

SRI SRI UNIVERSITY



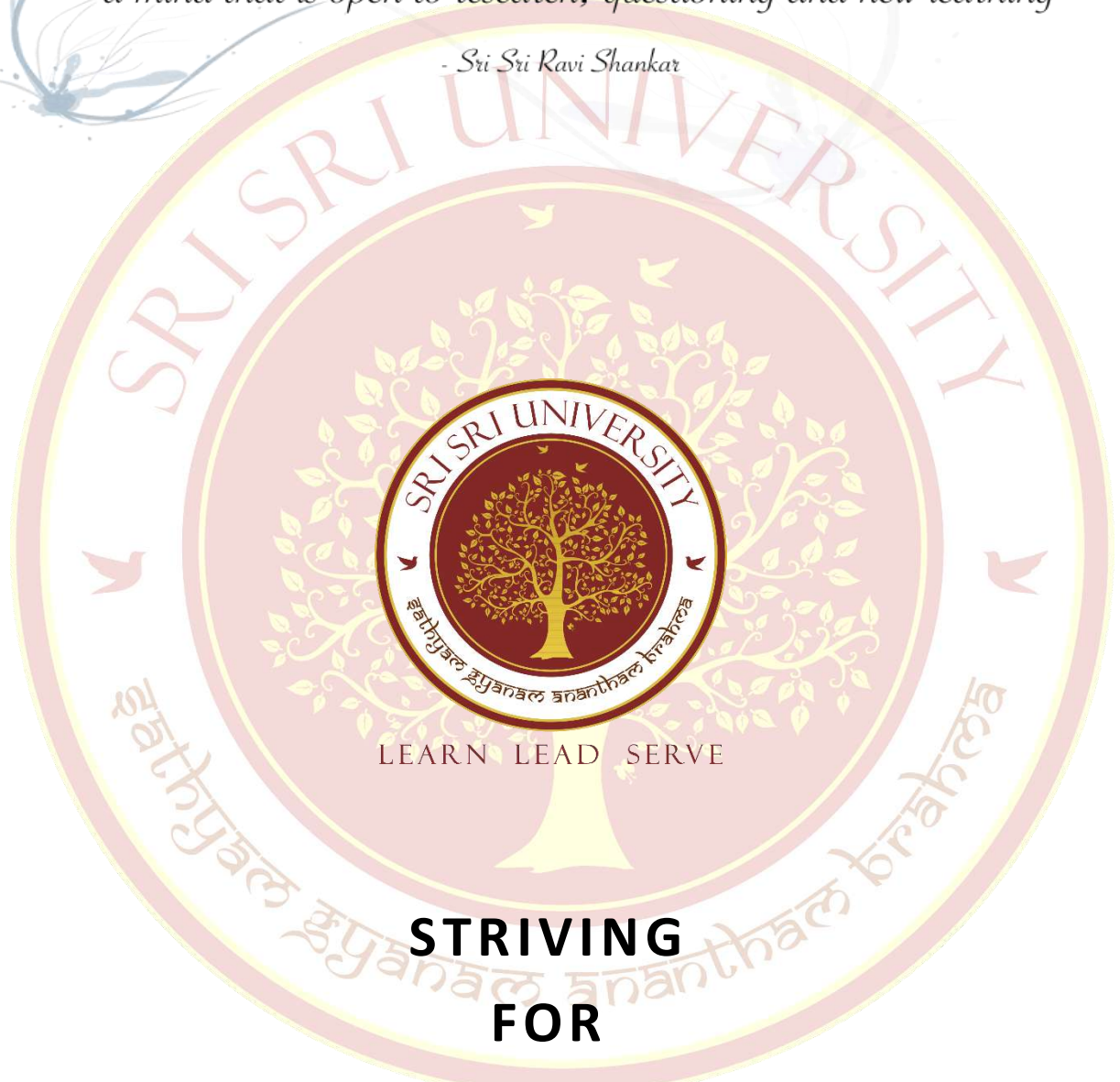
**Proposed Syllabus
For
BACHELOR OF ARCHITECTURE
(TEN SEMESTERS)**

As per Learning Outcome based Curriculum Framework (LOCF)

Effective from Academic Session 2019-2020

*Universities are there to create a vibrant mind,
a mind that is open to research, questioning and new learning*

- Sri Sri Ravi Shankar



**STRIVING
FOR
HOLISTIC AND INTEGRATED
LEARN LEAD SERVE
EDUCATION**

THE FACULTY OF ARCHITECTURE

COURSE CONTENT

YEAR 1 / SEMESTER I				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-101-A	Basic Design	08	7
	ARC-15-101-B	Self Study/Case Study		
	ARC-15-101-C	Seminar		
2	ARC-15-103	Construction Technology & Material - I	05	3
3	ARC-15-105	Architectural Graphics - I	05	3
4	ARC-15-107	History of Art & Architecture -I	03	3
5	ARC-15-109	Strength of Materials & Structures-I	03	3
6	ARC-15-111	Environmental Studies**	03	3
7	ARC-15-113	Communication Skills	02	2
8	ARC-15-115	Workshop - I	03	2
9	ARC-15-117 (Elective)	A. Music & Visual arts B. Traditional craft C. Alternative Construction Materials D. Art in architecture	02	2

YEAR 1 / SEMESTER II				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-102-A	Architectural Designs - I	08	7
	ARC-15-102-B	Self Study/Case Study		
	ARC-15-102-C	Seminar		
2	ARC-15-104	Constructional Technology & Material -II	05	3
3	ARC-15-106	Architectural Graphics - II	05	3
4	ARC-15-108	History of Art & Architecture -II	03	3
5	ARC-15-110	Strength of Materials & Structures-II	03	3
6	ARC-15-112	Building Ecology	03	3
7	ARC-15-114	Workshop-II (Model Making)	03	2
8	ARC-15-116	A-Yoga And Meditation B-Advance Basic Design C-Origami in Architecture D-Contemporary crafts	02	2

***Learning Outcome based Curriculum Framework (LOCF)**

YEAR 2 / SEMESTER III				
Sl.No.	Sub.Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-201-A	Architectural Designs - II	10	8
	ARC-15-201-B	Self Study/Case Study		
	ARC-15-201-C	Seminar		
2	ARC-15-203	Construction Technology & Material -III	05	3
3	ARC-15-205	Architectural Graphics - III	05	3
4	ARC-15-207	History of Art & Architecture -III	03	3
5	ARC-15-209	Structural Designs & system - I	03	3
6	ARC-15-211	Climate in Architecture	03	2
7	ARC-15-213	Computer Application I	03	2
8	ARC-15-215	Surveying and Levelling	04	3
9	ARC-15-217 (ELECTIVE)	A. Basics of Photography B. Site Management C. Energy in Building D. Biography of Contemporary Architects	02	2

YEAR 2 / SEMESTER IV				
Sl.No.	Sub. Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-202-A	Architectural Designs - III	10	8
	ARC-15-202-B	Self Study/Case Study		
	ARC-15-202-B	Seminar		
2	ARC-15-204	Construction Technology & Material -IV	05	3
3	ARC-15-206	Architectural Graphics - IV	05	3
4	ARC-15-208	Theory of Design - I	03	3
5	ARC-15-210	Structural Designs & System - II	03	3
6	ARC-15-212	Vernacular Architecture	03	2
7	ARC-15-214	Computer application - II	03	2
8	ARC-15-216	Building Services - I (WS+P)	03	3

***Learning Outcome based Curriculum Framework (LOCF)**

YEAR 3 / SEMESTER V				
Sl.No.	Sub. Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-301-A	Architectural Designs - IV	10	8
	ARC-15-301-B	Self Study /Case Study		
	ARC-15-301-C	Seminar		
2	ARC-15-303	Construction Technology & Material -V	05	3
3	ARC-15-305	Working Drawing - I	05	3
4	ARC-15-307	Structural Designs & System - III	03	3
5	ARC-15-309	Theory of landscape Architecture	03	2
6	ARC-15-311	Building Services - II (HVAC)	03	3
7	ARC-15-313	Computer Application –III (Software & Languages)	03	2
8	ARC-15-315	Estimation & Costing	03	3
9	ARC-15-317	A. Environmental Psychology B. Architecture and Music- The Synergy C. Ethics of Good Governance D. Architectural journalism	02	2

YEAR 3/SEMESTER VI				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-302-A	Architectural Designs - V	10	8
	ARC-15-302-B	Self Study/Case Study		
	ARC-15-302-C	Seminar		
2	ARC-15-304	Construction Technology & Material -VI	05	3
3	ARC-15-306	Working Drawing - II	05	3
4	ARC-15-308	Theory of Human Settlements	03	3
5	ARC-15-310	Structural Designs & System - IV	03	3
6	ARC-15-312	Building Services - III (Acoustics & Illumination)	03	3
7	ARC-15-314	Specification	03	3
8	ARC-15-316 (ELECTIVE)	A. Architectural Conservation B. Building Performance Simulation C. Basics of Statistics-CBCS D. PERT/CPM Technique	02	2

***Learning Outcome based Curriculum Framework (LOCF)**

YEAR 4/SEMESTER VII				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-401-A	Architectural Designs - VI	10	8
	ARC-15-401-B	Self Study/Case Study		
	ARC-15-401-C	Seminar		
2	ARC-15-403	Construction Technology & Material -VII	05	3
3	ARC-15-405	Interior Design	04	3
4	ARC-15-407	Theory of Human Settlement -II	03	3
5	ARC-15-409	Advanced Structural Engineering	03	3
6	ARC-15-411	Disaster Management	02	2
7	ARC-15-413	Research Skills	02	2
8	ARC-15-415	Professional Practice -I Architectural Professional Practice & Building Bylaws	03	3
YEAR 4/ SEMESTER VIII				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARC-15-402	Practical Training -I Portfolio Submission & Training Viva-I	Internship	3
3	ARC-15-404	Applied Research Seminar (Synopsis)		3
YEAR 5/ SEMESTER IX				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARE -15 -501	Practical Training -II	Internship	3
3	ARE -15 -503	Documentation of Heritage Building/Arch. Landmark/Any Architects Work		3
YEAR 5/ SEMESTER X				
Sl.No.	Subject Code	Subject Name	No. of Hrs. per Week	Credits
1	ARE -15 -502	Project (Thesis)	10	6
2	ARE -15 -504	Advance Construction Technology & Materials-VIII	05	3
3	ARE -15 -506	Research Skills-II Dissertation Research Seminar	02	2
4	ARE -15 -508	Professional Practice-II Valuation & Arbitration	03	3

**Learning Outcome based Curriculum Framework (LOCF)*



Year-1 -First Semester

-Focus-

- Visualization Techniques**
- Improving Communication Skills**
- Principles of Sustainable Architecture**
- Basics of Design and Construction**

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BASIC DESIGN

Objective-

- To develop skills in manual presentation techniques, use of various presentation media & medium, 2-D & 3-D compositions using elements & Principles of Design
- To observe and understand logic, patterns and designs in nature.
- To experience material and behaviour for associated design implication- orientation to product design.

Methodology:

- Students are taught through assignments using different media and medium uses in architecture and nature.
- Assignments covering each element and principles separately.

Learning Outcome:

By the end of the semester the students should able to:

- Evolve the art and design from Paleolithic ages to more refined modern definitions and segregations in art.
- Application of elements and principles of design through innovative assignments to make interesting patterns.
- Use of appropriate colour and its behavior to light in making different colour modules and their applications as per demand of the industries.
- Work out the type of textures and their impact on design.

Introduction to Design and Theory of Basic Design

The study of this subject is aimed at understanding the visual and aesthetic qualities of different Art in relation to architectural implementation. This subject forms a direct input to Design as 'Basic Design' as foundation of all professional courses that deal directly or indirectly with Applied Aesthetics.

Visual Art

Visual Art is aimed at providing knowledge and understanding of various visual arts and the importance in creating spatial experience. It further aims at developing freehand drawing and rendering skills in different medium and using the acquired skill as a tool of expressing ideas visually

Unit-I:

Brief historical review of development of fine arts (visual and performing arts); interdependency of visual arts, architecture, painting and sculpture

Unit-II:

Introduction to basic elements of design—point, line, shape, form, values, colour, negative and positive space, types texture and their usages in the design pattern.

Unit-III:

Principles of Design and its role in architectural expression, introduction to principles of organization / composition, theory of composition, Repetition, Variety, Radiation, Rhythm, Gradation, Emphasis and Subordination, Harmony, Balance and introduction to Proportions, Fibonacci series, Golden rectangle for building compositions.

Unit-IV:

Visual Properties of 2-Dimensional forms- geometrical and non-geometrical surfaces, visual and tactile textures, optical illusion

Unit-V:

Free hand line sketching, drawing of natural and manmade objects, shades and shadows, concept of vanishing point and perspective, sketching of historic / contemporary structures of architectural significance, using different mediums. Students must come with 5 sketches in their sketch pad and show them to design teachers in every design class.

Unit-VI:

Classification of colors with respect to hues, values and shades; color wheel, composition, properties and models and their application in contemporary design, colors relation to culture, tradition, religion, customs and moods.

Sessional Work

Plates, Sketches and models to understand basic design principles and elements, and their expressive qualities. Creative Exercises of 2 dimensional to 3 dimensional composition and patterns. Exercise related to positive and negative spaces Simple Product Designs exercises.

Reference Books:-

1. Design Drawing by Francis D. K. Ching
2. 7 Elements of Art by Jane Castillo
3. Elements of Art and Principles of Design by Gerald F. Brommer
4. Colour Count by Anneke Lipsanen
5. Geometry of Design: Studies in Proportion and Composition by Kimberly Elam
6. The Theory of Architectural Proportions by P H Scholhfid.

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CONSTRUCTION TECHNOLOGY & MATERIALS – I:

Objective:

- To develop understanding about construction principles through lectures, hands on experience on site and exposure to various elements of building.
- To develop design abilities by selection of appropriate materials and techniques and applying basic principles of construction.
- To understand the properties and strength of materials for structural systems, roofing, envelopes and interiors.

For first year the focus shall be on basic building materials and basic construction principles

Methodology:

Tutorials, notes, hand draft scaled drawings, proportionate sketches, site visits and preparation of reports

Learning Outcome:

By the end of the semester the students should be able to :

- Identify elements of a building and will also be familiar with the different materials used in its construction
- Understand and design different types of brick bonds and masonry, and their construction tool and techniques
- Designing different types of stone masonry, and their construction tool and techniques
- Understand the basis of stability and identify basic types of building structures and their aspects
- Identify various site level conditions and their implications on construction materials and techniques

Unit I:

Introduction to various elements of the building from foundation to roof, general idea about basic building materials such as brick (Fly ash and burnt bricks), stone, sand, aggregates, cement and steel. Introduction to Paint and varnishes.

Unit II:

Introduction of basic tools for brick masonry with finishes and stone masonry and working on site. Understanding the basic construction principles with respect to structural stability, load transfer pattern and its applications.

Unit III:

Introduction to "Construction" and its relevance in architectural design

1. Construction and the logic of stability as the basis
2. Concept of load bearing: support and supported building elements
3. Concept of span

Unit IV:

Basic Structural system such as load bearing and frame structure
Study of walling system and Roofing system in conventional practices.

Unit V:

Understanding the general conditions at site level such as site topography and soil conditions and its

implications on construction techniques, building materials, building elements, construction systems to be adopted.

Sessional Work:

Site visit reports, tutorials, notes, sketches, market surveys and sheets

Reference Books:-

1. Barry, R. (1999). *The Construction of Buildings Vol.II. 5th Ed.* New Delhi : East-West Press.
2. Bindra, S. P. and Arora, S. P. (2000). *Building Construction: Planning Techniques and Methods of Construction*, 19th Ed. New Delhi :DhanpatRai Publications.
3. BIS and relevant IS codes.
4. Ching, F. D. K. (2000). *Building Construction Illustrated. 3rd Ed.* Wiley.
5. Chudley, R. (2008). *Building Construction Handbook.* Noida : Elsevier.
6. McKay, W. B. (2005). *Building Construction Metric Vol. 1–IV, 4th Ed.* Mumbai :Orient Longman.
7. Meghashyam, K. K. (2005). *Reinforced Concrete Constructions for 21st C.* New Delhi :J.M. Jaina.
8. Rangwala, S. (2004). *Building Construction.* 22nd Ed. Anand :Charotar Publishing.
9. Rangwala, S. C. (1963). *Building Construction: Materials and types of Construction*, 3rd Ed. New York : John Wiley and Sons, Inc.
10. Sushil-Kumar, T. B. (2003). *Building Construction.* 19th Ed. Delhi : Standard Publications.

The logo of Sri Sri University is a large, circular emblem. It features a central tree with many leaves, set against a background of a sun or moon. The tree is surrounded by a circular border containing the university's name in Hindi: 'सत्यमेव जयते' (Satyameva Jayate). The logo is rendered in a light, semi-transparent style.

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ARCHITECTURAL GRAPHICS I

Objective:

- To familiarize students with practical and visual aspects of architectural drawing.
- To making them aware about the interdependency and application of the Architectural Graphics with the other subjects.
- To develop the ability of students to visualize and learn hand-drafting and representation skills.

Methodology:

The mode of teaching is through a combination of lectures, tutorials, studio and full scale exercises/models. The course is an introduction and familiarization to the drafting tools for representation and their logical extension to computer aided drafting in further academic years. All the exercises and course work is carried out during studio hours.

Learning Outcome:

By the end of the semester the students should able to:

- Know the fundamentals of architectural drawing and representation.
- Visualise, represent and communicate the same through architectural drawings.
- Equips the students with the necessary skillsets required to build a language through drawings as a medium.

Unit I: Introduction to drafting tools & hand drafting

Introduction to drafting tools, familiarisation, use and handling

Exercises that help them equip them in the use of drafting tools and understanding of line weights, sheet composition and drawing techniques.

Unit II: Lettering

Lettering practice, exercises on architectural lettering, understanding typography, working with fonts and graphics.

Unit III: Scales

Study of scales, their use in practice, Engineering and Graphical scale, Representative Factor, construction of Plain and Diagonal scale

Scaled drawings of simple objects

Unit IV: Proportions

Golden Proportion and Fibonacci series

Abstract Exercise on proportions and graphics. Integrated exercises with Basic Design.

Unit V: Geometrical Construction and material representation

Introduction to plane geometry: Exercise in construction of straight lines, planes, circles, tangents and regular polygons.

Description of plane curves: Ellipse, parabola, hyperbola, helix and other special curves.

