 60
Sessional Marks - 90
Duration of Exam. - 04 hours
No. of periods – 04 per week

INTENT

To study various construction methods in co-ordination with the building materials and science related to them.

CONTENTS

PART A

Foundation and Damp proof course

- Types of Foundations and its important details.
- Application of Damp proof course, its material and laying. Detailing of Horizontal and Vertical D.P.C.

PART B

Doors

- Introduction to Joints in Carpentry.(Different Types of Joints, Joinery details)
- Types of Doors
- Design and construction details of Framed, Ledged, Braced & Battened Door, Flush Door, Wire mesh Door, Panelled Door

Windows

- Types of Windows in timber, Design and Construction details of Casement, Bay, Clearstory, Corner window etc.

PART C

Construction of roof

- R.C.C, R.B.C. Roof & Jack Arch Roof, Tiled and Battened Roof, I- Channel Roof.
- Concepts of water proofing & Thermal Insulation of Roofs.
- Section through Single Story of load bearing structure and Frame structure.

GUIDELINES FOR PAPER SETTER

1. Two questions are to be set from each part, out of each part & only one question is to be attempted by the candidate.
2. Questions paper is to be set covering entire syllabus by making parts and mixing the topics.

Note: Emphasis should be laid on making students understand complete construction details of single story structure.

References:

Mckay W.B.; Building Construction . Vol. 1 to 4
Barry R.; Construction of Buildings.- Vol. 1 to 4
Chudley; Construction Technology- Vol. 1 to 4
Ching Francis D.K; Building Construction illustrated
Michell ; Elementary Building Construction-
Rangwala ; Engineering Materials
National Building Code- 2005

**B.ARCHITECTURE- II SEM.
ARCHITECTURAL DRAWING-II
(AR - 203)**

Uni.Exam.Marks - 60

Sessional Marks - 90

Duration of Exam. - 04 hours

No. of periods – 04 per week

INTENT:-To familiarize the students with learning techniques & skills in representing different objects through 3D geometry and developing visualisation of 3-D , for using in the design solutions.

CONTENT:- To familiarize students with the 3-dimensional drawings of the building and perspective views.

PART A

Isometric/ Axonometric projections

- Isometric /Axonometric of simple forms.

PART B

Perspective Drawing :- Introduction to theory of Geometrical Perspective Drawing.

- Perspective by Side Elevation Method.
- Angular (Two Point Perspective) and Parallel (One Point Perspective) Perspective.
- Perspective of different Solids and Building elements
- Perspectives having more than 2 Vanishing Points.

PART C

- Sciography in Plans and Elevations
- Sciography in Axonometric Projection
- Sciography in Perspectives (both one point & two point perspectives)

GUIDELINES FOR PAPER SETTER

1. Two questions are to be set from each part, out of each part & only one question is to be attempted by the candidate.
2. Questions paper is to be set covering entire syllabus by making parts and mixing the topics.

References:

- Gill Robert W.; Rendering with Pen and Ink.
- Bhatt N.D.; Engineering Drawing.
- Ching Franc D.K ; Architectural Graphics.
- Dhawan R.K; Engineering Drawing

**B.ARCHITECTURE-II SEM.
ARCHITECTURAL GRAPHICS-II
(AR - 204)**

Uni.Exam.Marks - 40
Sessional Marks - 60
Duration of Exam. - 04 hours
No. of periods – 03 per week

INTENT:-To develop conceptual and perceptual skills, in different media and techniques.

CONTENT:-Rendering in Pencils and Colour media.

PART A -Pencil Crayons and Oil Pastels as presentation medium

- Rendering of various surfaces such as brick, stone, grass, timber etc.
- Trees, Human figures, Automobiles, Lamp Posts, Street furniture in **Plan, Elevation and Perspective**.
- Rendering of View / Perspective in Crayons and Oil Pastels.

PART B- Colour Rendering.

- Outdoor free hand sketching and Colour rendering of Trees, Shrubs, Vegetation, Buildings, Vehicles etc.
- Colour Rendering of various scenes such as Garden Scene, Street Scene, Lake Scene, Village Scene etc.
- Sketching of Furniture pieces, parts of Building in relation with Human Scale and Proportions.
- Cut & Paste method for making Compositions & for Rendering Perspectives

PART C- Pen & Ink Rendering

- Use of Pen & Ink Rendering to show Texture of Grass, Brickwork, Stone work, Sky, Trees, Human figures etc.
- Stencilling in Ink
- Calligraphy Handwriting

GUIDELINES FOR PAPER SETTER

- A total of **four questions** are to be set, out of which students will be required to attempt any **three questions**.
- **One compulsory question** is to be set.
- Question paper is to be set covering the entire syllabus.

References:

- Crowe Philip; Architectural Rendering
- Albert & Habe ; Architectural Rendering
- Jaxtheim ; How to Paint & Draw

**B.ARCHITECTURE- II SEM.
STRUCTURE DESIGN - I
(AR - 205)**

University Exam Marks – 60
Sessional Marks – 40
Duration of Exam. - 03 Hrs
No. of periods - 03 per week

INTENT

To inculcate in the student an awareness of basic structural principles used in various building systems.

CONTENTS

PART A

Introduction to Elementary theory of structure, Centre of gravity (CG), definition, centre of gravity of plane figures, CG by method of moments, numerical problems, Moment of Inertia; MI of plane area, MI by method of integration, MI of rectangular section, theorem of parallel axis (M1) and perpendicular axis and numerical problems.