Unit VI: Integrated exercise with Basic Design

Three Dimensional installation exercises, which equips students to understand proportions, balance and application of color theory that they learn in basic design. This exercise makes them understand how to work in teams to arrive at larger deliverables/outcomes.

Unit VII: Interlinkages between Visual Arts, History and Construction

Study of a one/two room temple architecture. This exercise integrates all the three subjects:

- (a) History: Studying the historical elements
- (b) Graphics: Study of forms, juxtaposition, intersection etc.
- (c) Construction: Study of materials and its properties
- (d) Visual Arts: Shading, rendering and representation techniques implemented through freehand sketches. Sketching and studying of details of the temple.

Final output will be an integrated exercise exhibit, where groups of students showcase the entire study.

Sessional work:

Tutorials, sketches, sheets, models, installation, internal tests and viva

Reference Books:

1. B. Gupta; A Text Book of Engineering Drawing
2. N.D. Bhatt; Engineering Drawing
3. Hiram. E. Grant; Engg Drawing., Mc. Graw Hill Book Company
4. Arthur L. Guptil, Watson; Rendering in Pen and Ink, - Guptil Publication NewYork
5. D.K. Ching, Architectural Graphics,
6. Robert W. Gill , Rendering with pen and ink

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HISTORY OF ART & ARCHITECTURE –I

Objective:

- To Study the evolution of various styles of art and architecture by taking examples from river valley civilizations
 - To understand architecture as an outcome of Physical factors like geography, climatology, location, Building Materials and available Technology
 - To understand influence of Art, Culture and Society / History and culture on art, architecture & human settlements
- To develop understanding of fundamental design principles (visual art principles) and resulting architectural expression appropriate to place and people.

Methodology:

- Presentations, group work, library work, class exercises
- Analysis of Building styles
- Tutorials
- Tests and presentations

Learning Outcome:

By the end of the semester the student will be able to:

- Familiar with different architectural styles and their effect on form and function of buildings
- Understand the trends in architecture following advent of new materials
- Get familiarised with the idea of the revival of the classic architectural styles of Ancient Greece and Roman
- Understand the traditional beliefs and Cosmological connections in various types of architecture

Unit I:

Introduction: Habitats in human history

Unit II:

Early attempts of communities for shelter during the prehistoric period.

Unit III:

Indian & Western Art and Architecture: Prehistory/1000BCE up to 400 CE including Greek and Roman Architecture

Unit IV:

Elements of Art & Principles of Design introduction to historic examples through local site visits emphasizing interplay of culture and art on architecture in Indian context – Example: Evolution of temples in the Odisha context.

Sessional work:

Using reference books such as Bannister Fletcher, Percy Brown. Preparation of details of historical building and Presentation, Sketches, History Primer/notes, Tutorials, Quiz, Site visit.

Reference Books:

1. Richard Bulliet, Pamela Crossley, Daniel Headrick, Steven Hirsch, Lyman Johnson, 2011. *The Earth and its people. A global history.* Boston, MA: Cengage Wadsworth.
2. Ching, Francis, Mark Jarzombek, and Vikram Prakash, 2010. *A Global History of Architecture.* 2nd ed. John Wiley & Sons. ISBN: 9780470402573.
3. Thapar, Romila, 2002. *Penguin History of Early India. From origins to 1300 AD,* Penguin

Strength of Materials & Structures-I

Objectives

The course covers mechanical properties of common engineering materials and introduces simple types of structural elements followed by determination of forces and stresses in the elements.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should be able to:

- Work out the engineering properties of different materials and understand the structural behavior when members are subjected the different kinds of forces.
- Analyze different kinds of beams under different loading conditions.

Unit-I (Basic Concepts - Stress & Strain)

Stress & strain concepts, elasticity, Stress-strain relation, elastic limit, Hooke's Law, modulus of elasticity, stresses in composite sections. Elastic constants, linear strain, Poisson's ratio, Shear stress & Bending Stress, relation between E, G and K.

Unit-II (Center of Gravity & Moment of Inertia)

- a) Centre of Gravity, Centre of Parallel Forces
- b) Moment of Inertia-Section Modulus, Calculation of Moment of Inertia by first principle and its application, Moment of Inertia of Composite sections.

Unit-III (Force System)

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

Unit-IV (Stresses in Trusses)

Forces in members- analytical method of joints Method of sections.

Unit-V (Shear Force & Bending Moment)

Beams-simply supported, cantilever and overhanging beams for various loads, shearing force and Bending Moment, Relation between bending moment and shear force, Shear Force and Bending Moment diagrams of simple cases for Concentrated and Disturbed loads.

Sessional work:

Assignments, Tests and Site Visits.

References:

- a) Engineering Mechanics – S Timoshenko & D H Young
- b) Structural Mechanics – Junnarkar.
- c) Strength of Materials – S Ramamrutham & R Narayanan

Environmental Studies

Objective:

- To develop an ecological basis for design in architecture – “body of theory that is architectural.”(Yeang, 1995).
- Emphasis will be on a theory for the practice of sustainable principles for designing with nature in an environmentally and socially responsible manner.

Course elements

- Ecology and design
- Architecture and its ecological impacts
- External and Internal interdependencies of the built environment & ecosystem
- Anthropogenic factors – climate responsive design/vernacular architecture
- Ecological design

Methodology:

Design primers /journals, design-demos for understanding inter-linkages. Case studies to elaborate principles of design; Draw linkages to construction and design studios; small do-it-yourself, DIY, demonstrations for understanding interlinkages; synthesize ecological design principles into design primers-journals for observation.

Learning Outcome:

By the end of the semester the students should be able to :-

- Emphasis on the students in theory for the practice of sustainable principles for designing with nature in an environmentally and socially responsible manner.
- By mainstreaming EVS, we aim to introduce students to the potential of including considerations in early stages of their design.
- This course will be a requisite for the course on Building Ecology in the next semester and lay the foundation for climate in architecture, vernacular architecture, theory of human settlements and landscape architecture.

Unit I:

Ecology and design: Introduction to Ecosystem and Built form interactions, Intro to Climate change

Unit II:

Architecture and its ecological impacts: built forms as open system and flow of energy and material

Unit III:

External and internal interdependencies: blue circular economy and design implications; introduction to life cycle of building

Unit IV:

Anthropogenic factors: Urbanization; balancing development-environment

Unit V:

Ecological design: technological, environmental and socio-economic factors

Unit VI:

Closed loop design – practical examples from the “blue economy”

Unit VII:

Ecological Impact

Sessional work:

Case studies to elaborate principles of design; Draw linkages to construction and design studios; Small Do-It-Yourself, DIY, demonstrations for understanding interlinkages; synthesise ecological design principles into design primers – journals for observation

Reference Books:

1. Text Book of environmental studies for under graduate courses by Benny Joseph Published by TATA McGraw Hill Publishing Company Ltd.
2. Text Book of environmental studies by Kaushik&Kaushik.
3. Text Book of environmental studies for under graduate courses by ErachBharucha, published by UGC, University Press India.



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COMMUNICATION SKILLS (CORE ELECTIVE)

Objective -

- To equip students with skills to communicate with people in various fields
- To develop a good body language and cultural sensitivity
- To enhance leadership and conflict resolution skills
- To equip students with the ability to interact and communicate in a politically correct, gender sensitive manner

Methodology:

Verbal and written assignments. Games to improve communication skills. Team assignments where verbal skills are necessary. Debates. Presentations.

Learning Outcomes:

By the end of the semester the students should be able to:

- Improves their verbal and written communication skills. Brings out confidence to be able to present and communicate effectively.

Unit I:

Composition- (i) Copy writing for advertisement-analyzing characteristics of a good advertisement (ii) Technical reports and letter writing (iii) Speech writing, analyzing speeches and speakers (iv) Critical appreciation

Unit II:

Presentation skills: Communication skills in Architecture through write up and graphic, graphs, sketches audio presentation, script writing, dubbing, ending vision, mixing.

Unit III:

Panel discussion

Unit IV:

Media presentation (audio presentation and voice modulation skills)

Unit V:

Story writing from keywords

Unit VI:

Introduction to Biographies

Unit VII:

Analysis of (technical) report

Unit 8:

Preparing an advertisement

Sessional work:

Sketches, notes, story writing, group discussion, debates and visual communication tasks.

Reference Books:

1. Dictionary of Pronunciation
2. Daniel Jones; Phonetics (symbols and transcription)

WORKSHOP - I

Objective:

To develop skills in the use of various tools and processes for different materials

- Introduction to various basic tools used for brick masonry on site
- Dry arrangement of brick bonds on site
- Hands-on experience in making brick benches and piers at the construction yard
- Understanding brick and stone bonds, joinery detail, defects in walls through site-visits
- Weekly visit to construction site with site supervisors.

Methodology:

Tutorial class interlinked with Building Construction & Materials class, for understanding materials, execution of project from a very basic shape like Cube to a real scale Architectural Models using construction elements, Materials, Work man ship, skill, tools and concept of design & execution. Site experience handling a full scale project having case studies on components and site will help to enhance the concept of construction technology of a building.

Learning Outcomes:

By the end of the semester the students should be able to :

- Various types of construction tools, workshops, fabrication shits. They will gain knowledge of executing a project from scratch to finish and delivery of the product.
- Learn the basic safety measures should be taken for execution of a work on site.

Sessional work: Site visits, site report

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VISUAL ARTS / Arch. & Music- Synergies

Methodology:

Use of classroom environment as well as a natural setting where students may learn more freely and adapt to the teaching.

Learning Outcome:

By the end of the semester the students should be able to:

- **Better understanding** of the fundamental concepts and techniques mentioned there in their practical papers.
- Able to perform some of common & unique knowledge explained in the paper simultaneously to meet professional requirements.

Unit-I

Pencil drawings, tonal value, variation flight, shading and texture techniques.

Unit-II

Freehand sketching, still life compositions, pictorial views and landscaping.

Unit-III

Brush control exercises in water, oil, poster, crayon and mixed media.

Cross-linked with the Faculty of Visual Arts at the Sri Sri University

Sessional work: 10 drawings & 05 paintings in well finished manner in highly presentable form.

Reference Books:

Text:Indian

Fundamental of Indian Art by S. N. Dasgupta

“Dance of Shiva” & “Transformation of Nature in Art” by A. K. Coomaraswamy

Recommended Books:

1 Text:Indian

-Fundamental of Indian Art by S. N. Dasgupta

-“Dance of Shiva” & “Transformation of Nature in Art” by A. K. Coomaraswamy

Western

-Art of Mankind by Van Loon

-Civilization of Mankind by Van Loon

-History of Art by Janson

References:

- Transformation of Nature in Art by A. K. Coomaraswamy

- Color by Edith Anderson Feisner.

- Art Now by Herbert Read
- Grassroot of Art by Herbert Read.
- History of Modern Art by H. H. Arnason.
- History of Painting by Janson.
- History of Western Painting by Eric Newton.



Year-1 - Second Semester B.Arch

-Focus-

**Three Dimensional Representation Techniques
Applied Knowledge and Practice of Sustainable Design Principles
Understanding the Building System**

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ARCHITECTURAL DESIGN I

Objective:

- To develop ability to visualize and analyse space through understanding of anthropometry, human proportions in relation to ergonomics.
- To observe, understand & experience built forms and designed spaces in relation to human needs, comfort, functionality, activity & spatial experience.
- To design simple building forms through analysis of spaces required for different activities & integrate them logically considering the usage, need & convenience.
- To incorporate / apply principles of design in coherence to knowledge gained from subjects taught for developing implementable design forms.

Methodology:

- Student are taught to study & measure furniture, common use spaces and represent them graphically following standard architectural representation of construction elements like wall, windows, openings etc.
- students measure themselves and find average suitable dimensions of the whole class for using as standard for designing spaces and furniture through proper area analysis.
- Proportions are taught through showcasing classical examples and through exposing patterns found in nature and life.
- Students design a simple functional spaces using different furniture considering common orientation factors, flow and circulation with minimum space wastage.

Learning Outcome:

By the end of the semester the students should be able to:

- Analyze and design using different dimensions, spaces, flow, circulation, furniture and its use.
- Understanding and application of the correlation between the space they measured and anthropometry.
- Understanding and application of proportions and its relation with anthropometry to evolve a design tool bringing aesthetics and functionality.
- Design a simple enclosed space using their own understanding of space through analysis, observations and imagination.

Unit I:

Anthropometry and Proportions

Study of Human dimensions and Proportions in relation to spaces, concept of percentile and Proportions in Indian standards, space required for various simple activities, circulation spaces. Understanding ergonomics. Relationship of anthropometry with nature; Study of simple day to day objects in terms of anthropometry and Proportions.

Unit II:

Form and Space

Volumes, elements of volumes, enclosure of space, semi-enclosed spaces, defining space by elements, light as a factor of shape, colour, texture and form, views and visual relationship. Properties of forms and their impact on spatial experience, Sustainable Spatial development in coherence with nature and environment

Unit III:

Elements of built form:

- a) Basic Elements: walls, floors, windows, doors, staircase, facade, etc.
- b) Supplementary Elements: courtyards, balconies, canopy, patio, water bodies, pergola, etc.
- c) Relevance of all such elements to architectural expression and spatial quality

Unit IV:

Principles of Spatial Flow & Circulation :

Basic principles of spatial organization and flow, symbiosis of form and function, concept generation convergent and divergent thinking in design

Unit V:

Furniture and Facilitation:

Need of furniture as an aid to enhance activities, study of various furniture in isolation and combination

Unit VI:

Climate and functional building design:

Orientation, climatic coordination and architectural elements, like shades, fins, fenestration etc. as per microclimate, weather and climatic conditions.

Sessional work:

Assignments under each head above with presentations, lectures and site visits; Small modules of short design projects based on the understanding developed in above-mentioned topics: Design of simple single activity spaces like residence, school, canteen etc.

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Construction Technology & Material -II

Objective:

- To introduce elementary building construction techniques
- To study the materials like timber and glass.
- To study the progress of construction through site visits.

Methodology:

Lectures, Studio, Sheets, site visits, tutorials, notes, sketches, market surveys, and exams.

Learning Outcome:

By the end of the semester the students should able to:

- Identify elements of arch and types of arches with cut and uncut bricks.
- Understand the working principles of arches and its advantages for construction of large span.
- Understand structural wood(timber), its seasoning, and types of joints.
- Understand elements of wooden doors, windows and their joinery details.

Unit I:

Basic principles/rules of masonry for its load bearing capacity and stability

Various types of Building materials used in masonry such as stone, brick, mud blocks, concrete blocks – size, shape, strength and aesthetic quality of each of them

Types of masonry for partition walls

Unit II:

Concept of span and its application in creating openings in masonry walls with lintels and arches.

Structural difference in the behaviour of lintel, arch and relieving arch

Basic terminology and types of lintels and arches, materials used for them such as stone, brick, wood, steel.

Unit III:

Study of other basic building materials, such as wood and woods by-products, glass and its classification, detailed studies of composite materials (fiber reinforced concrete, asbestos cement products), composition and general idea about chemical and physical properties leading to structural strength and aesthetic qualities. Study of timber boards and other eco-friendly boards.

Emphasis will be on developing understanding about making choice of appropriate building materials in a given situation.

Unit IV:

Principles of wooden/ timber Joinery

Types of timber and wood used in structural woodwork.

Overview of wooden roofs.

Basic types of joints and their application in various building elements such as timber doors, windows and timber roofs and timber floors

Timber paneled, partly paneled, partly glazed and fully glazed doors and windows with its fixtures and fastenings.

Sessional Work:

Site visit reports, tutorials, notes, sketches and market surveys, hands on detail for carpentry work, Plates of design Units based on the construction principles of masonry, joinery etc.

Reference Books:

1. B.C. Punmia; Building Materials and Construction, Laxmi Publications PVT. Ltd., New Delhi, 1993
2. Bindra& Arora; Building Materials and Construction.
3. Francis D.K.Ching, Building Construction Illustrated VNR, 1975
4. R.Barry. The Construction of Buildings. Vol.I-Vol-IV
5. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 longmans, U.K. 1981.



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Architectural Graphics II

Objective:

- To familiarize students with Orthographic Projections, Understanding Solids and Development of Surfaces.

Methodology:

The course will cover orthographic projections, axonometric, isometric projections as a method to draw and represent space. The mode of teaching will be through a combination of lectures, studio and models by integrating it with model making workshop wherever required.

Learning Outcome:

By the end of the semester students should be able to:

- Equips students to develop perception of simple architectural forms and buildings and skills for their representation.

Unit I: Understanding Solids and Surface Development

Introduction of Surface Development through model making

Understanding different types of solids and making the models in different medium, leading to an Installation out of the 3-D solids. Integrated exercises with Model Making Workshop.

Unit II: Orthographic Projections

Definition, meaning and concept, principles and methods of projection

Planes of projection, First angle & third angle projection

Unit III: Projection of points, straight lines, planes

Study of points, lines, planes, reference planes, projectors, orthographic projections of object in different positions and methods of drawing the same

Unit IV: Projection of solids

Study of different types of solids

Study of the projections with different conditions: in simple positions, with axes inclined to one reference plane and parallel to the other, with axes inclined to both the planes

Unit V: Integrated with Model Making Workshop summarizing lessons from Modules I-IV

Model of a simple building and drawing the orthographic projections of the same

Unit VI: Angular projections: Isometric and Axonometric

Orthographic reading and conversion of views

Unit VII: Voids and Openings

Development of Surfaces with voids

Unit VIII: Rendering Techniques - Integrated Exercise with Architectural Design

Exercise on learning how to render and represent trees, hedges, foliage, human figures, vehicles, furniture etc. their integration to present technical drawings and suggestions on extension to Landscape Architecture and to Computer Aided Graphics

Sessional work:

Tutorials, sketches, sheets, models, installation, internal tests and viva.

Reference Books:

1. B. Gupta; A Text Book of Engineering Drawing
2. N.D. Bhatt; Engineering Drawing
3. Hiram. E. Grant; Engg Drawing., Mc. Graw Hill Book Company
4. Arthur L. Guptil, Watson; Rendering in Pen and Ink, - Guptil Publication NewYork
5. D.K. Ching, Architectural Graphics,
6. Robert W. Gill , Rendering with pen and ink.



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History of Art & Architecture –II

Objective-

- To understand evolution of various styles of art-architecture with respect to human settlements as a response to mode of resource use including aspects of Bioclimatic, Technology, Economy, Social organization, Ideology and Nature of environmental impact
- Progression of art and architecture beyond River Valley civilizations and Greek-Roman period up to the Renaissance/pre-Industrial revolution era (pre-colonial era in India)

Methodology:

- Sketches and notes
- Analysis of Building styles
- Building structure and artifacts
- Site Visits
- Measured drawing
- Critical appreciation of Building
- Tutorials
- Tests and presentations

Learning Outcome:

By the end of the semester the student will be able to :

- Familiarise with different architectural styles and their effect on form and function of buildings
- Students will be familiar with trends in architecture following advent of new materials
- They will get familiarised with the idea of the revival of the classic architectural styles of Ancient Greece and Roman
- Traditional beliefs and Cosmological connections in various types of architecture.

Examples will range from

- Greek, Roman, Christian architecture to Renaissance Period
- Buddhist, Jain, Hindu, early Islamic architecture in Indian/SE Asian context
- cursorily deal with Mayan culture in the Americas

Periodicity: From 600 CE to1400CE

Unit 1: Orientation: recap 0-200 CE: pg 151-228

Unit 2: 400 CE: New Religious ideas in S Asia, China and Roman worlds

Unit 3: 600 CE: Rise of Byzantine, Hagia Sophia, India and SE Asia, Mayan

Unit 4: 800 CE: Rise of Islam, Hindu Architecture, India, SE Asia, Mayan, Monastery -Europe

Unit 5: 1000 CE : Hindu, Buddhist, Jain Architecture in India, Islamic Architecture-Ottomans,

Normans-Romanesque in Europe, Isfahan

Unit 6 : 1200 CE: Hindu-Rise of Sultanate, India, Angkor Wat, Gothic Architecture, Chichen Itza, Mexico

Unit 7 : 1400 CE: Forbidden City, China, Topkapi, Istanbul, Renaissance Architecture

Sessional work:

Sketches and notes, analysis of building: structure and artifact; site visits, measure drawings, models, tutorials, tests and presentation.

Reference Book

1. Ching, Francis, Mark Jarzombek, and Vikram Prakash, 2010. . *A Global History of Architecture*. 2nd ed. John Wiley & Sons. ISBN: 9780470402573, Pages 229 to 596
2. Course Hand outs
3. Reference books: Bannister Fletcher, Percy Brown, SatishGujral



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Strength of Materials & Structures-II

Objectives

To understand the basic principles of structural mechanics that would be pertinent to simple design elements and the structural behaviour of building elements. Emphasis will be more on structural concepts vis-à-vis stability of forms rather than intricate numerical calculations.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should be able to :-

1. Work out the engineering properties of different materials and understand the structural behavior when members are subjected the different kinds of forces.
2. Analyze different kinds of beams under different loading conditions.

Unit I (Bending & Shear stresses)

Bending equation, Bending stresses in symmetrical and unsymmetrical sections
Shear stress distribution in various sections.

Unit II (Torsion)

Torsion: Introduction; Torque and Torsional element, Behaviour of a member under torsion, Torsion of circular shafts – Basic assumptions, the torsion formula

Unit III (Deflection of Beams)

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

Unit IV (Column and Struts)

End conditions, Effective length, Slenderness ratio, Euler's formula.

Reference Book:

- a) Structural Mechanics – Punmia.
- b) Structural Mechanics – Junnarkar.
- c) Strength of Materials – S Ramamrutham & R Narayanan

Building Ecology

Objective:

- To develop an ecological basis for design in architecture – “body of theory that is architectural.”(Yeang, 1995)
- Emphasis will be on a theory for the practice of sustainable principles for designing with nature in an environmentally and socially responsible manner.

Course Elements:

- Ecology and design
 - Architecture and its ecological impacts
 - External and Internal interdependencies of the built environment and ecosystem
 - Climate responsive design/appropriate building
- Ecological habitat design – user interface
 - User based participatory design
 - Ideal villages and Smart Cities – context of India.

Methodology:

Workshops and Seminars.

Learning Outcome:

By the end of the semester students should be able to:

- Students learn to elaborate principles of design and their linkages to construction and design studios
- Students synthesise ecological design principles into design primers – journals for observation
- Students get hands-on experience through small Do-It-Yourself, DIY, demonstrations for understanding the inter-linkages and the fundamental principles of Building Ecology in design of functional buildings.

Unit I:

Overview - Framework for Ecological Design

Unit II:

External ecological interdependencies of built environment - site investigation and climate focus. Climate responsive and Context Specific Bioclimatic architecture- Climate zones in India, disaster proof architecture (Geoffrey Bawa, Gernot Minke, Ken Yeang) - Climatic Zones and Rural Housing in India:

Unit III:

Internal ecological Interdependencies – cyclical pattern of energy and material use: part production and construction phase. Appropriate Building material and technology (Hasan Fathy); Embodied energy content of building materials, Thermal properties of building materials.

Unit IV:

Internal ecological Interdependencies – cyclical pattern of energy and material use: part 2: operational phase (Mid Term Exams) Building Energy Efficiency Projects: Renewable Energy Technology: Passive and Active systems in Building; Energy in operation and use; Built system as a part of a Habitat – user interface.

Unit V:

Participation in practice – Building Community, housing without houses, building as a verb

Unit VI:

Ideal Villages – Rural linkage and/or Smart Cities Urban Unit

Sessional works:

Design Primer with sketches and notes, tutorials, tests, analysis of built forms, presentations, design charrettes, site visits.

Reference Book:

- Designing with Nature. The ecological basis for Architectural Design. Ken Yeang. McGraw Hill. Inc. 1995.
- Walden Pond. Henry David Thoreau.
- Life cycle assessment: M.Asif, T. Muneer, R. Kelley; A castudy of a dwelling home in Scotland. Building and Environment 42 (2007) 1`391-1394.
- <http://www.aia.org/press/AIAB106283>



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Workshop-II(Model Making)

Objective:-

- To develop techniques for 3 dimensional representation
- To Study material and their properties for making model

Methodology:

Working with different types of materials. Installation assignments.

Learning Outcomes:

By the end of the semester students will be able to:

- Equips them to work with different materials and make building models.

Unit I:

Solid geometry models

Unit II:

Models related to construction.

Arches, brick piers, use of exposure to different material- Cutter board, Metal scale, sand papers, sponge sheet , Abro tape, Fevicol, Mount board, foam board, Sole sheet, cork sheets etc.

Unit III:

Models for different design problems

Sessional Work:

Hands on exercises, use of different materials to prepare models

Reference Book:

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Elective-II

Advanced Basic Design

Cross linked with the Faculty of Yoga and Naturopathy at SRI SRI UNIVERSITY

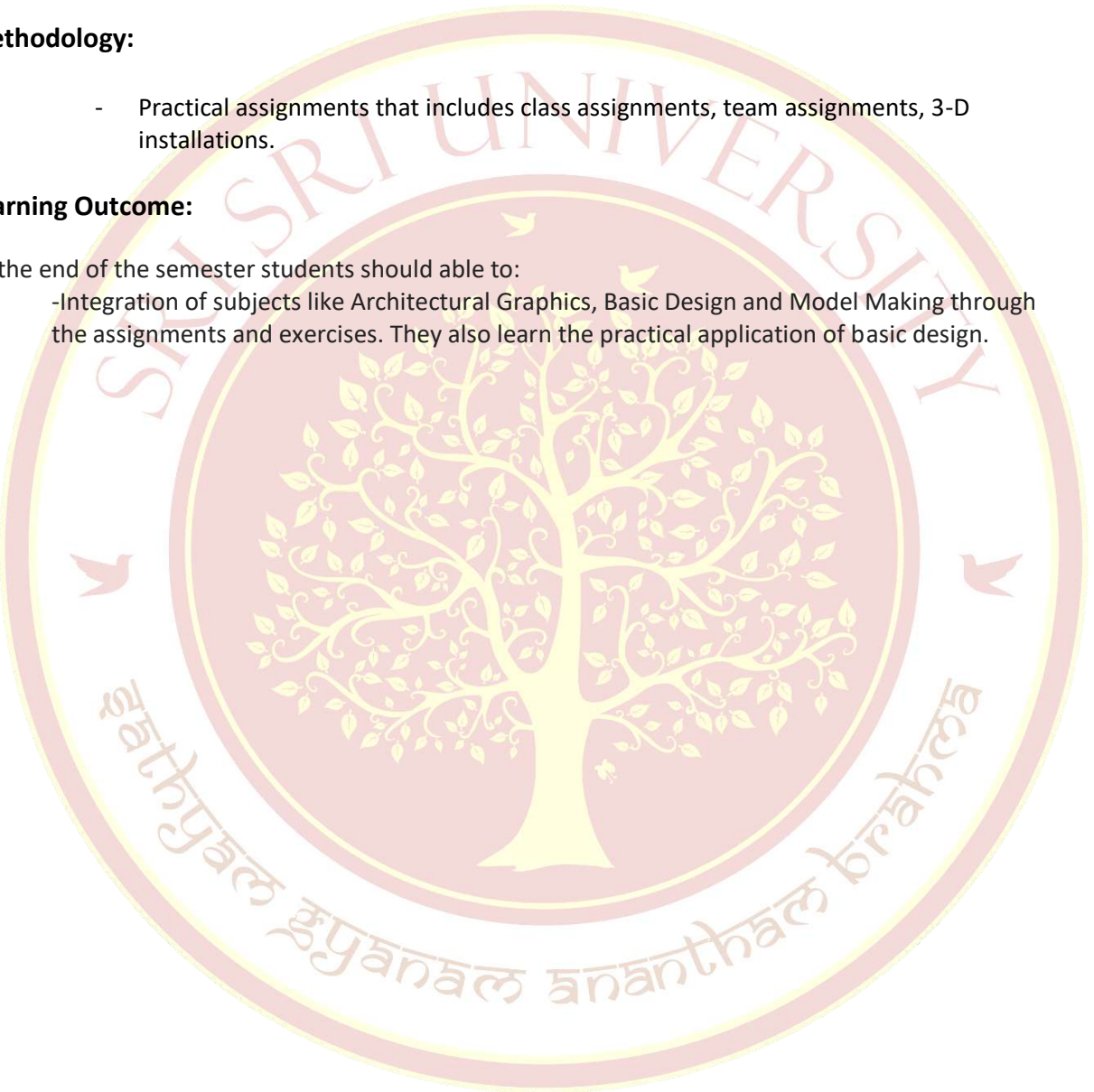
Methodology:

- Practical assignments that includes class assignments, team assignments, 3-D installations.

Learning Outcome:

By the end of the semester students should able to:

- Integration of subjects like Architectural Graphics, Basic Design and Model Making through the assignments and exercises. They also learn the practical application of basic design.



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Year-2 -Third Semester

-Focus-

- R.C.C as a Revolutionary Material**
- Climate Responsive Design**
- Globalization and Architecture**
- Flow and Function Oriented Design**
- Detailing through Photography and Graphics Techniques**

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Architectural Design-II

Objectives:

To continue design with further progress and more emphasis on architectural and functional aspects like:

- Complexity in circulation- pattern of horizontal and vertical movement.
- Integration in terms of facilitation, plan form, volume, concept and space organization.
- Application of basic building materials to evolve a design with aesthetic appeal, functional quality and elementary structural concepts to evolve specific form
- Climatic consideration for the design, orientation of building on site, simple concepts of sun shading devices, their application in elevations as functional / aesthetic solutions.

Methodology:

- To guide the students towards a design approach which embodies the constructive feasibility of the proposed ideas from concept to detailed design.
- Students are taught to develop their design as a 'problem-solving' exercise.

Learning Outcome:

By the end of the semester the students should able to:

- Demonstrate knowledge of designing residence integrating with the technical and environmental aspects.
- Understanding the requirements of different user group, their needs, lifestyle, culture and social status as well before developing livable spaces.
- Developed the ability to respond to site characteristics like topography, micro-climate and building orientation in development of the design of a residence.

Unitl:

Application of planning and design standards for a proposal- The study is done through literature study and measure drawing of a simple building and drawing all the details.

Type of Design Problems:

- a) Small Residence, Guesthouse, Block of Flats.
- b) Kindergarten School, Dispensary, Club, Motel.
- c) Post office, Bank, Office etc.

Time problem includes monument/café in public area.

Sessional work:

Exercise on one aspect at a time followed by at least two design problems arranged in sequence leading to more complexities

Reference Books:

1. Neufert, P., "Architects' Data", 3rd Ed., Blackwell Science.
2. Watson, D.(editor), "Time-saver Standards for architectural design: Technical Data for Professional practice", 8th Ed., McGraw-Hill.
3. Agkathidis, A., Hudert, M. and Schilig, G., "Form Defining Strategies: Experimental Architectural Design"/. Wasmuth.

Construction Technology & Materials–III

Objective:

- To study R.C.C as a revolutionary material for vertical as well as horizontal expansion of building.
- To study the concept of vertical connectivity between the two floors and their probable material
- To study the different criteria for spanning and types of roof

Methodology:

- Concept discussion
- Explanation through sketches on the board and PPT presentation
- Floor exercises – using chalk, making full size drawings on the floor
- Site visits
- Experts in the same field

Learning Outcome:

By the end of the semester the students should able to:

- Work out the details on depth of the footing, positions of beams and columns and the type of slabs to be provided on the basis of span.
- Developed the ability to understand the potential of the material of the staircase. Will be able to design the staircase depending on the need of the building and material and its application on the building.
- Select the right kind of doors or windows for the opening depending upon the function of the building and also to give aesthetically pleasing joinery details

Unit I:

Principle of framed structure: R.C.C. as a building material, R.C.C. components in framed structures like footing, columns, beams, lintels, slab and staircase.

Unit II:

Concept of vertical connector –Exploring construction material in study of staircases – Types on the basis of geometry and structural systems used for low rise buildings from foundation systems to Roof systems.

Unit III:

Doors, Windows – Steel, aluminum and sliding doors, sliding and folding doors, revolving doors, revolving shutters, collapsible gates.

Sessional Work:

Plates, Site visit reports, tutorials, notes, sketches, drawings, case studies and market surveys

Reference Books:

1. B.C. Punmia; Building Materials and Construction, Laxmi Publications PVT. Ltd., New Delhi, 1993
2. Bindra& Arora; Building Materials and Construction.
3. Francis D.K.Ching, Building Construction Illustrated VNR, 1975
4. R.Barry. The Construction of Buildings. Vol.I-Vol-IV
5. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 longmans, U.K. 1981

Architectural Graphics-III

Objective:

- To develop representation abilities in student and expose them to techniques of perspective drawings, architectural documentation and measured drawings.

Methodology:

The mode of teaching is predominantly through models, live-projects, demonstrations and Installations.

Learning Outcome:

By the end of the semester the students should able to:

- Develops representation abilities in student and exposes them to techniques of perspective drawings, architectural documentation and measured drawings.

Unit I: Intersection of Surfaces

Section planes in different angles, drawing of true shape.

Unit II: Perspective - One point and two point perspective drawings

Introduction and understanding the principle of perspective projection, perspective elements, methods of drawing perspective views and types of perspectives

Unit III: Perspective of Interior of a building, street perspective

UNIT IV: Bird's eye view of a building or any object with surrounding landscape, buildings etc.

UNIT V: Measured Drawing of heritage buildings

Modules developed in a manner to maximize study tour outputs through regimented measure drawing and sketching exercises that will assist in developing a graphical account of their architectural experience. Integrated Exercise with History of Architecture.

Sessional work: Sketches, sheets, tutorials, internal tests, presentations and viva

Reference Books:

1. B. Gupta; A Text Book of Engineering Drawing
2. N.D. Bhatt; Engineering Drawing
3. Hiram. E. Grant; Engg Drawing., Mc. Graw Hill Book Company
4. Arthur L. Guptil, Watson; Rendering in Pen and Ink, - Guptil Publication NewYork
5. D.K. Ching, Architectural Graphics,
6. Robert W. Gill , Rendering with pen and ink.

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History of Art & Architecture –III

Objective:

- To study social changes and impact on architecture from 1600 CE- Contemporary Architecture (1950s)
- To understand the effect of Globalization on architecture

Methodology:

- Analysis of Building styles
- Critical appreciation of Building
- Tutorials; Tests and presentations
- Measure Drawings and Site visits

Learning Outcome:

By the end of the semester the student will be able to:

- Familiarise with different architectural styles and their effect on form and function of buildings.
- Familiarise with trends in architecture following advent of new materials post industrialization, different philosophies of master builders; effect of globalization on building style, laying the foundation for course on TOD

Unit I:

1600 CE: Islamic Architecture: Mughal Architecture, Ottoman Empire, Italy and City State, England-Elizabethan era

Unit II:

1700 CE: Development of regional styles in India; Baroque Architecture

Unit III:

1800 CE: Neo Classicism, Start of Industrial Revolution

Unit IV:

1900: Industrial revolution in Europe and emergence of the Modern movement and its impact on contemporary Indian Architecture

Unit VI:

1950: Study of various schools of thoughts and philosophies of modern architects and its impact on contemporary architecture

Unit V:

1950 focus India: Architecture in Post-Independence era, city planning of Chandigarh, Delhi and study of its important administrative buildings, School of Arch, Ahmadabad

Unit VI:

Globalization and Contemporary Architecture in India: Study of works of Indian Architects, new developments like Navi Mumbai.

Unit VI:

Globalization and World Architecture: Master Architects and the new building language.

Sessional work:

Analysis of Building styles; critical appreciation of Buildings; Journal with sketches and notes, tutorials, tests and presentations, site/field visit.

Reference Book:

1. Ching, Francis, Mark Jarzombek, and Vikram Prakash, 2010. . *A Global History of Architecture*. 2nd ed. John Wiley & Sons. ISBN: 9780470402573, Pages 229 to 596
2. Course Hand outs
3. Reference books: Bannister Fletcher, Percy Brown, SatishGujral

The logo of Sri Sri University is a large circular emblem. It features a central golden tree with intricate branches and leaves. The tree is set against a background of a lighter shade of the tree's color. The tree is surrounded by a circular border containing the university's name in English, 'SRI SRI UNIVERSITY', at the top and in Sanskrit, 'सत्यं कृत्यान्तं अन्तः ब्रह्म', at the bottom. Two golden birds are positioned on either side of the tree, facing outwards. The entire logo is rendered in a semi-transparent, light pinkish-gold color.