PART B

Bending moment (BM), shear force (SF), type of supports, loads and beams, relation between SF and BM, BM and SF diagram for cantilever and simply supported beams with concentrated load, uniformly distributed load, design examples.

Moment of resistance, theory of bending, bending stresses, basic equation of bending, section modulus of rectangular and circular sections. Numerical problems.

PART C

Classification of frames, analysis of perfect frame, assumptions, method of sections, method of joints and design examples. Link polygon, method of construction, resultant of concurrent forces, non-concurrent forces, co-planar parallel force system and numerical problems.

GUIDELINES

Two questions are to be set from each unit, out of each unit only one question is to be attempted by the candidate.

REFERENCES:

1. Punmia, B.C., "Strength of Materials and Theory of Structures", Vol. I, Laxmi Publications, New Delhi, 2010.
2. Ramamurtham, S.; "Strength of Materials", Dhanpatrai & Sons, New Delhi, 2011.
3. Nash, W.A., "Strength of Materials", Schaums Series, McGraw Hill Book Company, New York, 1989.
4. Bansal, R.K., "Engineering Mechanics and Strength of Materials", Lakshmi Publications, New Delhi, 2009.
5. Rajput, R.K., "Strength of Materials", S .Chand & Company Ltd., New Delhi 2010.

**B.ARCHITECTURE-II SEM.
THEORY OF DESIGN-I
(AR - 206)**

Uni. Exam Marks - 60
Sessional Marks - 40
Duration of Exam. - 03 hours
No. of periods – 03 per week

INTENT :- To establish the Role and Importance of Theory of Design as a broad, comprehensive activity to help students appreciate the difference between a responsible opinion and a well reasoned judgement by looking at the design in depth and in a critical way .

CONTENT

PART A

Theory of design, its scope and application
Primary Elements of Design such as Point, Line, Planes and Volume.
Principles of Architecture Design

PART B

Introduction to Form
Visual Properties of Forms.
Regular and Irregular Forms.
Transformation of Forms.
Formal Collision of Geometry.
Articulation of Forms

PART C

Form defining Space with Horizontal Elements and Vertical Elements.
Quality of Architectural Space.
Organization of Form and Space, Spatial Organization.
Circulation Elements including Approach, Entrance, Configuration of the Path,
Path- Space Relation, Form of the Circulation Space.
Proportion and Space.

GUIDELINES FOR PAPER SETTER

Two questions are to be set from each part, out of each part only one question is to be attempted by the candidate.

References:

- Form, Space and order- D.K.Ching.
- Design strategies in Architecture- Geoffery H. Baker
(An approach to the analysis of Form)
- Theory of Design-Parmar

**B.ARCHITECTURE- II SEM
HISTORY OF ARCHITECTURE- I
(AR-207)**

Uni. Exam. Marks - 60
Sessional Marks - 40
Duration of Exam. - 03 hours
No. of periods – 03 per week

INTENT:- To make student understand how different Architectural Solutions were evolved (in successive historical periods) within the limitation imposed by prevalent Social and Religious Customs, available Building Materials , Climate of region/Topography, Complex Structural Problems and the limited Technology available at the time.

CONTENT:-

For each of the topic given in syllabus, stress is to be laid on Architectural characters with only one or two representative examples to highlight those features.

PART A

Introduction and importance of History of Architecture

- A brief introduction to Primitive/ Prehistoric Architecture.
- Egyptian Civilization and its Architecture in terms of various building typologies-- Mastabas, Pyramids, Temples, Palaces, Public Buildings etc.

PART B

Early Mesopotamian and Assyrian Architecture-Religious & Public Buildings—Citadels, Ziggurats, Hanging Gardens etc.

- Greek Civilization & Architecture—including Religious/ Civic Buildings /Market Place(Acropolis) of importance. Stress should be laid on understanding the basic Principles of Architecture including Proportions and Theory of Orders

PART C

Introduction to Indus Valley Civilization & its Architecture—Citadels, Granary, Housing, Baths etc.

- Vedic Architecture.
- Buddhist Architecture- Stupas, Viharas, Chaitya Halls etc.

GUIDELINES FOR PAPER SETTER

Two questions are to be set from each part, out of each part only one question is to be attempted by the candidate.

NOTE:-Emphasis should be laid on understating of building evolution and form. Continuous evaluation shall be made of students work based on various models, assignments and sketching.

References:

Fletcher Banister; A History of Architecture
Brown Percy ; History of Architecture , Buddhist and Indian
Grover Satish; History of Architecture-Hindu & Buddhist Period
Fergusson James; History of Eastern Architecture
Tad gill. Indian Architecture

**B.ARCHITECTURE- II SEM.
WORKSHOP- II
(AR - 208)**

Uni. Exam. Marks - No exam
Sessional Marks - 50
Duration of Exam. – Internal Viva Voce
No. of periods – 02 per week

INTENT

To make students aware of various Model Making Techniques and to familiarize them with the Art of Sculpture Making using Different Materials.

CONTENT

Introduction to Basic Model Making Techniques with Paper, Paper Board, Woods, Plaster of Paris and Soap for Basic Design and Architecture Design Studio .