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Structural Designs & Systems-I

Objectives:

To evaluate elastic deformations in beams and frames and to find forces and deflection in redundant structures. Introduction to soil mechanics: Identification and classification of soils; shear strength behaviors; soil improvement methods.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should be able to :-

- Analysis of continuous beams, find out shear force and bending moment.
- Understand different types of soils their nature and behavior and knowing the type of foundation required according to the soil.

UnitI :Determinacy and Indeterminacy

Determinate and Indeterminate structures.

UnitII :Three-moment theorem

Analysis of fixed and continuous beams

UnitIII :Slope Deflection method

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

UnitIV :Moment Distribution

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

UnitV :Approximate methods of Analysis

Substitute frame method

UnitVI :Introduction to Soil Mechanics

Properties and classification of Soil, Concepts of Shear Strength parameters, Safe bearing capacity.

UnitVII :Foundation Engineering &types of foundation

Design concepts of column footings, Raft foundation;Deep foundation-Pile & well foundation.

References:

1. Structural Mechanics – Punmia.
2. Structural Mechanics – Junnarkar.
3. Strength of Materials – S Ramamrutham& R Narayanan.
4. Soil Mechanics – B C Punmia.

Climate in Architecture

Objective:

- To understand elements for designing in different climatic conditions with emphasis on tropical climate for naturally ventilated buildings
- To apply the knowledge gained in designing buildings at parity/exceeding ECBC compliance requirements

Methodology:

Lectures, Case studies, Demo Videos, Tools, NBC Guide lines.

Learning Outcome:

By the end of the semester the students should be able to :-

- Understand the basics of climatic types in India.
- Understand the use of tools to design for thermal comfort, Day lighting & Natural Ventilation.

Unit I: Climate and weather

Macro, Meso, and Micro climate; factors effecting climate and weather; understanding quantitative elements of climate data; types of climate data, typical meteorological year (TMY) weather data, climate classification as per ECBC, elements of microclimate and their effects on local weather conditions; summary of climate analysis.

Unit II: Thermal Comfort

Human thermal comfort, psychometric and bioclimatic chart, introduction to operative temperature, thermal comfort models such as PMV/PPD and adaptive thermal comfort.

Unit III: Sun

Introduction to Sun, Wind, and Daylight as form-givers in architecture, Earth-Sun relationship, solar geometry, sun path analysis, shading devices, modes of heat transfer, thermal properties of building materials and construction, climate responsive approaches such as heat avoidance, heat retention, passive solar heating, and passive cooling.

Unit IV: Wind

Basic principles of air flow such as pressure difference, Bernoulli/Venturi effect, and Stack effect; airflow through buildings and components, window types, fin walls, roof vents, air flow as passive cooling strategies such as: comfort ventilation, night flush cooling, wind towers, etc.

Unit V: Daylight

Illumination and daylight factor, goals of daylighting, window glazing materials, daylight strategies related to building form, space planning, windows, top lighting, skylight, color, outside views, light scoops, light shelves, glare control, light well, and advanced active daylighting techniques.

Unit VI: Design approach and code compliance

Approach to climate responsive design process, methods for selection of appropriate passive climate responsive strategies, envelope design and daylighting methods as per ECBC, and approach to sustainability as per NBC.

Sessional work:

Design primer with notes and diagrams, case studies, application to current/future design studio

Reference Books:

1. Mark Dekay et.al.; Sun, Wind, and Light, Wiley Publications
2. S. Szokolay; Introduction to Architectural Science, Wiley Publications
3. O.H. Koenisberger et.al., Manual of Tropical Housing and Building- Part – 1- Climatic Design, Longmans, London, 1980.
4. Victor Olgyay, AladarOlgyay, Design with climate: Bioclimatic approach to Architectural regionalism, Princeton University Press, 1963.
5. Walter T. Grondzik, Alison G. Kwok; Mechanical and Electrical Equipment for Buildings, 12th Edition. Wiley Publications
6. NobertLechner, Heating, Cooling, Lighting, 4th edition, Wiley Publications, 2015
7. National Building Code of India, Bureau of Indian Standards, 2016
8. Energy Conservation Building Code (ECBC), Bureau of Energy Efficiency, 2017
9. B. Givoni, Man, Climate and Architecture, Applied Science, Banking, Essex, 1992.
10. M. Evans – Housing, Climate and Comfort – Architectural Press, London, 1980.
11. Donald Watson and Kenneth Labs., Climatic Design- McGraw Hill Book Company New York.



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Computer Application-I

Objective:

To create two dimensional architectural drawing with special emphasis on presentation and visualization using CAD applications, Basics of programming

Methodology:

- Regular Assignments
- Integrating with Architectural Design for final submission of drafted plan.
- Explanation through projection of commands and how it is used
- Examples of few projects are shown to make the students understand the use and purpose of learning the software

Learning Outcome:

By the end of the semester the students should be able to :-

- Work out the details of a project with the software commands.
- Fundamental rules will be clear to them about the use and output of the software. Will be able to produce the rendered plans in their Architectural Design Portfolio with minute detailing.
- They will be able to understand, visualise and work on the plan of a design for more details.

UnitI :

Introduction to AutoCAD
Getting started with AutoCAD

UnitII :

Starting with advanced drafting
Working with drawing aids
Editing drafted objects.

UnitIII :

Creating text and tables
Basic dimensioning, geometric dimensioning and tolerance.
Editing dimensions
Dimensioning style, multilayer styles and system variable

UnitIV :

Model space viewports, paper space viewports and layouts
Template drawings
Plotting drawings

UnitV :

Adding constrains to sketches
Hatching drawing
Working with blocks

Sessional work:

Practice and preparation of 2D documentation based on class project in the previous semester in Architectural Design.

Surveying and Leveling

Objective:

To read survey maps and understand features and undulations in ground

Methodology:

- Concept discussion with practical demonstration.
- Explanation through PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should be able to :-

- Understand contour plan through RL's for planning buildings, roads, drains, etc.
- Find area of the extent from site plan, Volume calculations (Cutting & Filling).

Unit I

Reconnaissance

Unit II

Chain survey and triangulation

Unit III

Study of instruments used chain survey via: (1) Chains, (2) Ranging rods, (3) Tapes, (4) Optional square, (5) Octagonal cross staff, (6) Cylindrical cross staff.

Unit IV

Chain line ranging, measurements of offsets, overhanging obstacles.

Unit V

Recording of chain survey, scales used in plotting.

Unit VI

Calculation of area by method of triangles, by Simpson rule, using graph paper and by plan meter, hectare and acre.

Unit VII

Transverse Survey.

Unit VIII

Instruments used via prismatic compass and Theodolite and temporary adjustment.

Sessional Work

Sketches, notes, tutorials, tests and presentation

Reference Books:

1. "Surveying (Vol-1,2&3) by B.C. Punmia, Ashok Kumar Jain and Arun Kumar Jain- Laxmi Publications(P) Ltd., New Delhi.
2. Duggal S K, "Surveying (Vol-1 & 2), Tata McGraw Hill Publishing Company Ltd. New Delhi, 2004.
3. Chandra A M, "Plane Surveying", New Age International Pvt. Ltd., New De4lhi, 2002.

Basics of Photography (Elective -3)

Objectives:

- To understand the equipment, processes, and procedures necessary for the photography of building exteriors and interiors, dusk/night and night architectural landscapes, and construction progress.

Methodology:

Lectures, Assignments, Practical Workshops and Photo tours.

Learning Outcome:

By the end of the semester students should be able to:

- Plan and execute the creation of photographic imagery following an iterative process of research, mechanisms, ideation, visualization, analysis, production and evaluation.
- Develop visual communication concepts appropriate for specific genres, purposes and audiences (e.g. informative, promotional and moments).
- Incorporate the knowledge of photography theories, principles and techniques practices into the conceptualization and development of effective photographs.
- Participate effectively in the discourse of current photographic practices.
- Integrate the principles design and visual language into the creation and evaluation of one's own work and the assessment of the work of others.
- Create content for new and merging media that expands the boundaries of traditional photographic practice (e.g. portrait, abstract, architectural, travel, street, landscape, macro, product etc.)
- Use a variety of technologies, techniques and processes to capture, manipulate, output, and manage photographic images for target audience.
- Select the photographic format and process most appropriate to the goals of the project.

Introduction to Camera and Photography:

Introductions & discussion of your goals for course. Camera parts and types (Bring your owner's manual to this class). Menu items and shooting modes (Auto vs. Scene vs. Priority).

Assignment 1:

Photograph a subject of interest to you using different shooting modes to see how that effects your images.

Exposure, Black and White Conversion

Intro to Lighting. Image show and tell Presentation of black and white photographs and Black & White conversion practice Exposure compensation. Concept of high- and low key Studio session

Assignment 2:

Continue to practice exposure compensation with your camera.

Lights & Exposure

Image show and tell Presentation of photographers who primarily portrait, wildlife, architecture and photojournalism. Discussion on these genres and exposure techniques (studio, natural). Review of aperture, shutter speed, ISO. Practice editing and cropping. Studio session (tentative)

Assignment 3:

Practice shooting portraits, architecture, streets, objects, nature, indoor, black and white, juxtaposed and landscapes with different lighting techniques. Bring 3 photographs from each genres mentioned above,

Composition principles and Shooting in low lights

Image show and discuss composition tips showing principles of designing. Experiment with long exposure photography and low light shooting. Shoot outside during class time in groups.

Assignment 4:

Find a subject of your choice and spend time working on POVs for framing the subject in different ways. Practice rules of composition. Bring 5 images showing principles composition

Photography and Editing

Basics of Photoshop

Introduction to Photoshop Covering the basics of editing, fixing highlights & Shadows, cloning, color correcting, and selective edits. Introduction to Camera RAW.

Assignment 5:

Correct 8-10 images shot by you using Photoshop and print them on photo paper having minimum width of 10 inches on one side.

Output:

Working in class to ready images for final output. Web vs. print. Discussion on Colour space conversion. Resolution, DPI and image formats.

Cross linked with the Faculty of Visual Arts at SRI SRI UNIVERSITY

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YEAR-2- Fourth Semester B.Arch

-Focus-

- Strengthening Architectural Vocabulary**
- Form and Function Based Design**
- Behavioral Changes With Respect to Environment**
- Relation between Built and Open Spaces**
- Preparing Technical Drawings**
- Flexibility of Steel as Building Materials**

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Architectural Design-III

Objective:

- To design according to the principles and philosophies of modern architects.
- To incorporate regional architectural style for design projects (including sustainable features).
- To incorporate services as integral part of design.
- To develop design concepts based on user survey.

Methodology:

Introduction of design Problem followed by Literature, study & data collection, case studies of projects of similar scale & typology is taken up. For understanding ultimately development of design concepts leading to Evolution of final design.

Learning Outcome:

By the end of the semester the students should able to:

- Demonstrate more complex form spatial needs for different user groups in workspace, instructions and organizations.
- Develop the ability to respond to characteristics like operation, circulation, movement, flow, ventilation, orientation, functionality, sustainability.

Case studies of specific buildings and public spaces.

Studio work will emphasize on linkages between built and unbuilt spaces.

Type of Design Problems:

Design of simple single activity spaces like group of low rise apartments, residence, school, University dining area.

Small Units of short design projects based on the understanding developed about above mentioned topics.

UnitI

Introduction to designing of multifunctional community building types on an intermediate scale.

UnitII

Stress on space programming, case studies and site analysis in architectural design.

UnitIII

Stress on culture /traditions in shaping the built forms.

Sessional work:

Assignments on each head with presentation, lectures and site visits.

Construction Technology & Materials –IV

Objective:

- To introduce the concepts of designing with steel structures and its various components.
- Introduction of Bamboo as a tensile building material

Methodology:

- Concept discussion.
- Explanation through sketches on the board and PPT presentation.
- Floor exercises-using chalk, making full size drawings on the floor.
- Site visits and Case Studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should able to:

- Determine the support system and suitable truss to be used for larger span.
- Select the suitable specifications (Size and Building Materials) for different types of openings including, doors, windows, ventilators, gates, etc.
- Specify appropriate materials and joinery details for specific types of partitions.
- Know in detail about the types of bamboo, strength, availability and sustainability.

Unit I:

Understanding the concepts of framed structures in Steel for low, medium span building, North light truss.

Unit II:

Walling system and cladding system.

Glazed partitions, Partitions – Aluminum, timber, steel. W.I. and R.C.C grilled enclosure.

Composite panel cladding to the existing structure.

Unit III:

Understanding concepts of Steel trusses for low and medium spans and North light trusses.

Unit IV:

Moisture and fire protections in STEEL framed low rise medium span buildings.

Unit V:

Exploring Bamboo as a building material.

Reference Books:

1. B.C. Punmia; Building Materials and Construction, Laxmi Publications PVT. Ltd., New Delhi, 1993
2. Bindra& Arora; Building Materials and Construction.
3. Francis D.K.Ching, Building Construction Illustrated VNR, 1975
4. R.Barry. The Construction of Buildings. Vol.I-Vol-IV
5. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 longmans, U.K. 1981

ARCHITECTURAL GRAPHICS IV

Objective:

- To introduce to students to the importance of shades and shadows and to understand sciography of different building elements.
- To enable students to apply techniques learnt in the preparation of a professionally formulated study tour document. In the process the students develop specific skill sets for creating presentations and exhibits.

Methodology:

The mode of teaching will be through a combination of lectures, studio and models. Using the study tour sketches, measured drawings and other documentation as key components, students will be encouraged to produce exhibits and monographs.

Learning Outcome:

By the end of the semester the students should able to:

- Enhanced Visual learning because of practical exercises
- Analyzing of the interdependency of other subjects with Architectural Graphics
- Application of theory into practical learning
- Working out possibilities of application in real time space design.

Unit I: Introduction to Sciography in relation with Climatology

Sun path (outdoors) and lighting (inside)

Concept and introduction to sciography in relation with Climate in Architecture

Principle of conventional angle of light and its rays acting as a projector to cast shadows

Unit II: Sciography of points, lines, planes and simple solids

Unit III: Sciography of Building elements

Unit IV: Measured Drawing of heritage buildings

Modules developed in a manner to maximize Study Tour outputs through rigorous measured drawings and sketching exercises that will assist in developing a graphical/visual account of their architectural experience. Integrated Exercise with History of Architecture.

Unit V: Study Tour Documentation

V.A – Book/Monograph

Book Designing, where they apply their skills in Graphics, and Visual Design (principles of design) and computer software, in layout of the book

V.B – Exhibit Panels

Implementation of representation techniques including Sciography, perspective and rendering skills to develop Exhibition panels of Study Tour Documentation

Sessional works:

Sketches, sheets, internal tests and viva

Reference Books:

1. B. Gupta; A Text Book of Engineering Drawing
2. N.D. Bhatt; Engineering Drawing
3. Hiram. E. Grant; Engg Drawing., Mc. Graw Hill Book Company
4. Arthur L. Guptil, Watson; Rendering in Pen and Ink, - Guptil Publication NewYork
5. D.K. Ching, Architectural Graphics,
6. Robert W. Gill , Rendering with pen and ink.



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Theory of Design-I

Objective:

The courses in Design Theory aim to evolve a conceptual frame work for intelligent appreciation of architecture and to develop a vocabulary for discussing design ideas.

Methodology:

The structure of the courses consists of set of lectures and prescribed reading followed by group discussions and seminars.

Learning Outcome:

By the end of the semester the students should able to:

- Apply the principles and theories in architectural practices.
- Evolve a conceptual framework for intelligent appreciation of architecture.
- Develop a vocabulary for discussing design ideas.

Unit I: Fundamentals of Design: Application in Buildings

- Introduction, Theory and its importance
- Application of the Aesthetic Component: Mass and Space, Proportion, Symmetry, Balance, Contrast, Pattern, Massing;
- Application of the Functional Component: Climate, Orientation, Circulation, Materials

Unit II: Design Process, Development & Techniques

- Architectural Design Process,
- Organisation of Spaces, Spatial Organisation;
- Geometry in Architecture, Surfaces & Irregular forms;
- Modification of Architectural elements;
- Transformation of forms, Translation of Design Ideas into Architectural expression

Unit III: Critical Analysis in Architecture and Design Languages

- Architectural trends in India and around the globe: Challenges and Issues in Architecture, Ethics and Aesthetics,
- Need for Architectural analysis; Case Study methods; Understanding the buildings functionality, evolution, aesthetics;
- History as a generator of design and Environment as a generator of design

Unit IV: Art Appreciation & Industrial Design

- Different types of Art forms, Sculpture, Furniture and Outdoor seating's,
- Introduction to Industrial Design: Basic principles and its application.

Reference Books:

1. Ching, F. D. (2007). Architecture: Form, Space and Order. New Jersey: John Wiley & Sons.
2. Gutierrez, R. U. (2016, 3 20). The naturalisation of architecture. arq , pp. 257-270.
3. Pamar, V. (1997). Design Fundamentals in Architecture. Mumbai: Somaiya Puublications.
4. Papanek, V. (1971). Design for the Real World: Human Ecology and Social Change. New York: Pantheon Books.
5. Unwin, S. (1997). Analysing Architecture. London: Routledge.

Structural Designs & Systems-II

Objectives

To understand the design elements of Reinforced Cement. Emphasis will be more on structural concepts vis-à-vis stability of forms rather than intricate numerical calculations.

Methodology:

Lectures and exercises in design of structural elements.

Learning Outcome

By the end of the semester the students should able :

- To analyze the ongoing projects in the site.
- To design different kinds of beams under different loading conditions

Unit I:

Introduction to RCC design- (Strength & Serviceability requirements Design methods, working stress, ultimate strength and limit state)

Neutral axis; balanced, under & over reinforced sections.

Unit II:

Design of Flexure Members

Design of beams for flexure, shear & bond; Design of doubly reinforced beams; Design of one way & two way reinforced slabs. - Design of lintels, cantilever beams and slabs; Design of T- beams.

Unit III:

Design of columns & footings

Design of R.C.C. columns, axially & eccentrically loaded Columns, columns subjected to BM about one & two axis; Design of staircase; Design of R.C.C. footings for columns.

Reference:

1. Analysis of structures Vol.II by VazraniRatwani.
2. Design of R.C.C. structures- S. Ramamrutham.

IS Codes:

1. IS 456: 2007.
2. SP-16
3. SP-34

Note:

Same IS-Code and books should be referred as mentioned in the theory course

VERNACULAR ARCHITECTURE

Objective:

- To study Architectural features as an outcome of local climatic influence.
- To study mud & bamboo as potential building material.
- To study, explore and application of local available materials of a region.
- To understand the correlation between building materials & construction technique of a region.