PART A

Product design

Design & Model Making of Furniture, Lamp shades and other Interior & Exterior Elements

Sculpture Making

Sculptures in Plaster of Paris, Wires, Scrap, Wood, Soap etc.

PART B

Clay Modelling

Pinching
Coiling Techniques
Slab Techniques

PART C

Model Making

Model Making ---Making of Study Model of one of Design Project done during the Semester or of a Small Buildings

GUIDELINES FOR PAPER SETTER

Continuous Evaluation shall be made of students work based on various Models, Assignments and Market Surveys.

Evaluation will be made based on the Student's work during Semester in Internal Viva- Voce conducted by two internal examiners.

**B.ARCHITECTURE- II SEM.
PROJECT ORIENTED STUDY TOUR
(AR-209)**

Uni. Exam Marks - No exam
Sessional Marks - 50
Duration of Exam. – Internal Viva Voce

Brief:

The concept is to provide an insight into works of contemporary Indian Architects and also historical architecture as available in western and northern parts of India. The study tour shall visit places enlisted under any one of the options mentioned below, the choice of the option in each successive year shall not be repeated.

Option – I Jaipur, Ajmer, Jodhpur, Jaisalmer, Mount Abu, Chittaurgarh, Udaipur, Ujjain, Indore / Mandu, Bhopal / Sanchi.

Option – II Chennai, Bangalore, Mysore, Ajanta – Ellora, Bombay, Pune, Goa, Hyderabad.

Guideline for the Teacher: Before the study tour proceeds the students shall collect literature regarding complexes / buildings etc. to be visited in the tour and shall present the same for a review. After incorporating whatever modification or improvements recommended by the concerned teacher / teachers the same shall be provided to the students as hand outs (either in condensed form or in toto). Study of Building Materials and details through sketches and photographs to be made as an individual activity and is to be submitted in a report form. Study of complexes visited to be made in groups of 3 – 4 students. Viva – Voce on individual basis for both the submissions will be conducted as part of Internal Assessment.

**B. ARCHITECTURE-III SEM.
ARCHITECTURAL DESIGN-III
(AR - 301)**

Uni.Exam Marks - 80

Sessional Marks - 120

Duration of Exam. – 06 hrs. (Evaluation to be done through viva- voce by external jury)

No. of periods – 07 per week

INTENT

To make students understand and appreciate the constraints in the designing of a building of a small scale with reference to function, form and structure.

CONTENT

To create awareness about the role and Importance of physical factors in Architectural Design such as human dimensions in various postures (in applied form), their relation to everyday activity.

TOPICS

- Design of House, Primary School, Cafeteria, Post Office, Guest House, Youth Hostel etc.
- Introduction to barrier free buildings.

INSTRUCTIONS TO THE TEACHER

- Minimum two projects/ assignments to be handled by students individually.
- Library and prototype studies should be carried out for other projects in groups.
- Model and perspective should be made integral part of project presentation.
- Stress should be laid on the understanding the basics of process of design.

GUIDELINES FOR PAPER SETTER

- One compulsory question is to be set from the entire syllabus

NOTE

- Evaluation is to be done through viva voce by external jury.
- Answer sheets after exam shall be retained by the institute.

REFERENCE BOOKS:

- Ching, Frank (Francis D.K.), “*Architecture: Form, Space & Order*, Publisher John Wiley, Hoboken 2007.
- Parmar V.S, “*Design Fundamentals*, Publisher-Somaiya Publisher Pvt. Ltd, Mumbai,1997.
- Scott Van Dyke, “*Form, Line to Design*, Publisher-Van Nostrand Reinhold,1990.
- Scott R, “*Design Fundamentals*, Publisher-Robart E. Krieger Publishing Company
- E&OE- *Architects Hand Book and Planning*
- Donald Watson , Michael J. Crosbie, “*Time Saver Standard*, 8th edition.

**B. ARCHITECTURE-III SEM.
BUILDING CONSTRUCTION-III
(AR - 302)**

Uni.Exam Marks - 60

Sessional Marks - 90

Duration of Exam – 04 hrs

No. of periods – 05 per week

INTENT

To make students understand and appreciate, various methods of building construction and science related to them.

CONTENT

PART A

- Types of Staircases-- Design and detailing and construction of RCC and Steel Staircases.
- R.C.C. & Steel Form work and Shuttering and Scaffolding details for-
Column (square and round)
Slab and Beam
Wall
Staircase

PART B

- Cladding of interior and exterior facades in various materials such as Brick, Tile and Stone.
- Section through a Double Storied Building showing the details of Foundation, Floor, Window, Lintel, Chhajja, Staircase, R.C.C Roof, Terrace and Parapet.
- Construction of PCC, Terrazzo, (Cast-in-situ and tiles) and various Stone, Marble, Vitrified Tile flooring.

INSTRUCTIONS TO THE TEACHER

- Site Study of scaffolding and shuttering is to be conducted.
- Emphasis should be laid on making students understand complete construction details of double- storied structure.

GUIDELINES FOR PAPER SETTER

1. Three questions are to be set from part A & B . Students are required to do two questions from each part.
2. Questions paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCES BOOKS

- Michell, “Elementary Building Construction, Published By B T Batsford Ltd, London , 1961
- Punmia B.C. , “Building Construction,
- Mckay W.B. , “Building Construction (Vol 1-4) , Longmans, U.K 1981
- Barry R. , “Construction Of Buildings(Vol. 1-4) Oxford : Blackwell Scientific, 1999
- Chudley R. , “Construction Technology (Vol. 1-4) Longmans, Uk 1981
- Ching Francis D.K. , “Buil. Construction Illustrated, John Wiley, New York 2003

**B. ARCHITECTURE-III SEM.
HISTORY OF ARCHITECTURE-II
(AR-303)**

Uni.Exam.Marks - 60
Sessional Marks - 40
Duration of Exam. – 03 hrs
No. of periods – 03 per week

INTENT

To make students understand how different architectural solutions were evolved (in successive historical periods) within the constraints/limitations imposed by prevalent social and religious fabric, available building materials, prevailing climate, topography, complex structural problems and building technology available.

CONTENTS

Study of world Architecture from the Early Roman to Gothic period besides the early era of Indian Architecture and Buddhist Architecture.

TOPICS:

PART-A

Roman Architecture

PART-B

Christian Architecture

Byzantine Architecture

PART-C

Romanesque Architecture

PART-D

Gothic Architecture

TEACHING METHODOLOGY

- For each period, stress is to be laid on the Architectural character and elements of Architecture with only one or two representative examples to highlight these features.
- Emphasis should be laid on understating of evolution of buildings and form.
- Continuous evaluation shall be made of students work based on various models, assignments and sketching.

GUIDELINES FOR PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus.
- Two questions are to be set from each part and student is required to attempt one question from each part.
- Student is required to attempt five questions in all including the compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- Fletcher Banister, "A History of Architecture, University of London, The Antholone Press, 1986.
- A History of Architecture :- James Fergusan, John Willey
- Fergusan James, Willey John, "History of Indian & Eastern Architecture, Dodd, Mead & company 1899
- Tagdell Christopher, "The History of Architecture in India, Phaidon Press, 1994

**B.ARCHITECTURE-III SEM.
CLIMATE AND ARCHITECTURE
(AR – 304)**

Uni.Exam Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT

To make students understand the role and importance of climate as one of the major determinant of built form and to familiarize them with various climate controlling devices.

CONTENT

PART A

Fundamentals

- Introduction to climatology
- Importance of studying Building climatology
- Elements of climate
- Global climate factors
- Interrelationship of climatic elements and Psychometric chart

PART B

Movement of Sun

- Understanding the movement of Sun
- Solar Chart and its importance
- Importance of understanding the optimum orientation of buildings and their forms in relation to Sun
- Concept and Design of Shading Devices

PART C

Thermal Comfort

- Definition and explanation of Thermal Comfort
- Human Heat Balance and Physical Comfort
- Relationship of Climatic Elements with Thermal Comfort
- Thermal Stress Index
- Bio-climatic Chart, Effective Temperature and Corrected Effective Temperature Histogram with their uses
- Wind Movement and Natural Ventilation

PART D

Climatic Zones

- Tropics and its Climatic zones
- Macro and Micro Climate (site climate)
- Role of Climate with respect to Shelter
- Principles of Architectural Design and Study of various Indigenous Shelters in response to various design solutions of Climate Zones in the Tropical belt of India

GUIDELINES FOR PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus.
- Two questions are to be set from each part and student is required to attempt one question from each part.
- Student is required to attempt five questions including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS

- Koensberger, Ingersoll, Mayhew, Szokolay, "Manual of Tropical Housing & Building, March 1974
- C.P. Kukreja, "Tropical Architecture, Tata McGraw-Hill Publishing Company, 1978.
- Martin Evans, "Housing, Climate & Comfort, Architectural Press, 1980.
- Lippsmeier, Georg, "Building in the Tropics, Callwey Verlag, Munchen, 1980
- Gideon S. Golany, "Design for Arid Regions, Publication Van Nostrand Reinhold, New York 1983.
- B.Givoni, "Man, Climate & Architecture, Von Nostrand Reinhold Company New York - 1981
- Reserch notes on climate:- C.B.R.I, Roorkee

- Krishan A,Baker, “Climate Responsive Architecture, McGraw-Hill Education (Asia) Co. and China Architecture & Building Press. 2004/2005
- Energy Efficient Buildings in India:- TERI

**B.ARCHITECTURE-III SEM.
STRUCTURE DESIGN-II
(AR - 305)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT :

To make students understand the Role and Importance of Structure in Built Environment and to create appropriate skill among students to apply the knowledge gained regarding structural design in an applied project to make buildings structurally safe.

CONTENT:

PART A

Design of single reinforced beams, doubly reinforced beams, cantilever beams; depth/ thickness of section area of reinforcement , steel shear check, shear reinforcement design examples. Introduction to T beams and L beams

PART B

Design of one way slab; by/ex ratio depth/thickness of section, area of reinforcement, shear check design examples, Design of two way slab; by/ex ratio IS 456 code provisions, their check, design examples.

PART C

Design of columns; long short columns, basic equation of design IS 456 code provisions, section of column, longitudinal and lateral reinforcement.

PART D

Design of isolated square and rectangular footing , depth frame consideration of bending moment ,one way shear and two way shear area of reinforcement, design examples.

GUIDELINES FOR THE TEACHER

Structural design shall be supplemented by structural drawings.