Methodology:

Workshops, Seminars, Site visit, study tour, hands-on exercises with the objective of students gaining practical experience.

Learning Outcome:

By the end of the semester the students should able to:

- Students learn to critically analyze the building typology and develop an architectural language that is context-specific.
- Students learn to elaborate and synthesise principles of vernacular design and establish linkages to construction and design studios and apply them in their designs.
- Students learn from artisans through small design-build demonstrations how to develop their tactile senses and understand how materials feel, behave and are moulded into built forms by vernacular builders.

Unit-I

Relation between vernacular and designer, Regional influence on vernacular architecture and humanitarian response, urban and rural vernacular architecture, role of sustainability in architecture, environment and resource management.

Unit II

Building materials and tradition, vernacular building materials – study the ways in which the materials were used at different times and different parts of the country.

Unit III

Study of stabilized soil bricks, wattle and daub walls, rammed earth walls, adobe walls, vaults and domes & Nubian vault roof, waterproofing of mud walls. Application of bamboo as an alternative building material for walling & roofing system.

Unit IV

Vernacular towns-evolution process, character, morphology, growth and decay. Case studies of vernacular towns with a strong influence of climate.

Reference Books:

1. Heath, Kingston wm- 'Vernacular Architecture and Regional design'- Cultural process and environmental response – 'Elsevier science and technology'-30 April 2007
2. Henry H. Glassie- 'Vernacular architecture' Pan books, London- 1966
3. Lindsay Asquith, Marcel Vellinga, Taylor and Francis- 'Vernacular architecture in the Twenty first century'- 2006 USA
4. Venu Bharati, by Vinoo kale, AproopNirman Nagpur.
5. Research notes and digests by CBRI Roorkee Burnt clay roofing, Ferro cement roofing units.
6. Auroville Publications

Computer Application-II

Objective:

- To create 3D models of different complex design problems.
- To improve three dimensional perceptions.

Methodology:

- Regular Assignments
- Integrating with Architectural Design for final submission of the Rendered views
- Explanation through projection of commands and how it is used
- Examples of the project shown to make the students understand the use and purpose of learning the software.

Learning Outcome:

By the end of the semester students should able to:

- Work out the details using software commands to do a project.
- Fundamental rules will be clear to them about the use and output of the software.
- Produce the rendered views in their Architectural Design Portfolio.
- Understand and work in the design for aesthetical details.

UNIT I - User Interface essentials

View settings, navigations, orbit, save. Draw Tools: Basic shapes using draw tools, Unit setup, push pull, follow me.

UNIT II Modify

Scale, rotate, Copy, Mirror Measurements: Protractor, tape, Divide, array

UNIT III Views

Camera views, Scenes, Walkthrough Styles: Preset styles, face & edge styles

UNIT IV Material

Applying colors & Textures, creating new materials. Shadows: Shadow & fog settings

UNIT V Presentation

Section planes, orthogonal views, background styles. Output: Save as images, Walkthrough as Video file.

Sessional work:

Practice and preparation of 3D documentation based on class project in the previous semester in Architectural Design.

Building Services–I(Water Supply and Sanitation)

Objective:

- To understand essential water services in buildings, and their role in generating a cleaner and healthier built environment.
- To understand the basic aspects of water supply, sewage disposal, refuse and storm water disposal in buildings. Low flow and water efficient fixtures.
- To study I.S. codes, and NBC related to water services

Methodology:

Lectures, tutorials, exercises can be clubbed with design studio project, case study visits

Learning Outcome:

By the end of the semester the students should able to:

- Identify elements of a building's water supply, sewage, and drainage system, its functioning, and layout
- Analysevarious aspects of water supply, sewage disposal, refuse and storm water disposal in buildings
- Analyse the importance and ways for cost-effectiveness of water services in building
- Analyse the importance of water efficiency, and rainwater harvestings

Orientation: Introduction to Building Services

Overview of various mechanical and electrical services in buildings. Introduction to Building Services I, II, and III.

Unit I: Basic fundamentals of fluid mechanics

Introduction to general physical principles of fluid mechanics such as Pressure difference and flow of fluids, Siphon effect, Hydrostatic Pressure, Venturi effect, etc. and their relationship with water supply and sanitation.

Unit II: Water Supply

General idea of sources of water supply, qualitative & quantitative aspects, impurities, hard and soft water, standards for quality of water

Study of standards regarding water demand and consumption in different types of buildings, computing demands for domestic use, designing domestic water supply systems and connections to municipal supply, types, capacity-design-construction of suction & storage tanks

Unit III: Sewerage

Characteristics of sewage, Quantity of sewage and storm water, infiltration, runoff calculation, Manning's formulae, partial flow diagram.

Design of Sewers, shapes of sewers, factors affecting the design of sewers, Materials and joints used in sewer systems; Sewage treatment-(self-purification), Disposal of sewage from isolated building, sewage breakdown, Details of a Septic tank and capacity calculation & design of plumbing system: design considerations on drainage scheme, preparation of plan, planning of bathroom, lavatory blocks and kitchen in domestic and multistoried buildings. Indian standards for sanitary conveyance.

Unit IV: Sanitation

Basic principles of sanitation and disposal of various kinds of waste matter from building; Brief description of various systems of sewage disposal and their principles; Plumbing definitions and related terms, plumbing systems (one pipe, two pipe etc.) House drainage system; Low flow and water efficient fixtures; Drainage of rainwater, surface water and sub-soil water; Manholes, Sub drains, culverts, ditches and gutters, drop inlets and catch basins, roads and pavements, storm overflow/regulators, rainwater harvesting, and ground water recharge, calculation of storm water runoff.

Reference Books:

1. Walter T. Grondzik, Alison G. Kwok; Mechanical and Electrical Equipment for Buildings, 12th Edition. Wiley Publications
2. Prof. Ashok L. Chatter, Building Services and Equipments, Priyadarshini Institute of Architecture & Design Studies
3. S. Deolalikar, Plumbing Design & Practice, 2nd edition, Tata Mcgraw Hill Publishing
4. B.C. Punmia, et.al; Water Supply Engineering, 2nd edition, Laxmi Publications
5. C.S. Shah; Water supply and Sanitation Engineering. Galgotia Publication
6. B. S. Birdie, Water supply and Sanitary Engineering, DhanpatRai and Sons.
7. National Building Code of India, Bureau of Indian Standards, 2016
8. Uniform Plumbing Code, International Association of Plumbing and Mechanical Officials
9. Handbook on Water Supply and Drainage (with special emphasis on Plumbing), Bureau of IndianStandards.

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Year-3 - Fifth Semester B.Arch

-Focus-

Stages of Settlement Planning from History to Present Age

Conscious Designing for Public Realm

Understanding of Visual Landmarks and Linkages

Material for Finishes

Services and Safety Measures for the Building

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Architectural Design-IV

Objective:

- To continue design studios further with greater emphasis on functional aspects involved in complex design situations.
- To explore possibility of incorporating services addressing the topography of site along with climatic features, to understand relationship between forms and function of buildings and built and open spaces.
- The design process will include:
 - Functional organization of activities with respect to site, its topography and surroundings and climatic considerations.
 - Development control rules, building byelaws and standard codes.
 - Functioning of building services like drainage, water supply and electricity
 - Form to suit the purpose of building.

Methodology:

To guide the students towards a design approach which embodies the constructive feasibility of the proposed ideas from concept to detailed design. Students are taught to develop their design as a 'problem-solving' exercise.

Learning Outcome:

By the end of semester students will be able to:

- Demonstrate knowledge of designing Commercial cum Residential Complex integrating with the technical and environmental aspects.
- Learn to detail out structure, construction technology, material, spatial quality with provisions for services, sustainable development, safety and statutory norms & needs.
- Demonstrate professional level drawing and portfolio presentation skills.

Type of design problems:

Design problems on sloping sites: Hotel Resorts, Tourist resort, University Library etc.

College building, Hostel, Primary health center, Museum, Club, Memorial, Services oriented multistoried apartment, Office/Commercial complex.

Sessional work:

Study of the above aspects in the form of book study, case study etc. followed by a relevant design problem. Minimum two major design problems and two short/time problems to be tackled in each-semester

Reference Books:

1. Time Saver Standards for Building Types by J.H. Calendar, Mc-Graw Hill Publications
2. Time Saver Standards Design data, by J.H, Calendar, Mc. Graw-Hill Publications,
3. Neuferts Architects Data, By Rudolph HergCrossby, Lockwood and Sons.
4. A.J. Metric Handbook.

Construction Technology & Materials –V

Objective:

Introduction and detailed study of different types of foundation systems.
Introduction to Earthquake resistant structures.

Methodology:

The subject is taught in form of theory, case studies, presentations, models, site visits

Learning Outcome:

By the end of the semester the students should be able to:

- Design suitable type of foundation for the building, depending upon the bearing capacity of soil.
- Use of appropriate type of temporary structures like scaffoldings, formwork for temporary moulds etc. to carry out the construction work smoothly.
- Analyze the construction techniques and basic principles to design the earthquake resistant buildings

Unit I:

Introduction to the types of foundation systems and foundation walls including Column footings-Strip, Combined, and Cantilevered footings.

Unit II:

Shallow foundations including Spread Foundation (Pad, Strip and Grillage), its need and application, Raft Foundations of various types viz. flat plate, flat plate thickened under columns, flat plate with pedestals, two way beam and slab, cellular raft.

Unit III:

Deep Foundations –Classification of Pile foundation (End-bearing, Friction and Pile cap)

Unit IV:

Temporary structures and temporary supports: timbering for trenches, formwork, centering, shoring and underpinning

Unit V:

Introduction of Earthquake resistant structures with focus on usage of new technology.

Sessional Work:

Drawings, Site visit reports, notes, sketches and power point presentations.

Plates, Site visit reports, tutorials, notes, sketches and market surveys.

Reference Books:

1. B.C. Punmia; Building Materials and Construction, Laxmi Publications PVT. Ltd., New Delhi, 1993
2. Bindra & Arora; Building Materials and Construction.
3. Francis D.K.Ching, Building Construction Illustrated VNR, 1975
4. R.Barry. The Construction of Buildings. Vol.I-Vol-IV
5. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 Longmans, U.K. 1981

Working Drawing-I

Objective:

- To train the students for *the preparation of* :
 - 1) Submission drawing as per the local building bye laws
 - 2) Working drawings required for carrying out actual construction work.

The graphics of the drawings will be with specific reference to the code of practice for Architectural and Structural drawings as laid down in B.I.S. No.962 of 1960.

The course of this subject shall be completed in two semesters i.e. Semester-V and VI. The course to be completed shall be as follows:

Methodology:

The course is an introduction to the technical tools for representation. It is a working studio all course work will be completed in studio hours. The course will cover the techniques of submission drawings, working drawings, typical sections, building services details, building components details . It also include the method to draw and represent space and building elements. The mode of teaching will be through a combination of lectures and studio.

Learning Outcome:

By the end of the semester the students should able to:

- Prepare the Submission Drawings and the techniques for preparation of Good For Construction drawings which will be easily readable by construction team, for the construction of a multi storied structure.

Unit I:

Study of building bye-laws, building regulations, requirements of parts of buildings as per the National Building Code.

Unit II:

Understanding the concept of Ground coverage, Built-up area, FSI/ FAR etc.

Unit III:

Preparations of submission drawings for a single storied building with approximate 75Sq.Mt. built-up area

Unit IV:

Preparation of working drawings for the same building. Mentioned in Unit III.

The set of drawings to be prepared shall include Foundation / center line plan (considering Load Bearing as well as R.C.C. Frame structure type), Floor Plan, Lintel level plan, Terrace Plan showing roof drainage arrangement. Sections, All elevations, Details of stair, Doors and windows, Flooring pattern, Kitchen, Architectural features and municipal submission drawing etc.

Sessional Work:

Plates on above topics. Minimum 10 drawing set of imperial size will be prepared to facilitate execution of building.

External Viva.

Reference Books:

1. Constructions Drawings and details for interiors by W.Otie Kilmer and Rosemary Kilmer.
2. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 longmans, U.K. 1981
3. Building construction illustrated by D.K. Ching.

Structural Designs & Systems-III

Objectives:

To impart knowledge of simple steel structures and its design methods.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation
- Site visits and Case Studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should able to:

- Workout the engineering properties of different materials and understand the structural behavior when members are subjected the different kinds of forces.
- Analyze different kinds of beams under different loading conditions.

Unit I

Introduction to Steel Structures:

Steel structural shapes, Introduction to IS 800; Rivets, Design of steel structural members – tension, compression and bending members

Unit II

Design of Beams, Columns & Footings:

Design of beams; checks for shear and deflection, define plate girders Design of built-up beams (with flange plates only) Design of connections: Design of riveted and welded connections including the beam end connections

Unit III

Design of Columns:

Design of axially loaded steel columns Design of built-up columns (Lacing) Design of foundations: Design of base plate, gusset plate and concrete footings for steel columns Design of grillage foundations. The class and assignment work should be supplemented with appropriate site visits

Reference:

Design of Steel structures – Ramamrutham

Analysis, design and details of structures Vol. III: Steel structures – Vazirani

IS Codes:

1. IS 800

Note:

Same IS-Code and books should be referred as mentioned in the theory course

Theory of Landscape Architecture

Objectives:

- To establish linkage between buildings and its surroundings
- To study the enhanced quality of the built environment, functionally and aesthetically using landscape as a medium ,

Methodology:

Notes, sketches, tests and seminars, Review of a Landscape Journal Project and presentation. Design-Build + Photo- documentation of a live project as suggested in UNIT VI. Integration with Graphics, Estimation, Survey and Levelling.

Learning Outcome

By the end of the semester the students should able to:

- Students understand nature and scope of Landscape Architecture and importance of designing with nature.
- Students gain understanding of the role of vegetation and are exposed to some important species.
- Gain hands-on experience in site selection, site analysis /survey; landscape design, Specification, estimation, project planning and implementation of a landscape project.

Unit I: Introduction to Landscape Architecture, definitions, importance, need and scope

Levels of landscape planning and design: landscape architecture and ecology; relationship between landscaping and environmental planning, regional planning, urban planning, urban design, architecture and interior design

Unit II: Historical development of landscape architecture:

Origin of gardens. Design principles, salient features and elements of various gardens in history - like Egyptian, Persian, Spanish, Italian, French, English, American, Japanese, Moghul Indian

Unit III: Modern garden development: changed scenario for modern garden designs, effect of industrialization on garden designs, company towns, parks movement, green belts, urban parks, residential gardens, small gardens

Unit IV: Different factors and components of a landscape:

Social and economic factors. Psychological considerations of spaces and enclosures.

Brief idea about manmade components like walls, fences, entrances, gates, barriers, screens, planters, roads & pathways, street furniture, signage, services-electrical, water supply and drainage. Basic natural components - land, trees, water and climate

Unit V: Land:

Different aspects of land as a landscape element - soils, geology, topography, earth forms, levels, foundations, grading, drainage, paved and unpaved surfaces. The importance and use of the aspects as a landscape design element

Unit VI: Plants

Different aspects of trees, shrubs, climbers, hedges, lawns as landscape elements; basic horticultural idea about plants, plant selection, planting design and care of plants, importance and use of the aspects as a landscape design element

Unit VII: Water

Various forms of water elements in a landscape - fountains, waterfalls, pools, cascades, channels irrigation etc. Importance and use of water as a landscape design element, construction of various water elements

Unit VIII :Climate

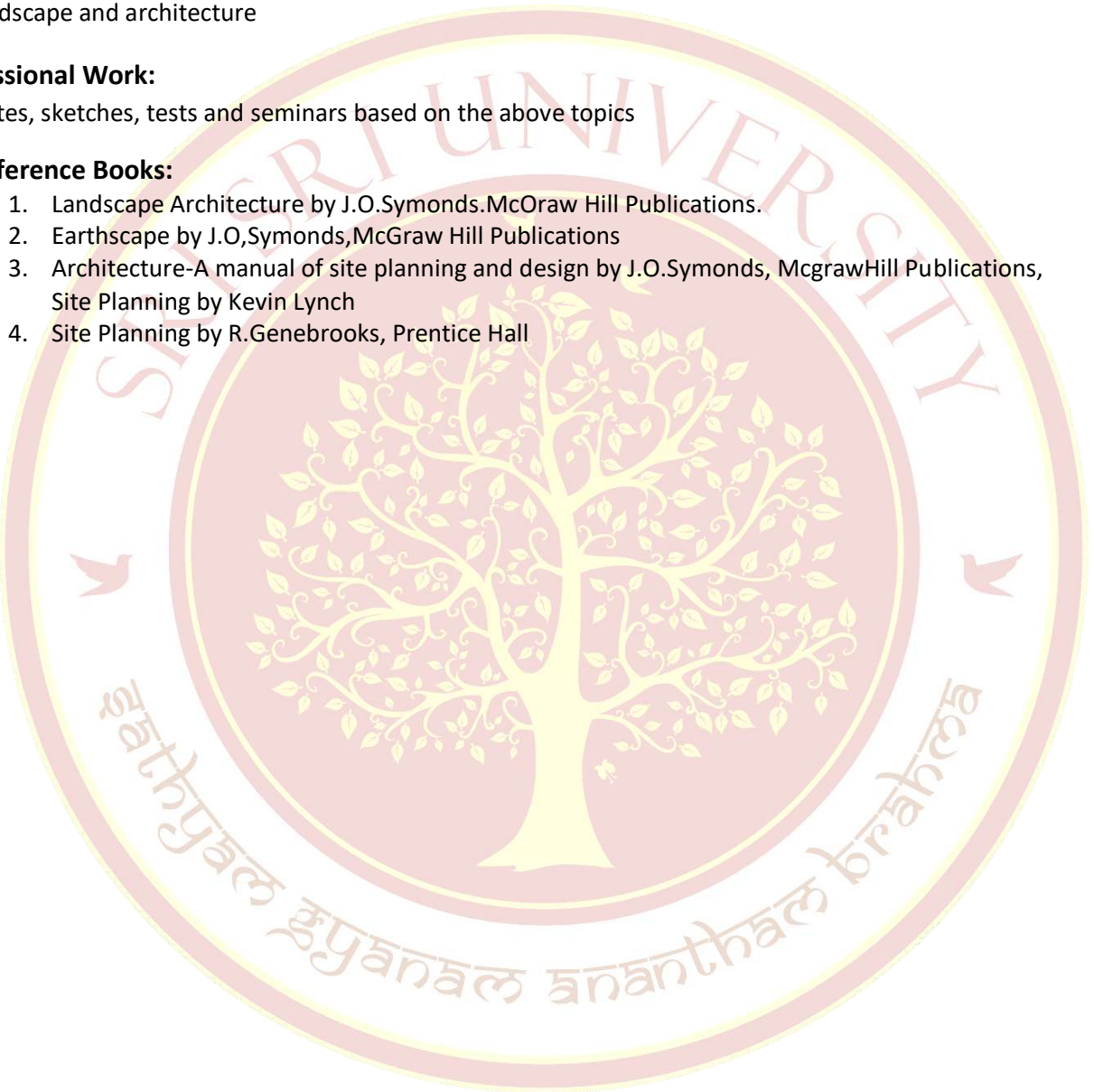
Macro and micro-climatic considerations in landscape architecture, effect of climate on landscape and various components of landscape on the microclimate, relationship between climate and landscape and architecture

Sessional Work:

Notes, sketches, tests and seminars based on the above topics

Reference Books:

1. Landscape Architecture by J.O.Symonds.McOraw Hill Publications.
2. Earthscape by J.O,Symonds,McGraw Hill Publications
3. Architecture-A manual of site planning and design by J.O.Symonds, McgrawHill Publications, Site Planning by Kevin Lynch
4. Site Planning by R.Genebrooks, Prentice Hall



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Building Services –II(Mechanical, Electrical, and Lighting)

Objective:

- To understand various building services that are part of Active aspect of building design, their functioning, and their impact on energy and environment.
- To understand schematic layout of simple electrical, illumination, HVAC, and lift system for residential and commercial buildings.