INSTRUCTIONS FOR THE EXAMINER/PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus.
- Two questions are to be set from each part and student is required to attempt one question from each part.
- Student is required to attempt five questions
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- R. K. Bansal, "Engineering Mechanics & Strength of Materials Publisher, Laxmi Publications Pvt Limited, 1998.
- Applied Mechanics:- K.L.Rao
- J. C. Mehta, "Applied Mechanics, Publisher: Delhi, New Asian Publishers 1963.
- Stephen Timoshenko, "Strength of Materials, Publisher, Van Nostrand, New York 1955.

**B.ARCHITECTURE - III SEM.
BUILDING SCIENCE – II (GEOLOGY)
(AR - 306)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT : To make students understand the Role and Importance of rocks, soil and their characteristic properties in forming the Earth.

CONTENT:

PART A

General Geology of Earth's crust , Modes of Rock formation.

Rock forming minerals– Their characteristics and specifications. Factors governing selection of Building Stones, geological criteria governing selection of sites.

PART B

Type and characteristics of soils: classification of soils: particle size, Texture; Unified Soil Geological and I.S. classification system.

Introduction to Soil Mechanics, Specific gravity, void ratio content and functional relationship,

PART C

Bearing Capacity of Soil:

Definitions, factors affecting bearing capacity of clay and sandy soils .Determination of bearing capacity by plate load test. Methods of improving bearing capacity of soil; Role & Importance of soil in building design/safety.

Instructions for Examiner / Paper Setter:

- One compulsory question of short answers type containing 5 questions of 2 marks each (10 Marks) is to be set from the entire syllabus
- Two questions are to be set from each part and student.
- Student is required to attempt five questions in all including compulsory question with minimum one question from each part

REFERENCE BOOKS:

- Geology for Engineers - D.S. Arora
- Soil Mechanics and Foundation Engineering-K.R. Arora
- Building Materials - P.N. Khanna
- B.C. Punmia

**B.ARCHITECTURE - III SEM.
SURVEYING AND LEVELLING
(AR - 307)**

Uni.Exam Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT

To make students understand and learn about and basics of surveying and levelling and its application in the art and science of designing buildings

CONTENTS:

PART A

Surveys.

***Chain Surveying :-**

Principal ,equipment used, Methods of chaining , base line and stations, obstacles in chaining. Location of inaccessible points by chain,.

***Prismatic Compass survey: -**

Prismatic & Surveyors compass, methods of traversing, adjustment of closing error by graphical method.

***Plane Table survey: -**

Different equipment & methods of plane tabling,

PART B

Levelling: -

Definitions, methods of levelling, dumpy level, levelling staff, Temporary adjustment of a level, Theory of direct levelling, Differential levelling

Theodolite & its structure , Measurements of horizontal angles.

PART C

Contouring: -

Contour interval, Characteristics & Interpolation of contours, contours gradient, Use of contours maps, computation of volume of earth/ Areas from contour plans, Use of Plani-meter.

PART D

Total Station

Introduction, components, Operation, Advantages/ Disadvantages, GPS, Aerial Surveying, JIS and Remote Sensing

TEACHING METHODOLOGY

Subject shall be taught by a teacher who has practical experience of carrying out field surveys while working on Architectural /Engineering Projects. The teaching shall be supported by undertaking actual surveys of any area/ building in and around the campus to give exposure to the students. All the equipments, stated above, shall be made available to the students by setting up a Survey lab.

GUIDELINES TO EXAMINER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus
- Two questions are to be set from each part and student is required to attempt atleast one question from each part.
- Students are required to attempt five questions including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- Singh Narinder, “Surveying & levelling”
- T.P.Kanetkar Surveying & levelling:-
- Punmia B C, “Surveying & levelling”
- Kuchhar C L, “Surveying & levelling”
- Sahiwny P B, “Surveying & levelling”

**B.ARCHITECTURE - III SEM.
COMPUTER APPLICATIONS - I
(AR – 308)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – No Exam (External Viva Voice)

No. of periods – 04 per week

INTENT:

To make students aware of the role and importance of Computers in the field of Architecture.

CONTENT:

Teaching basics of Computers including introduction to basic hardware, operating systems and operative languages.

TOPICS

PART A

Introduction to AutoCAD – Basics of Computer Aided Design, Application of AutoCAD in Architecture, Basic commands like copy, paste, stretch, offset, move fillet, extend, trim and other 2D commands.

PART B

Preparation of 2–D Drawings, use of various drawing commands for 2–D drawings generation and editing commands for modification of drawings, application of layers. Drawing the basic Plans, Sections, and Elevations. .Basic text writing and dimensioning of the Plans, Elevation and Sections. Basic hatching and filling of the Walls in the Plans, Elevations and Sections. Basic rendering in the Auto Cad and in other Softwares in 2D.

PART C

2D modelling in Auto Cad, Google Sketch up, Basic rendering in the Auto Cad and in other Softwares in 2D.

GUIDELINE TO TEACHER

- Compulsory one week focussed workshop is to be conducted.
- Small building plans to be promoted and evaluated at the end of the semester.
- Emphasis should be laid on understating of building 2 D Drawings and techniques for the single as well as multi-storeyed buildings.

GUIDELINES FOR EXAMINER

- The evaluation of student shall be based on the practical conducted based on a specific problem given to know the student’s understanding of the Computers in the field of Architecture.

REFERENCE BOOKS:

- AutoDesk , “Auto Cad Manual 2012”
- Google, “Google Sketch up Manual”
- Microsoft, “MS DOS”

**B.ARCHITECTURE–IV SEM.
ARCHITECTURAL DESIGN–IV
(AR- 401)**

Uni.Exam.Marks - 80

Sessional Marks - 120

Duration of Exam. – 06 hrs . (Evaluation to be done through viva- voce by external jury)

No. of periods – 07 per week

INTENT

To make students study the the typology of Vernacular architecture prevailing in the rural context in the state of Punjab

OUTCOMES

Students having knowledge and understanding of art and science of designing buildings, material used and elements of Vernacular Architecture used in the rural areas of the state of Punjab.

CONTENTS

- Detailed study , Documentation and analysis of a rural settlement .
- Design proposal for the settlement selected for study based on the outcomes of analysis done by the students and designing of the buildings including Community Buildings Bank, Post office, Panchayat Ghar./ Dharamshala, Rural Dispensary, Farmer’s House, Gaushala, Village Dairy Farm, Rural School along with village plan.

NOTE:- All buildings should have accessibility to the physically challenged persons.

TEACHING METHODOLOGY

- Projects/assignments to be handled by students shall include detailed study of a selected village.
- Village study shall be carried out in groups to clearly bring out the existing settlement pattern, socio-economic conditions, pattern of life, building typology, materials/building technology used and important Architectural features. The end product shall be a well documented report and drawings.
- Library/case study shall be made integral part of study
- Model and perspective will be compulsory .

GUIDELINES FOR PAPER SETTER

- One compulsory question is to be set
- Evaluation is to be done through viva voce by external jury at college and answer sheets should be retained at college level.

REFERENCE BOOKS :

- Ching, Frank (Francis D.K.), “Architecture : Form,Space & Order”, Publisher John Wiley, Hoboken 2007.
- Parmar V.S, “Design Fundamentals, Publisher-Somaiya Publisher Pvt. Ltd, Mumbai 1997.
- Scott Van Dyke, “Form, Line to Design, Publisher-Van Nostrand Reinhold, 1990.
- Scott R, “Design Fundamentals, Publisher-Robart E. Krieger Publishing Company
- E&OE- Architects Hand Book and Planning
- Donald Watson , Michael J. Crosbie, “Time Saver Standard, 8th edition

**B. ARCHITECTURE - IV SEM.
BUILDING CONSTRUCTION-IV
(AR - 402)**

Uni.Exam.Marks - 60

Sessional Marks – 90

Duration of Exam. – 04 hrs

No. of periods – 05 per week

INTENT

To make students understand the context of Timber in Construction.

To familiarize students with traditional/Contemporary construction methods of using timber in a single storied building .

OUTCOMES

The students should have knowledge and understanding of details and components of timber construction in buildings.

CONTENT

PART A

Roofs and Trusses (Timber)

Introduction to different types of timber Roofs e.g. Flat, Couple, Close Couple, Collar, Lean-to and Double Lean- to roofs.

Principles of Construction and Details of King Post and Queen Post Trusses with Gutters, Eaves and Ridge Details with / without Soffit and Roof Covering.

Timber Built up Trusses of various Spans.

Roof-Coverings - Constituents, Properties, Uses, Process of Laying of Roof Covering Materials e.g. G.I. Sheets, Asbestos Cement Sheets (Plain & Corrugated) with accessories, Clay Tiles - Country, Allahabad & Mangalore Tiles etc.

PART B

Doors & Windows - Design and Details of Sliding Doors, Sliding and Folding Doors in Timber.

Timber partition, timber panelling

Timber Staircase-Design and Details

Dhajji Wall Construction

TEACHING METHODOLOGY

Teaching in the subject shall be made combination of:

- Field/ Project visits-to study the uses of various materials in construction industry and process of laying Floor/Roof Coverings, Staircases and Doors and Windows.
- Preparing Construction plates.
- Visit to Forest Research Institute, Dehradun or similar plced institutions
- Models of Trusses with roof coverings -- to be compulsory.

GUIDELINES

1. Three questions are to be set from Part A and two questions are to be set from Part B of equal marks. Student is required to attempt two questions from Part A and one question from Part B.
2. Questions paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- MICHELL, "ELEMENTARY BUILDING CONSTRUCTION, Published by B T Batsford Ltd, London , 1961
- PUNMIA B.C. , "BUILDING CONSTRUCTION,
- MCKAY W.B. , "BUILDING CONSTRUCTION (VOL 1-4) , Longmans, U.K 1981
- BARRY R. , "CONSTRUCTION OF BUILDINGS(VOL. 1-4) Oxford : Blackwell Scientific, 1999
- CHUDLEY R. , "CONSTRUCTION TECHNOLOGY (VOL. 1-4) Longmans, UK 1981
- CHING FRANCIS D.K. , "BUIL. CONSTRUCTION ILLUSTRATED, John Wiley, New York 200

**B.ARCHITECTURE – IV SEM
THEORY OF DESIGN-II
(AR-403)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs .

No. of periods – 03 per week

INTENT

To make students appreciate the basic approach, principles, elements and philosophy used by Masters of modern architecture in designing state of art buildings along with their contributions to promote the art and science of architecture.

OUTCOMES

Students should understand the basic elements and approach of Master Architects for evolving design solutions of built environment and their relevance in Architecture.