Methodology:

Lectures, tutorials, exercises can be clubbed with design studio project, case study visits

Learning Outcome:

By the end of the semester, students should be able to:

- Knowledge of different methods for calculating and measuring acoustical performance of auditoriums for speech
- Knowledge of Fire and life safety guidelines, and submission for fire approval certificate as local bye-laws
- Awareness of importance, and typologies, installation, and selection of PV systems for buildings

Unit I: Electrical Services

Basics of electricity, types of circuits, single/three phase supply, overview of sources of electricity from power stations, its distribution to the end users, types of electrical outlets, user interface, and appliances, electrical symbols, energy rating, electricity load calculation, protective devices in electrical circuit design for personal safety, types of earthing, lightning arrestors, types of wires, circuit wiring systems and their selection, panel room, distribution boards, electrical layout drawing of a building.

Unit II: Lighting & Illumination

Fundamentals of light and electromagnetic radiation, spectral distribution, basic quantitative photometric parameters, visual discomfort, inverse square law, Lambert's Cosine law, illumination for different visual tasks, artificial light fixtures and criteria for selection, lumen depreciation, luminous efficacy, life cycle cost, impact on environmental, design of modern lighting layout for institutional or commercial spaces, Permanent Supplementary Artificial Lighting of Interiors (PSALI).

Unit III: Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC & R)

Functions of HVAC systems, kinetic theory of heat, Gas laws, types of refrigeration system (vapor compression, absorption), their cycles, and major mechanical components, metrics for evaluation of energy efficiency, types of vapor compression based systems, their selection, and space requirement, types of refrigerants and their Global Warming Potential, and Ozone Depletion Potential, fresh air requirements, components of AHU, systems of ducting, air distribution, fresh air provisions, introduction to other non-air based methods of space cooling/heating such as Radiant cooling/heating, heat load calculation.

Sessional Work:

Electrical layout drawing, cooling load calculation, artificial lighting layout design

Reference Books:

1. Walter T. Grondzik, Alison G. Kwok, Mechanical and Electrical Equipment for Buildings, 12th Edition. Wiley Publications
2. Faber, Oscar and Kell, J.R. Heating and Air-conditioning of Building, Architectural Press, Surrey. 1945.
3. Basics of Air Conditioning, ISHRAE Publication
4. Fundamental of Refrigeration, ISHRAE Publication
5. Illumination Fundamental, Lighting Research Centre, Rensselaer Polytechnic Institute, 2000
6. Basics of Light and Lighting, Philips Lighting Academy
7. Derek Philips; Lighting in Architectural Design.
8. G.K. Lal, Elements of Lighting, 3-D Publishers.
9. R.G. Hopkinson and J.D. Kay, The lighting of buildings, Faber and Faber, London, 1969.
10. I.E.S. Handbook.
11. Handbook for building engineers in Metric systems, NBC, New Delhi, 1968.

The logo of Sri Sri University is a large, circular emblem. It features a central tree with many leaves, set against a background of a sun or moon. The tree is surrounded by a circular border containing the university's name in English, 'SRI SRI UNIVERSITY', and a Sanskrit motto, 'सत्यं कृतं अन्तः ब्रह्म'. The logo is rendered in a light, semi-transparent style.

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Computer Application-III

Objective:

This course covers all of the following materials:

- Introduction to 3D rendering using **Lumion / V.-Ray / Shaderlight**.
- Primary idea to how to create render frames , viewing angle , object view and perspective.
- Use of different materials using texture, BitMaps, gradients, shadows .
- Use of different types of lighting its settings and using parameters.
- State the primary roles of **Adobe Photoshop** as a premier Architectural graphic design and image editing tool.
- Productively utilize the Photoshop environment, including the use of Layers, Panels, Channels, Paths, the Toolbox, and the OptionsBar in architectural presentations.
- Utilize effectively multiple methods to create and save selections, for architectural renderings and image preparations.
- Utilize effectively multiple methods of manipulating the exiting artwork and workspace, apply painting, retouching, airbrushing, filters, and adjustment and layer style methods.
- Understand the difference between raster and vector graphics, and its progressive evolution to the Photoshopspace
- Be introduced to advanced theories including the mask, alpha channel and clipping path.
- The knowledge to create images and graphics in Photoshop, to create architectural presentations.

Learning Outcome: -

- It will help the students to get familiar with the professional Architectural presentations style.
- It will make them understand about the rendered techniques and be able to study the rendered plans.
- Use of these two publishing software will enhance the aesthetics of their projects and will help them to prepare interactive presentations.

Unit -I -3D rendering using Lumion / V.-Ray / Shaderlight: -

1. Primary idea to how to create render frames, image size , viewing angle , object view and perspective.
2. Use of different materials using texture, Bit-Maps, gradients, shadows.
3. Use of different types of lighting its settings and using parameters.

Unit -II - Adobe Photoshop part 1 Getting Acquainted with Photoshop

The Photoshop Environment, Palettes and the Palette Well, Creating Custom Workspaces, Opening Images, Using the File Browser, Image Magnification, Viewing Document Information, Moving the Image, Undoing Mistakes and The HistoryPalette, Displaying DrawingGuides, MakingMeasurements, AddingAnnotations, SettingPreferences.

Basic Image Manipulation Bitmap Images, Vector Images, Image Size and Resolution Settings, Scanning Images, Creating New Images, Placing Files.

Color Basics Color Modes and Models, Color Mode Conversion, Color Management, Foreground and Background Colors, Using the Color Picker, Selecting Colors with the Color Palette, Selecting Colors with the Eyedropper Tool, Selecting Colors with the Swatches Palette.

Painting Tools Painting Tools, The Brush Tool, Blending Modes, The Pencil Tool, The Eraser Tool, The Magic Eraser Tool, The Background Eraser Tool, Using the Art History Brush, Using the History Brush

Unit -III - Adobe Photoshop part 2

Brush Settings Using the Brushes Palette, Creating Custom Brush Tips by Selection, Creating Custom Brush Tips in the Brushes Palette, Setting Shape Dynamics, Setting Brush Scattering, Setting Brush Texture, Setting Dual Brushes, Setting Color Dynamic, Setting Other Dynamics, Miscellaneous Brush Settings, Clearing BrushSetting, saving a Customized Brush, Saving a Customized Brush Library.

Making Selections Selection Basics, Making Pixel Selections, The Marquee Tools, The Lasso Tools, The Magic Wand Tool, selecting by Color Rang, Adjusting Pixel Selections, The Extract Command, Copying and Pasting Pixel Selections, Saving and Loading Selections

Filling and Stroking

Applying Fills, Using the Paint Bucket Tool, Using the Gradient Tool, Using the Gradient Editor, Using Patterns, Using the Pattern Maker, Stroking

Layers

Using Layers and Layer Sets, Creating Layers and Layer Sets, Stacking and Linking Layers, Moving Layer Content with the Move Tool, Locking Layers, Common Layer Management Tasks, Merging and Flattening Layers

Advanced Layers

Layer Styles, Adjustment Layers and Fill Layers, Masking Layers, Creating Clipping Groups

Unit -IV - Adobe Photoshop part 3

Text

Text Basics, Entering Text, Selecting Text, Editing the Bounding Box, Creating a Type Selection, Applying Effects to Type Layers, Using the Character Palette, Checking for SpellingErrors, Using the ParagraphPalette.

Drawing

Raster vs. Vector, Shape Layers and Shape Options, Using the Shape Tools, Using the Pen Tools, Using the Anchor Point Tools, Using the Paths Palette, Working with Paths

Using Channels and Masking

Using the Channels Palette, Using Channels, Spot Colors, Blending Channels and Layers, Masks

Manipulating Images

Changing the Canvas Size, Rotating and Flipping Images, Cropping Images, The Free Transform Command, The Smudge Tool, Blurring and Sharpening Images, Using the Dodge Tool and the Burn Tool, The Sponge Tool, Filters and The Filter Gallery, The Color Replacement Tool

Getting to Know the Work Area

Starting to work in Adobe Photoshop, Using the tools, Using the tool options bar and other palettes, Undoing actions in Photoshop, Customizing the workspace

Basic Photo Corrections

Resolution and image size, Getting started, Straightening and cropping an image, Making automatic adjustments, Manually adjusting the tonal range, Removing a color cast, Replacing colors in an image, Adjusting lightness with the Dodge tool, Applying the Unsharp Mask filter, Saving the image for four-color printing

Retouching and Repairing

Repairing areas with the Clone Stamp tool, Using the Spot Healing Brush tool, Using the Healing Brush and Patch tools, Retouching on a separate layer

Working with Selections

About selecting and selection tools, Selecting with the Magic Wand tool, Using the Magic Wand with other selection tools, Working with oval and circular selections, Selecting with the lasso tools, Rotating a selection, Selecting with the Magnetic Lasso tool, Cropping an image and erasing within a selection

Layer Basics

About Layers, Using the Layers Palette, Rearranging layers, applying a layer style, Flattening and saving files

Masks and Channels

Working with masks and channels, creating a quick mask, editing a quick mask, Saving a selection as a mask, Editing a mask, Loading a mask as a selection and applying an adjustment, Extracting an image, Applying a filter effect to a masked selection, Creating a gradient mask, Applying effects using a gradient mask

Unit -V - Adobe Photoshop part 4

Correcting and Enhancing Digital Photographs

About Camera raw, Processing camera raw, Processing camera files, correcting digital photographs, editing images with a vanishing-point perspective, Correcting image distortion, Creating a PDF portfolio.

Vector Compositing

Automating a multistep mask, setting up a four-image montage, Hand-coloring selections on a layer, Changing the color balance, Applying filters.

Creating Links Within an Image

Slicing and image in Photoshop, jumping to Image Ready, creating image maps in Image Ready, Saving linked images in an HTML file

Sessional work:

Computer Aided designs, notes, tutorials and tests.

Reference Books:

1. Adobe Photoshop Cc Classroom In A Book (2018 Release) By Andrew Faulkner.
2. V-Ray for SketchUp: A fast start for architects and others By Majid Yeganegi.
3. Getting Started with Lumion 3D By Cardoso Ciro.
4. Lumion 3D Best Practices By Cardoso Ciro.

Estimation and Costing

Objective:

- To equip students with necessary technical knowledge for calculating estimates and detail costing for small to medium projects

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should able to:

- Prepare detailed and abstract estimates for different works like buildings, roads, water supply and sanitary, electrical, structural steel etc.
- Prepare rate analysis for different items of works based on the market prevailing rates.

Unit I Introduction to Estimation & Costing For Building

1. Definition of Building estimate
2. Purpose of Estimating
3. Different Types of Estimate

Approximate Estimate

1. Importance & purpose of Approximate/Rough estimation
2. Different methods of approximate estimate

Unit II Detailed Estimate

1. Preparation of Detailed estimate.
2. Function of "Measurement form" & "Abstract of estimate form"
3. Description & significance of Item in BOQ.

Unit III Methods of Measurement of works

1. Different methods estimating building works.
2. Estimation of a simple building at a different stages:
Foundation up to plinth
Superstructure
Finishing works
3. Reinforcement Quantities for RCC Works.
Calculation of quantity for Reinforced concrete(RC) for:
Column, Lintel, Slab & Beam.

Unit IV Analysis of Rate & Quantity of Materials

1. Purpose of Rate analysis.
2. Quantity of Materials.
3. Different components of rate.

Reference Books:

1. M. Chakraborty; Estimating, Costing, Specification & Valuation.
2. B.N. Dutta; Estimating & Costing.
3. P.N. Khanna. Handbook of Civil Engineering.

A- Environmental Psychology

Architecture primarily deals with spaces that are inhabited by people. Different people may perceive a space differently and may like or dislike that space. It is therefore very important for an architect to understand how human psychology works in accordance with alternative spaces.

Architecture plays a very important role in creating a healthy environment. At times a well-planned space is likely to increase the productive at the workspace and infuse well-being in a home. Also the occupant in buildings differ by age-group, sex, cultural and social background, economic groups etc. and in all these people are likely to have a different opinion about the same space. This subject will help the students to understand and create spaces to optimize the comfort level of the users.

Objective

- To understand different spaces/ environment in a building and its impact on the user.
- To study and analyses building spaces in terms of, spatial organization coupled with human psychology. Enable creation of a space which will enhance overall well-being of the user.

Methodology:

The teaching methodology includes delivering lectures and then making the students experience the situations. Environmental Psychology cannot be truly understood without sensing it in real life. The next step it to make them learn the application of the concepts and theories in different building typology. Also the course is aimed at integrating it with other subjects like Architectural Design and Landscape Architecture. This is done by integrating the Assignments with the other subjects.

The teaching methods also include sessions with the students and explaining the concept taking example of day to day activities.

Unit I: Introduction

Meaning , scope in Architecture; different levels: User-Self, Client, Spatial: Private, Semi-Public, Private, Sensory Process: Vision, Hearing , Smell, Taste, The skin senses. Perception: Attention, Form Perception, Visual Depth Perception, Consistency, Movement Perception, Plasticity, Individual Differences.

Assignment	<ul style="list-style-type: none"> • A few spaces are given to you. Select one particular space out of the given options and state your reasoning. It should be based on sensory responses. • Given an opportunity , how would you like to improve the chosen space? • Analyze at self level only.
Outcome	<ul style="list-style-type: none"> • To able to create interesting architectural spaces that would able to generate a sense of excitement and illusions. • To able design spaces for well-being taking cues from concepts of perceptions.

(Morgan 2001), (Gifford, Steg and Reser 2011), (Shemesh, Bar and Grobman 2015), POP 2013)

Unit II: management of Social Spaces

The concept of Personal Space, Territoriality, Crowding and Privacy, its effect on spaces and human psychology.

Assignment	<ul style="list-style-type: none"> • Analyse a building/Part of a building based on the social spaces. Identify and resolve any design issues linked with social spaces. • This would be at different levels: Self, User & Spatial
Outcome	<ul style="list-style-type: none"> • To able to design spaces that would a) provide adequate personal space b) Respect individual's territoriality c) Maintain privacy d) Control/manage crowding. • To able design spaces for well-being taking cues from concepts of perceptions.

(Namazian and Mehdipour 2013), Gifford, Steg and Reser 2011), ALTMAN 1976)

Unit III: Environmental Psychology in different Architectural Typology, Landscape Architecture and Urban Design

Physical nature of built environment and its result in daily human living spaces, Architecture & Human Behavior, Entrances, Residential, Workplace, Educational, Natural, Landscape Architecture, Neighborhoods and Cities; Safe Cities

Assignment	<ul style="list-style-type: none"> • Landscape design inputs for a proposed project. • Inputs in Architectural design studio. (Integrated)
Outcome	<ul style="list-style-type: none"> • Become proficient in dealing with different typology of building design keeping in mind about the human behavior and psychology. • To able to improve quality of living at neighborhood & City scale

(Moore 1979), (Shojazadeh, kazemi and Shafizadeh 2014), (Shyam 2013), (Kowaltowski and Raquel 2006), Kader n.d.), (TavasoliAra and Bashiri 2015)

Unit IV: Towards a better environment

Interaction with nature & role of psychology in climate change . The social construction of Nature, the Environment and Environmental Problems, Conclusion- changing contexts, Horizons, and Challenges.

Assignment	<ul style="list-style-type: none"> • Paper Review
Outcome	<ul style="list-style-type: none"> • Become aware of the environmental concerns. • Able to generate ideas at psychological level to combat the issues.

(Gifford, Steg and Reser 2011), (Gabrielsen n.d.)

Reference Books:

ALTMAN, IRWIN. "Privacy: A Conceptual Analysis." *Environment and Behavior*, 1976: 7-29

Ching, Francis D.K. *Architecture- Form , Space and Order*. New York: Van Nostrand Reinhold Company.

Gabrielsen, Kristin Rovik. "Designing Huma Behaviour: How persuasive design methodology translate into the designer work." *Norwegian University of Science and Technology*.

Gifford, Steg, and Reser. "Environmental Psychology." In *IAAP Handbook of Applied Psychology*, by Paul R. Martin, 440-470. Blackwell Publisng Ltd., 2011.

KADER, WALID ABDEL MONEIM ABDEL. "Architecture and human Behaviour." *Cairo: Cairo University Scholars*.

Kowaltowski, Doris C.C. K., and R.M.P. Baros Raquel. "Architectural Design Analysis as a Strategy for people Environment Studies: Finding Spaces that Work." *Environment, Health and Sustainable Development*. Alexandria: IAPS, 2006.

Moore, Gary T. " Architecture and Human Behaviour: The Place of Environment- Behaviour Studeis in Architecture." *Winsconsin Architect*, 1979: 18-21.

Namazian , Ali, and Armin Mehdipour. " Pschological Demands of the Built Environment, Privacy, Personal Space and Territory in Architecture." *International Journal of Psycology and Behavioral Science*, 2013:109-113.

POP, Dana."Space Perception and Its Implication in Architectural Design." *Acta Technica Napocensis: Civil Engineering & Architecture*, 2013.