CONTENT

PART A

- Chicago School of Architecture (1880-1910)- Dankmar Adler and Louis Sullivan
- Art Nouveau Architecture (1890-1920) - Antoni Gaudi, Joseph Maria Olbrich
- New York School of Skyscraper Architecture (1900-30) - Famous New York Skyscrapers

PART B

- Early Modernist Architecture (1900-30)
- Expressionist Architecture (1910-25)
- Social Housing Architecture (1918-30)

PART C

Great masters

- Walter Gropius
- Frank Lloyd Wright
- Le- Corbusier
- Ludwig Mies van der Rohe

TEACHING METHODOLOGY

- Study of Master Architect shall focus on his life, approach, philosophy and Architectural works including character and elements of Architecture developed with representative examples to highlight those features
- Emphasis should be laid on understating of evolution of buildings and form. Continuous evaluation shall be made of students work based on various assignments and sketching.

GUIDELINES FOR PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus
- Two questions are to be set from each part and student is required to attempt atleast one question from each part.
- Students are required to attempt five questions including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- Ching, Frank (Francis D.K.), *“Architecture: Form, Space & Order*, Publisher John Wiley, Hoboken 2007
- Design strategies in Architecture Geoffery:- H. Baker
- An approach to the analysis of Form
- Global Architecture (ADA Aditia Tokyo) Vol - 2, 3 & 4.
- Fletcher Banister, “A History of Architecture, University of London, The Antholone Press, 1986.
- Mies Vander Rohe by David Spaeth.
- Mies Vander Rohe by Karin Krisch.
- The Frank Lloyd Wright Companion by William Allin Storrer.
- Frank Lloyd Wright- The Masters Works by David Larkin & Bruce.
- Le Corbusier by H.Allen Brooks.
- 20th Century World Architecture, Phaidon publication

- Jean-Louis Cohen, The Future of Architecture Since 1889, Phaidon publication
- Peter Gössel, Gabriele Leuthäuser , Architecture in the 20th Century, Taschen Publications
- Klaus-Jürgen Sembach, Art Nouveau, Taschen Publications
- Magdalena Droste, Bauhaus, Taschen Publications

**B.ARCHITECTURE - IV SEM.
STRUCTURE DESIGN - III
(AR - 404)**

Uni. Exam Marks - 60
Sessional Marks - 40
Duration of Exam. – 03 hrs
No. of periods – 03 per week

INTENT :

To make students understand and learn the principles, role and Importance of Structure in Built Environment

OUTCOME

To create appropriate skill among students to apply the knowledge of structural design to make buildings structurally safe.

CONTENTS

PART A

- Design of combined footing(Rectangular and Trapezoidal footing) using IS-456:2000 specifications,various types of combined footing.
- Design of Raft Footing with suitable design examples

PART B

- Design of Retaining walls (Cantilever retaining wall and counterfort retaining wall)
- Design examples of retaining walls

PART C

- Types of staircases, Design of dog- legged staircase
- Design of Tread and Riser, Thickness of waist slab/landing slab, area of reinforcement using IS-456:2000 specifications

GUIDELINES FOR THE TEACHER

Teaching methodology shall involve class room teaching , expert lectures , visit to the construction sites and making models. Structural design shall be supplemented by structural drawings.

INSTRUCTIONS FOR THE EXAMINER/PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus.
- Two questions are to be set from each part and student would be required to attempt minimum one question from each part.
- Student would be required to attempt five questions in all including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- RCC DESIGN BY A.K JAIN
- RCC DESIGN BY VN VAZIR
- RCC DESIGN BY BHAVI KATTI

**B.ARCHITECTURE-IV SEM.
BUILDING SERVICES-I
(AR - 405)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT

To make students learn and understand the requirements of Building Services and their application in buildings with focus on Water Supply, Drainage and Sanitation

OUTCOME

Creating appropriate skill among students regarding use of water supply and sanitation services in Buildings.

CONTENTS

PART A

WATER SUPPLY

- Water- Role & Importance, Sources , Quality ,Impurities.
- Water Supply- Introduction, Basic Principles, Systems of Water Supply
- Water Storage – Systems, Capacity and Location.
- Domestic, hot and cold water supply systems.
- Pipes- Size and their jointing details.
- Fittings- sanitary fittings like Ferrule, Stopcock, Bibcock etc.
- Metering- Various kinds of Water Meters and connections.

PART B

SANITATION

- Sanitation- Role, Importance , Basic principles of disposal of waste from buildings.
- Sanitary Fittings-- Wash basins, WC's, Bath Tubs, Sink, Urinals, Bidets, Flushing Cistern, types of Traps etc.
- Various types of joints
- Septic Tanks, Treatment Plants.
- Manholes, Chambers- Purpose, Location, Structure and Ventilation
- Drainage Systems- Types, Advantages/ Disadvantages -- separate, combined and partially combined systems.
- Introduction to Stack system--One pipe and two pipe systems.
- Gradients-- Purpose and Principle for laying Drains and Sewers.
- Size of Drain Pipes and Materials used.

PART C

STORM WATER DISPOSAL

- Drainage- Sub- drains, Culverts, Ditches, Gutters, Drop inlets and Catch Basins.
- Rain Water Disposal for individual buildings.
- Rain Water Harvesting and Ground water Recharging

TEACHING METHODOLOGY

- Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites, actual display of Fittings, Pipes, Joints used and by carrying out exercises in layout of simple drainage systems for Small buildings, Planning of Bathrooms and Lavatory Blocks in Domestic and Multi-storied buildings.
- Provision of Water Supply, Sewerage and Storm Water Disposal services shall be made integral part of the Design Studio Project .

GUIDELINES FOR PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus
- Two questions are to be set from each part and student would be required to attempt atleast one question from each part.
- Students would be required to attempt five questions in all including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- DUGGAL K.N. , “PUBLIC HEALTH SERVICE, Publisher, Chand, 1967
- WATER SUPPLY SANITATION BY R.BIRDI
- BARRY R, “BUILDING SERVICES, John Wiley and Sons Ltd 1998
- GARG S. K, “WATER SUPPLY ENGINEERING, Khanna Publishers
- WATER SUPPLY& SANITATION:- G.S BINDRA/ J.S..BINDRA

**B. ARCHITECTURE-IV SEM.
HISTORY OF ARCHITECTURE-III
(AR - 406)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – 03 hrs

No. of periods – 03 per week

INTENT

To make students study the evolution of architectural solutions in historical perspective and impact of social structure, religion, building materials, climate, topography, structure on building technology.

OUTCOMES

Student should have basic understanding of the context and elements of historical development in the field of Architecture.

PART- A

Temple Architecture in India

- Genesis of Hindu Architecture during the Gupta & the Chalukyan period
- Development of Dravidian Architecture through different phases: Pallavas, Cholas, Pandyas, Vijainagar & Madura
- Indo Aryan Architecture- Orissan, Khujraho & Gujrat Architecture
- Jain Temple Architecture

PART - B

- Early Renaissance, High Renaissance, Mannerism, Baroque, Rococo
- Italian Renaissance - The idea of rebirth and revival of art
- Outline of the Architecture during the early Renaissance, High Renaissance and Baroque Periods
- Features of typical Renaissance palaces designed by Renaissance Architects,
- Study of contribution of Architects including Brunelleschi, Alberti, Bramante, Michaelangelo, Raphael Santi, Palladio, Bernini, Borromini

TEACHING METHODOLOGY

- Teaching will focus on making students understand the Architectural Characters/ features, building evolution and form with representative examples to highlight those features.
- Continuous evaluation shall be made of students work based on various models, assignments and sketching.
- The study of all the topics should be done with minimum two representative examples.

GUIDELINES FOR PAPER SETTER

- One compulsory question of short answers type containing 6 questions of 2 marks each (12 Marks) is to be set from the entire syllabus
- Three questions are to be set from each part and students will be required to attempt minimum one question from each part.
- Students will be required to attempt five questions in all including compulsory question.
- Question paper is to be set covering entire syllabus by making parts and mixing the topics.

REFERENCE BOOKS:

- Brown P, "History of Architecture Buddhist and Indian, Taraporevala and sons, Bombay, 1983.
- Grover Satish, "Islamic Architecture in India, CBS Publishers & Distributors 2010
- Fletcher Banister, "A History of Architecture, University of London, The Antholone Press, 1986.
- A History of Architecture:- James Ferguson, John Willey
- Ferguson James, Willey John, "History of Indian & Eastern Architecture, Dodd, Mead & company 1899

**B.ARCHIECTURE -IV SEM.
COMPUTER APPLICATIONS–II
(AR - 407)**

Uni.Exam.Marks - 60

Sessional Marks - 40

Duration of Exam. – No Exam (External Viva Voice)

No. of periods – 02 per week

INTENT

To make students aware of the role and importance of Computers in the field of Architecture

OUTCOME

Students shall have the skill to draw perspectives of small design projects and show sciography through Computer Aided Techniques.

CONTENTS

PART A

- 3-D Modelling on 3-D Max.
- 3-D Modelling on Google Sketch Up

PART B

- Rendering of the View on any of the following Software
 - 3D- Max,
 - Photoshop,
 - V-ray and
 - Any other related Software.

TEACHING METHODOLOGY

- Emphasis should be laid on developing the skill pertaining to 3-D on the Softwares
- Compulsory one week focussed workshop to be conducted by an expert in computer software

GUIDELINES FOR PAPER SETTER

- Evaluation of student shall be based on the written questions to be set from the course and the practical exam conducted, based on a specific problem given to assess and evaluate the Students's knowledge related to defined course contents.

**B. ARCHITECTURE- IV SEM.
STUDY TOUR
(AR - 408)**

Uni. Exam. Marks - No exam

Sessional Marks - 50

Pattern of Exam. – Internal Viva Voce

OBJECTIVE

To make student explore, study, analyze and understand the contemporary / traditional / historical architectural characteristics and details relevant to the course of study/ syllabi. The duration of tour shall be limited to 05 days.

GENERAL GUIDELINES FOR THE TEACHER

The students will be required to undertake study of buildings/area/ campuses covered during the tour in respect of architectural character / elements, building materials, building technologies used and details through sketches and photographs on individual and group basis, as may be decided by the tour in-charge. Study shall be submitted by student in the form of a report containing sketches, photographs and material collected during study tour, after the conclusion of tour. .

NOTE:

Evaluation of student shall be made through viva-voce conducted on the basis of submission made in the form of Sketches and Tour Report after the conclusion of tour.