Shemesh, Avishag, Moshe Bar, and Yasha Jacob Grobman. "Space and Human Perception." Edited by Yasushi Ikeda. *EMERGING EXPERIENCES IN THE PAST , PRESENT AND FUTURE OF DIGITAL ARCHITECTURE*. Daegu: The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA), Hong Kong, 2015. 541-550.

Shojazadeh, Hamid Reza, Mehrvash kazemi, and Asad Allah Shafizadeh." *Environmental Psychology in*

Sri Sri University, Faculty of Architecture

Architecture and Urban Design."Research Journal of recent Sciences, 2014:116-120.

Simon, Unwin. Doorway. Routledge Taylor & Francis Group.

-An Architecture Note book, Routledge Taylor & Francis Group.

-Analysing Architecture. Routledge, Taylor & Francis Group.

TavasoliAra, Faezeh, and Saeedeh Bashiri. "The Role of Behavioral Sciences in Environmental Design:An emphasis of the Need for Collaboration between Psychologists and Architects."Journal of Applied Environmental, 2015: 359-364

Cross-linked with the Faculty of Good Governance at the Sri Sri University



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B- Architecture and Music- The Synergy

Indian music is universally acclaimed for its charm and spiritual essence. A natural de-stressor, music centers one by bringing the mind-body equilibrium. Music can be a transformative force, empowering minds. Can music train a mind for improving focus and balance? Can we visualize / design better with the unfolding emotional experiences innate to *raags*? This course, designed as a musical journey from history to harmony explores the beauty and meditation in Hindustani Music in a highly participative process, elaborating upon the various aspects of music and musical renditions.

The subtle yet vivid overlaps between architecture and music made Anita Kulkarni's creative journey especially synergistic. Inspired by the uplifting experiences in her long dual journey, she developed the course "**Architecture and Music - The Synergy**" making the content especially relevant for architects and architects-in-the-making. The course is appreciated by various audience groups across India and the USA for being "Immersive", "Enriching", "Inspiring" and more.

Objective

- To Providing exposure into a rich art form by systematically learning Music Appreciation
- To Learning music mechanics for experiencing music at a deeper sensory level
- To Harnessing creativity, focus and balance through the knowledge of music
- To Studying the Architecture-Music Synergy to enhance the design process.

Methodology:

The course includes lectures, live demonstrations, recorded music listening, and practicing music. It progresses via a series of 2-hour modules that visit the process parallels in architecture and music. (Examples: 1. Architectural basic design of forms-colors-textures comparing to the musical exercises of *swar-alankaar*, *taan* and *paltas*. 2. *Khatka-murki*-like musical nuance relating to the spatial play of the unexpected. 3. The drama of massing comparing to the imposing somberness of a meditative rendition. 4. Filling the base note *Sa* as if constructing the footing on which will come up a beautiful structure. 5. The whole-to-part architecture design process corresponding to a systematic *raag* progression on a timeline). Other topics include *Omkaar*, the octave and the intellection of *raags*, breath control, lyrics and rhythm among many other things. *Raags* (meaning *Emotion* in Sanskrit) are explained in detail and with examples. The course also explains Music Therapy and Stress Management – a most relevant subject in our present-day living. Study material of glossary, bibliography, recommended listening, artists, YouTube links, *raag* names and research topics will be provided. The course's last module of *Chaitanyasan* is a special exercise in mind calming and energizing, involving a musical meditation with guided imagery.

Level 1 Course

Recommended for First Year Architecture Students
Duration – 40 hours (20 sessions of 2 hours)

Level 2 Course

Recommended for Third Year Architecture Students
Duration – 40 hours (20 sessions of 2 hours)

Topics (each delivered in a 2-Hour lecture-demonstration module)

1. Power of Music
2. Omkaar, Aahat and Anaahat (Meaning, Learning, Visual Analogy between Omkaar and White)
3. The Octave – with notes and shrutis
4. Raags – Intellection as an emotional experience

5. Raags – The Mechanics
6. Raags – The Improvisation
7. *Bandishand Rachana*– Structured work in Music and Architecture
8. The Raag-Time Theory
9. The Aspect of Rhythm
10. The Harmony
11. Process Parallels – 1 (form-color and musical *alankaars*)
12. Process Parallels – 2 (corresponding nuance in architecture and music)
13. Process Parallels – 3 (foundation building and lyrics-rhythms’ pictorial character)
14. Process Parallels – 4 (spatial massing and the meditation in a *raag*’semotional experience)
15. Process Parallels – 5 (design Development with complexity and flourish)
16. Process Parallels – 6 (gharanas and periods)
17. Process Parallels – 7 (master artists with examples)
18. Process Parallels – 8 (context, merging, harmony – the meditative joy)
19. History and Tradition
20. Presentation and Performance
21. Music Therapy – Music for Stress Management

Notes

1. Prior musical training is not a prerequisite.
2. The courses are recommended as a part of mandatory learning and not as electives.
3. Continuity may be crucial to this learning. The pattern of weekly session may make the learning discontinuous. It will be beneficial to fit the course in 2 or 3 concentrated weeks, in the term’s schedule.
4. This is the standard topic-wise syllabus tailored for 40 hours total. The same can be modified to fit a 34-hour course.
5. The length of the course will be suitably divided into contact time and study/research time during the path of the course.
6. Level 2 will start with a Level 1 recap.
7. While the Level 1 and Level 2 topics list is the same, it is the content that will be different (appropriately advanced) in Level 2.

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Year - 3 -Sixth Semester B.Arch

-Focus-

Concepts in Modular Co-Ordination

History of Interior Design

Use of Sustainable and Composite Materials

History of Settlements

Automation Systems of the Buildings

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Architectural Design-V

Objective:

- To enable working on more complex assignments catering commercial and institutional spatial needs and building type, where the user groups are more volatile.
- To focus on Buildingservices complexity would be high and mostly relying on passive design strategies and natural systems of lighting and ventilation.

Methodology:

To guide the students towards a design approach which embodies the constructive feasibility of the proposed ideas from concept to detailed design.

Students are taught to develop their design as a 'problem-solving' exercise.

Learning Outcome:-

By the end of semester students should be able to:

- Demonstrate knowledge of designing Commercial and Educational Complex integrating with the technical and environmental aspects like construction technology, economy, material, sustainability, structure, services following modern trends and practices followed in the field.
- Students should be able to demonstrate professional level drawing and portfolio presentation skills

Design Typology:

Following are the type of project that may be dealt with:

- a. Institutional Building (Educational, Learning Centers)
- b. Commercial spaces like Markets (Urban Context) and Hotels

Sessional work:

Minimum 2 design project having weightage 70% and 30%. One of the projects can be a time bound test. The following parts shall be submitted: Literature study, Case Study, Site and Area analysis, Zoning, Prelim design, final drawings comprising of Concept, Site Plan, Floor plans, Sections, Elevations, Section, 3D Views and Physical Model.

Reference Books:

1. Watson D., Plattus A., Shibley R., Time-Saver Standards for Urban Design
2. Bahamon A., Sketch Plan Build, Harper Design
3. Unwin S., Architecture Notebook
4. Pandya Yatin, Elements of Space-Making

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Construction Technology & Materials –VI

Objective:

- Introduction large span RCC roof system
- To study and explore Pre cast and Prefab building elements in various materials
- Introduction to high rise construction

Methodology:

- Concept discussion
- Explanation through sketches on the board and PPT presentation
- Site Visits
- Videos and animations
- Lectures by Expert in the same field

Learning Outcome

By the end of the semester the students should able to:

- Plan and execute flat slabs and waffle slab (black) in a building.
- Design Pre-stressed slabs and other structures.
- Analyse the construction techniques and the structural systems of High rise buildings.

Unit I

RCC roof system for large bay sizes

Flat slab: Study of Plate slab, Plate slab with drops, and Plateslab with drops and column capitals
Floors in One way and two way ribbed slab, Waffle slab, Diagrid beam slab

Unit II

Pre cast and Prefab building elements in various materials

Pre cast roof system with RCC beams, RCC Channels, and infilling floor blocks of various materials.
Connections and assembly of various building elements (prefab walls, beams, columns, chajjas, staircase flights, floor Units, etc.)

Unit III

High rise buildings in RCC and Steel frame of varying structures
The construction process of high rise buildings

Unit IV

Advanced RCC Structures

Sessional Work

Plates of Small Units of design based on the construction principles. Site visit reports, tutorials, notes, sketches and market surveys.

Reference Books:

1. Barry, R. (1999). *The Construction of Buildings Vol.II. 5th Ed.* New Delhi : East-West Press.
2. Bindra, S. P. and Arora, S. P. (2000). *Building Construction: Planning Techniques and Methods of Construction*, 19th Ed. New Delhi :Dhanpat Rai Publications.
3. BIS and relevant IS codes.
4. Rangwala, S. (2004). *Building Construction. 22nd Ed.* Anand :Charotar Publishing.
5. Sushil-Kumar, T. B. (2003). *Building Construction. 19th Ed.* Delhi : Standard Publications.

Working Drawings-II

In continuation of previous semester, students shall be required to handle the projects of greater magnitude in this semester

Objective:

To prepare working drawings of a previous design class problem having Multi-storied R.C.C. framed structure.

Methodology:

The course is an introduction to the technical tools for representation. It is a working studio all course work will be completed in studio hours. The course will cover the techniques of submission drawings, working drawings, typical sections, building services details, building components details . It also include the method to draw and represent space and building elements. The mode of teaching will be through a combination of lectures and studio.

Learning Outcome:

By the end of the semester the students should able to:

Prepare the Submission Drawings, and the techniques for preparation of good for Construction drawings which will be easily readable by construction team of a multi storied structure.

Unit I

Centerline plan, typical floor plans, lintel level and slab level plans

Unit II

Sections, Elevations and Full- scale details

Unit III

Site development Plan showing landscaping and roads

Unit IV

Toilet details, Drainage Layout showing soil, waste and rain water drainage system, sanitary fittings, traps, Inspection chambers

Unit V

Water supply layout indicating water supply tap point with meter, supply line to storage tanks and connections to different equipment in building

Unit VI

Electrical layout showing meter board and power supply lines to different parts of building and different equipment.

Unit VII

Details of lift pit, lift shaft and lift machine room

Reference Books:

1. Constructions Drawings and details for interiors by W.Otie Kilmer and Rosemary Kilmer.
2. W.B. MacKay, 'Building Construction', Vol. 1,2,3,4 Longmans, U.K. 1981
3. Building construction illustrated by D.K. Ching.

Theory of Human Settlements

Objectives

To introduce students to the development of planning thought from historic to present age with emphasis on broad principles of settlement in each period.

The study of this subject continues with emphasis on planning philosophies orienting the student to carry out further studies in the specialized field of Urban Planning.

Methodology:

Emphasis on Planning philosophies, Case studies of city planning & planning process, Journals, Presentations & assignments.

Learning Outcome

By the end of the semester the students should able to:

- Understanding the evolution of Human settlement.
- Study elements of human settlements in pioneering City plans.
- Understand and analyse the planning process and the the impact of planning process in their studio design projects
- Learnt to analyse the housing processes as one major component of the Master planning process.

Unit I

Our role in designing and developing towns and cities from ancient times through Medieval, Renaissance and Industrial revolution to present day development, vernacular style.

Unit II

Town planning in India, Pre-historic, Vedic, Pre- British and British Planning in India, Planning after independence

Unit III

Pioneers and their works: Planning concepts of Patrick Geddes, Ebenezer Howard, Abercrombie, Le Corbusier, Clarence A Parry, Clarence Stein, Constantinos A Doxiadis, Kevin Lynch, Frank Lloyd Wright, Lewis Mumford, Rob and Leon Krier and Victor Gruen

Unit IV

Present concept of planning at various levels, planning as a team work, role of Architects/Planners in a team, importance and methodologies of surveys in the planning process, factors governing the location and growth of towns.

Unit V

Understanding the process of development plan making, general ideas of implementation of such plans and planning agencies, study of planning legislation and administration, town and Regional planning acts, Monopolies and Restrictive Trade Practices Act, Development control rules, zoning, density, height, FSI Structures, Role of local and planning authorities.

Unit VI

Introduction to the problem of urban and rural housing in India, Analysis of demand and supply, General study of Planning consideration of housing and area development and housing infrastructure such as utilities and services.

Sessional works

Notes and Seminar of above topics, Critical appraisal of existing and proposed housing schemes, planning exercise of residential community.

Reference books

1. *Town Planning* by S.C. Rangwala and K.S. Rangwala
2. *Urban Pattern City Planning and Design* by Gallion and Eisner
3. *The Concise townscape- Gordon Cullen, The Architectural press*



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Structural Designs & Systems-IV

Objective

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

Methodology:

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

Learning Outcome:

By the end of the semester the students should able to:

- Gaining Practical knowledge of structures in construction projects.
- To design different kinds of beams under different loading conditions.

Unit I

Retaining Walls:

Cantilever and Counter fort types, Design of Cantilever types of Retaining wall.

Unit II

Pre stressed Concrete Structures:

Principles, Materials, Classification, General information about devices, Equipment, Analysis for stress, Simple calculations involved in Design of Cross- section details (P, e, Safe stresses).

Unit III

Plastic Analysis:

Introduction to Plastic analysis and Design of beams.

Unit IV

Software Package

Introduction to Computer Aided Structural Design

Demo of practical problems using STAAD.

Reference Books:

Pre-stressed Concrete- KrishnamRaju

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Building Services –III(Acoustics, Fire Safety, and Special Services)**Objective:**

- To understand the fundamental and design aspects of noise isolation and acoustical treatment in indoor environment. To become aware of the benefits and adverse effects on the health of the occupants due to acoustical performance of buildings.
- To become aware of fire prevention, fire evacuation, and firefighting aspects and guidelines of NBC.
- To develop basic understanding of special services, their functionality, definitions and terms.

Methodology:

Lectures, tutorials, exercises can be clubbed with design studio project, case study visits

Learning Outcome:

By the end of the semester the students should able to:

- Identify the causes of non-conductive acoustical environment due to building design
- Analyse acoustical phenomenon in enclosed spaces
- Application of different methods for calculating and measuring acoustical performance of auditoriums for speech
- Application of Fire and life safety guidelines, and submission for fire approval certificate as local bye-laws
- Analyse of importance, and typologies, installation, and selection of PV systems for buildings

Unit 1 Architectural Acoustics

Importance, benefits, and adverse health effect of acoustics performance of buildings, a brief history of acoustical ideas, layout of historic open-air theaters, concert halls, and auditoriums, properties of sound waves, quantitative and qualitative parameters of sound, human ear and hearing, provisions for people with special hearing needs, acoustical phenomenon in enclosed spaces (Sound Reflection, Absorption, Diffusion, Diffraction, Reverberation, Resonance, Sound Masking, Sound Attenuation), air-borne and structure borne sound, noise isolation, vibration control, reverberation time, intelligibility of speech, sound absorbing materials, their construction, and quantitative metrics, sound transmission loss and mass law, specific acoustical requirements in auditorium design.

Unit II: Vertical transportation

Building design and vertical transportation, Demand for vertical transportation

- Lift and Escalators: types, uses, functioning, automatic control system.
- Plans & sections to explain different parts of lifts and escalators.
- Planning for vertical transportation

Unit III: Fire Safety in buildings

Portable firefighting equipment, NBC standards, built in wet riser system, sprinkler system, fire hydrant, class of fire and occupancy, Role and Importance, Fire safety design, planning for fire protection, Fire detection & fire fighting, Different firefighting methods to be adopted in buildings, submittal procedure, submittals, and due diligence checklist for approval of fire safety certificate as per the local bye laws and NBC.

Unit IV: Special Services

- 1- **Alternative energy sources for building:** hot water solar energy system, applications of photo voltaic cells, selection of appropriate location for solar PV panels, biomass digesters, wind energy.
- 2- **Swimming Pools:** Pool tank design, patio, finishes, water circulation, cascades, channels, filtration and water treatment, water quality and disinfection, balancing tank.
- 3- **Hotel Services:** Specialty services required for hospitality industry, Laundry services, Kitchen services, Channeled Music, Internet.
- 4- **Building Automation System:** Telephone and communication, networks in buildings EPABX, Security systems, Burglar alarms, video surveillance, access control, design of computer labs, access flooring, server rooms, DTH Internet and Television Network.

Reference Books:

1. Walter T. Grondzik, Alison G. Kwok, Mechanical and Electrical Equipment for Buildings, 12th Edition. Wiley Publications
2. Marshall Long, Architectural Acoustics, Elsevier Academic Press, 2006.
3. J.S. Bradley, Acoustical Design of Rooms for Speech, Construction Technology Update No. 51, National Research Council Canada
4. Odisha Fire Services, Odisha Fire Prevention and Fire Safety Rules, The Odisha Gazette, 2017 Part 4 Fire and Life Safety, National Building Code of India, 2016.

The logo of Sri Sri University is a large, circular emblem. It features a central tree with many leaves, set against a background of a sun or moon. The tree is surrounded by a circular border containing the university's name in English, 'SRI SRI UNIVERSITY', and a Sanskrit motto, 'Satyameva Jayate'. The entire logo is rendered in a light, semi-transparent style.

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Specification

Objective:

To develop the skill of writing specifications for materials and works with emphasis on the required qualities of materials and proper sequence of construction.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of the semester the students should able to:

- Gaining Practical knowledge (contract document) of Construction projects and the present market rates.
- Study different problems that are encounter during the progress of construction works at campus.

Unit I:

Introduction, importance of specifications building construction activity.
Types of specifications and its applications,
Method of writing specifications (contents, correct order and sequence), use of Indian standard codes and specifications, PWD specifications

Unit II:

Specifications of basic building materials such as bricks, stones, aggregate, cement, steel, timber etc.
Specifications of materials used in flooring and finishing such as ceramic tiles marble-mosaic tiles, paints and varnishes.
Specifications of materials used in roofing and roof covering such as tiles, A.C, G.I. and Aluminum sheets etc.

Unit III:

Specifications for fixtures and fastenings; Study of proprietary materials along with manufacturer's specifications, trade names of such materials

Specifications of works for a residential building of load bearing type or R.C.C. framed type
Specification of construction of steel structure, ceilings and partitions, paneling insulation and Water proofing

Specifications for items of services such as drainage, water supply & sanitary, electrical installation telephone, Internet.

Tender

Tender notices and tender documents.

Types of tendering in practice. Contract and their reflection in BOQ.Process of tendering.

Preparation of tender documents and comparative statements

Award of Tenders.

Sessional work:

Notes, presentations, tables and tests on above topics.

Reference Books:

1. Estimating & Costing by B. N. Data, B.S. Publishers.
2. Estimating and Costing by S.C. Rangawala, Charotar Publishing House.Red Book of Public Works Department Government of Odisha
3. Estimating and Costing in Civil Engineering, Chakravarti, Bhaktivedanta Book Trust. IS – 1200



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Architectural Conservation:

Objective:

- This course intends to develop an understanding in Architectural conservation, its need and degrees of conservation.
- To expose students to the multidisciplinary and interdisciplinary nature of conservation, so as to ensure students develop the understanding of complexities of historic buildings, heritage cities and cultural landscapes in India.
- To understand the importance of methods of listing and documentation of heritage buildings.

Methodology:

- The course will be delivered through a mix of classroom lectures and case studies discussions and site visits.
- Equipping the students to develop comprehensive understanding of the architectural heritage and conservation approaches in practice through architectural documentation.
- Assignments given will help in understanding the various conservation strategies and the challenges of Conservation.

Learning Outcome:

By the end of the semester the students should able to:

- Implementation of the methods and tools of best approach of conservation.
- To analyse the impact of the built environment on historic buildings and sites and to place architectural conservation within wider social and political concerns.
- Handling the conservation issues at planning level, interpreting history in modern context, dealing with structural issues and documentation of cultural and built heritage.
- Work out the development of broad base of knowledge and skills necessary to embark the students on a career in heritage management to conservation architecture.

UNIT I

Understanding Heritage and Conservation. Types of Conservation its need and purpose. Case studies of Conservation, its strategies and challenges, Significance and Value Assessment, Adaptive reuse.

UNIT II

History of conservation in India and West, Cultural Heritage Charters and Legislation, UNESCO Recommendations and other standards, ICOMOS, The Nara Document on Authenticity.

UNIT III

Understanding the role of Archaeological Survey of India and INTACH in conservation of India's cultural heritage through case studies.

UNIT IV

Criteria of Listing and Documentation of Heritage building with live case study.

UNIT V

Concept of integrating development and preservation of Intangible heritage with emphasis on the role of tourism and community participation in cultural heritage conservation.

Managing Disaster Risks for World Heritage monuments and sites.

Reference Books:

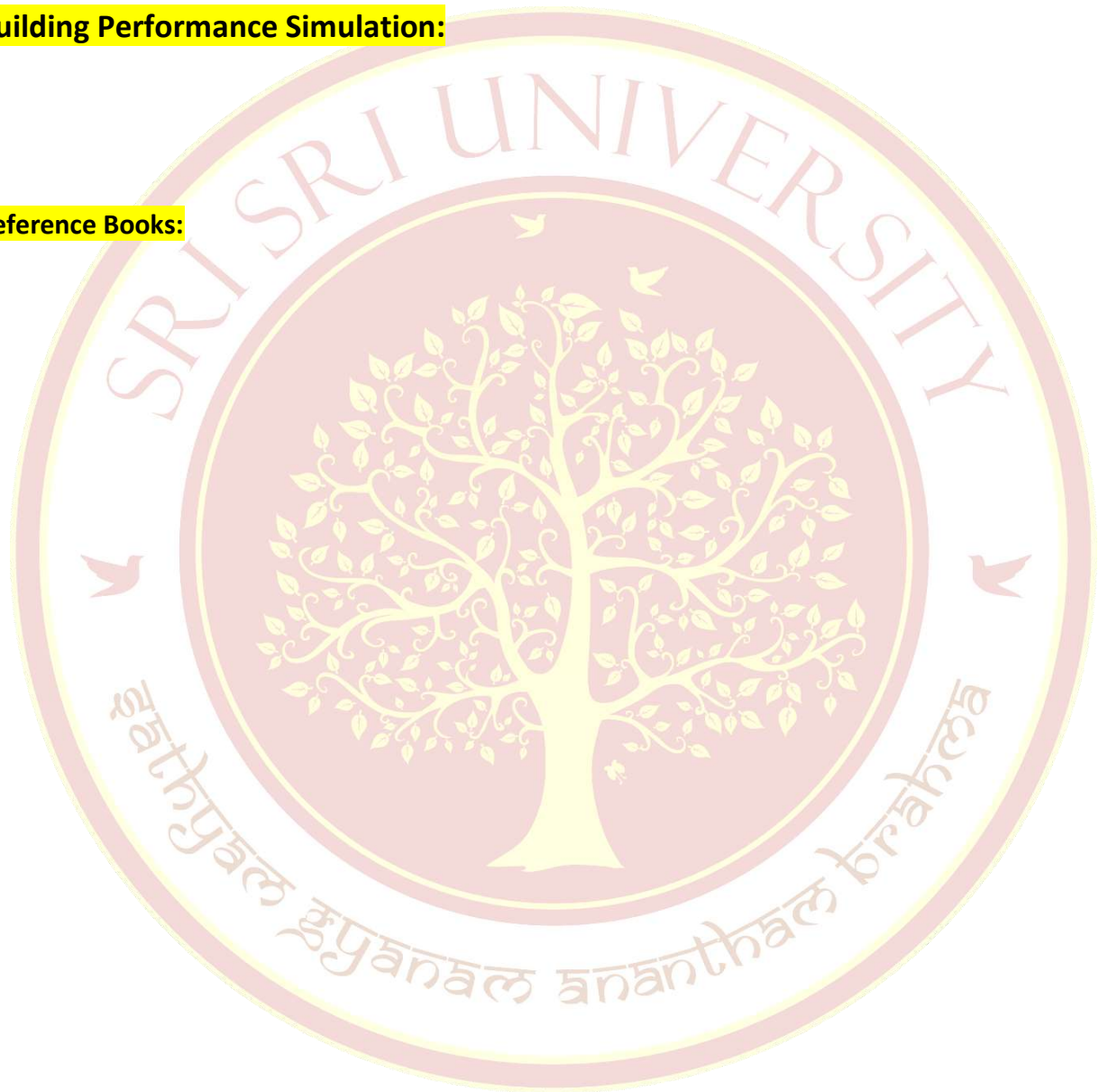
1. Protection, Conservation and Preservation of Indian Monuments - Shanti Lal Nagar
2. Conservation of Cultural Heritage Hardcover by A.K. Jain
3. History of Architectural Conservation (CONSERVATION AND MUSEOLOGY) - Jukka Jokilehto
4. Guidelines for listing of Built Heritage by INTACH
5. World architecture: an illustrated history - Seton Lloyd, Trewin Copplestone
6. Heritage and Development: Recent Perspectives by INTACH
7. The LAMO Centre: Restoration and Adaptive Reuse in Leh Old by John Harrison
8. Adaptive Reuse: Extending the Lives of Buildings by Liliane Wong
9. India Sublime: Princely Palace Hotels of Rajasthan by Mitchell Shelby Crites, Ameeta Nanji, Melba Levick.



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Building Performance Simulation:

Reference Books:



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Year- 4 - Seventh Semester B.Arch

-Focus-

**Design Based on the Concept of Urban and Regional Planning
Construction technology, Interior Design, and Professional Practice
To lay the foundation for Practical Training to be taken up in the following
semester**

*Advanced Structural Design, Human Settlements, Disaster Risk Reduction and
Mitigation, Research Skills to assist with selection of thesis topics*

Practical Training Portfolio Preparation

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ARCHITECTURAL DESIGN-VI

Objective

- To assign a design problem of increasing structural and design complexity, laying emphasis on urban development, with full opportunity for coordination, data collection and analysis.
- To evolve sensitivity to design of spaces at urban scale, Creation of nodes and links, visual landmarks, activity and interaction zone, in projects dealing with interactive public Infrastructures, commercial, recreational, health, residential areas.
- To place emphasis on preparation of design program and preparation of drawings and detailing.

Methodology:

- To guide the students towards a design approach which embodies the constructive feasibility of the proposed ideas from concept to detailed design.
- Students are taught to develop their design as a 'problem-solving' exercise.

Learning Outcome:-

By the end of the semester the students should be able:

- To produce and render implementable & professional level design solutions integrating with subjects like Construction details, Industrial practices, Sustainable & Smart technologies following Standards and Norms.
- To ensure synchronized and functional interactive spaces for public.

The process will deal with

1. Design orientation of advanced and specialized buildings and environmental services, climate and acoustical systems and appropriate structural and construction techniques
2. Orientation on development control rules like, density, zoning, FSI etc. and on redevelopment and urban conservation techniques
3. Study of urban environment, complex building forms, their design including positive and negative space relationship, Parking Provision, Precincts concept and pedestrian movement

Design problem examples:

- a) Urban design problems redesigning existing urban area by studying and identifying the problem associated with it. Examples include Commercial complex, Museum, Hospital, Health resorts, Campus designing, Multi-Modal public transport system.
- b) The design solution will address demography, market value, land use pattern etc. other design issues are the detailing of built and open spaces after studying human and vehicular traffic movement pattern. The project should be substantiated by detail site surveys and reading about urban design principles accompanied by study models.

Sessional Work:

Appropriate exercises on one or more of the above mentioned aspects followed by at least three design problems arranged in a sequence of complexity and as a problem solving approach. Site visits audio-visual presentation and library reference is emphasized.

Construction Technology & Materials –VII:

Objective:

- To learn advance and more complex aspects of construction.
- To study techniques of construction for large spans
- To study temporary structures in timber and MS
- To study false and suspended ceiling

Methodology:

- Lectures through Sketches, PPT Presentation and Videos
- Site visits
- Guest lectures (Expert members from industries)
- Model Making

Learning Outcome:-

By the end of the semester the students should able to:

- The student shall be able to design large span structures.
- The students shall be able to deal with upcoming materials and its advantages in the field of construction.
- The students shall be able to design various types of ceiling and work out details to create a good ambience using different materials.

Unit I

Introduction to space structures, types of space structures and possibilities in different materials to cover large spans
General study of shell structures and folded plate structures in concrete, various types, constructional aspects, merits and demerits

Unit II

General study of Grid structures and skeletal structures, space frames, domes etc. in steel, various types, constructional aspects, merits and demerits, etc.

Unit III

Pre-cast concrete, Design considerations and constraints, advantages over cast-*in-situ* construction, construction techniques and jointing details, applications
Modular coordination, RCC pre-fabricated proofing systems to cover large spans, with or without north light.

Unit IV

Study of pre stressed concrete, principals and methods of pre-stressing, system of pre-stressing, advantages and disadvantages and applications.

Unit V

Temporary structures, materials and techniques used, constructional aspects using timber and M.S
Sections, design and detailing problems on small temporary structures.

Unit VI

Study of false ceiling and suspended ceiling.

Sessional Work:

Notes, plates, assignments (problems), and tests.

Reference Books

1. Advanced Building Construction by Mitchell, Allied Publishers. Construction Buildings by R.Barry, Orient Longman.
2. Space structures by N. Subramaniam, Wheeler. A.J.Handbook of Building Structures by A. Hodgkinson. Pre-stressed Concrete Structures by P.Dayaratnan.
3. Building Construction illustrated by Francis D.K.Ching, Van Nostrand. Concrete Technology by M.S.Shetty, S.Chand and Co.
4. Erection of Pre-fabricated Reinforced Concrete Structures by Y.Bessar& .Proskurnin. Structures by Daniel L.Segodak,Prentice – Hall, Inc.
5. Structural Concepts and Systems for architects and Engineers by T.Y.Lin and Stotesbury



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INTERIOR DESIGN

Objective:

- To familiarize the students on interior design principles and theories with specific reference to colour, texture, light and their applications in interiors.
- To explore space planning and its psychological effect and to foster creative ability and inculcate skills to understand and conceive architectural design.

Methodology:

- To guide the students towards a design approach which embodies the constructive feasibility of the proposed ideas from concept to detailed design.
- Students are taught to develop their design as a 'problem-solving' exercise.

Learning Outcome:

By the end of the semester the students should able:

- To integrate the principles of design to creating a building that maximizes the ability of the space to serve its intended function.
- To explain the relationship between human behaviour and the built environment and the implications in preparing design solutions.
- To use lighting and colour scheme to create a balanced, pleasing and livable interiors in a space.
- To select appropriate materials and processes to achieve the technical and visual functionality of their designs.

Unit I:

Profession of interior design, role of an interior designer, scope of services, interior design process. Interior design and concept- elements and principles of design and their applications in interior designing.

UNIT II:

Interior space planning and human dimensions, focus of physical and psychological behaviour and human factors, study of *proxemics*, behavioural settings.

UNIT III:

Use of colour in interior. Various color schemes eg. Analogues, complementary, triadic etc. Colour symbolism. Lighting requirements and their design for interior spaces including direct & indirect lighting, types of luminaries and quality of light. Principles of interior landscaping and plant species.

UNIT IV:

Introduction to furniture and accessories- an overview of historical perspective of furniture and styles and styles of interiors- Italian, English, French, Japanese styles.

UNIT V:

Furniture design and ergonomics. Modular approach in system furnishings. Space saving interiors and furniture. Open office system, style of interiors. Exposure to eminent interior designer's works. Material Survey - Introduction to different materials like laminate, veneer, plywood, MDF, Gypsum board, wall papers, Textures, Modular furniture.

Sessional Work:

Notes, sheets, reports on market survey of materials, presentations and tests.

References:

1. The Fundamentals of Interior Design - 1st Edition – Simon Dodsworth & Stephen Anderson.
2. Dorothy, S-D., Kness, D. M., Logan, K. C. and Laura, S. (1983). Introduction to Interior Design.
3. Michigan: Macmillan Publishing.
4. Ching, F. D. K. (1987). Interior Design Illustrated. New York: V.N.R. Publications.
5. Pendero, J. and Zelnik, M. (1979). Human Dimension and Interior space: A Source Book of Design Reference Standards.
7. Kathryn, B. H. and Marcus, G. H. (1993). Landmarks of twentieth Century Design. Abbey Ville Press.
8. Architectural interior systems: lighting, Acoustics, Air conditioning Flynn. J/&29.24FI V/A N.88
9. Colour in interior design and architecture/Ladau, Rf/747.94 Lad/C



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THEORY OF HUMAN SETTLEMENTS-II

Objective:

To appreciate the nature and role of various facets of urban design in the making of built environment.

Methodology:

- The course will be delivered through a mix of classroom lectures and case studies discussions.
- Regional and Urban plan documents would be referred to as appropriate places.
- Assignments given will help in understanding the contemporary problems and application of the Planning Theories in the region

Learning Outcome:

By the end of semester students should able to:

- Analyzing & Understanding of the complex spatial relationships, interactions, and processes within the socio-cultural and natural environment.
- Identifying problems and opportunities and demonstrate innovative approaches to urban design practice and multidisciplinary collaboration.
- Analyzing the impact of the built environment on historic buildings and sites and to place architectural conservation within wider social and political concerns.
- Learn examples of planning processes and documents, and integrate tools and techniques like analysis of data like census data, maps, and codes used in plan making, plan implementation and plan evaluation.

UNIT I:

Urban planning- Study of an existing settlement, contemporary problems of settlement design, current theories of physical planning of new towns and cities.

Unit II:

Environmental impact of planned and unplanned growth. Regional linkages, urban-rural peri-urban linkages, indigenous livelihood support system in rural areas, Rural housing problems and policies.

Unit III:

Housing and urban development - socio-economic aspect of urban housing and problems of slums, housing policies finance and development.

Unit IV:

modern city planning process, survey methods and program analysis techniques, master plans, site planning and rationale of urban regulatory controls, density related concept

Unit-V:

Urban re-development and smart cities. Urban traffic and transportation planning.

Sessional Work:

Notes, Reports, presentations and tests.

Reference Books:

1. The Concise townscape- Gordon Cullen, The Architectural press
2. Image of the city- Kevin Lynch
3. Urban design- Ornament and decoration, Cliff Moughtin, Bath Press
4. Urban design- street and square, Cliff Moughtin, Bath Press
5. Town and square- Paul Zucker
6. Architecture and the urban experience- Raymond J Curran. Van Nostrand Reinhold Company
7. Indian city in the arid West- Kulbhushan Jain, Adi Centre
8. Indian Mega city and economic reforms- A.K. Jain, management Publishing company.



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Advanced Structural Engineering

Objective:

To impart knowledge in the area of the design of simple concrete structural elements and structures as well as the behavior of advanced concrete structures.

Methodology:

- Concept discussion with practical demonstration.
- Explanation through structural models on the board and PPT presentation.
- Site visits and Case studies.
- Experts in the same field.

Learning Outcome:

By the end of semester students should able to:

To workout the structural design of the buildings designed architecturally.

The following topics will be introduced to students in the classroom, later on they have to choose one topic each work on it and present a Seminar

1. Introduction to Limit state method and practicing design of structural elements slabs, beams, columns and foundations.
2. Industrial Structures in Steel.
3. Multi Storied / Tall Structures / Tower.
4. Large Span Construction-flat slabs-shell structures, folded plates, portal frames space frame & trusses; tensile structures.
5. Pre fabricated construction & Pre-engineered building.
6. Earth Quake resistant design.
7. New Material Construction.
8. Cold form sections, FRR.

Guest lectures are arranged for the latest topics.

A report must be submitted, containing all the topics before the practical Viva-voce.

Sessional Work:

Viva Voce; Student should maintain a field book and attend a practical Exam and Viva voce conducted by both an external and an internal examinee; Tests, Examination.

Reference Books:

1. Shell Structures-Rama Swamy.
2. Great Engineers-Derek Walker.
3. Structural Concepts & Systems for Architects-TY Lin, Sidney, D.Stotesbury
4. Principles of Space Structures-N.Subramaniam.
5. Reinforced Concrete- in Architecture-Aly Ahmad Raafat.

Disaster Management, Risk reduction and Mitigation

Objective:

To follow the Sendai Framework for Disaster Risk Reduction 2015-2030

- To understand disasters and the management of disaster risk to reduce loss of life
- To understand the techno-legal regime to reduce disaster risk by building resilient structures
- To be able to respond effectively to facilitate the rebuilding of entire communities by “Building Back Better” in recovery, rehabilitation and reconstruction.

Methodology:

The disaster management cycle will be used as a framework. Stress will be on application of the theory studied into practice through a design exercise. Games, role-play and review of papers will be emphasized. Tests and examinations will also follow a theory + practice/design emphasis.

Learning Outcome:

By the end of semester students should able to:

Students understand the role of architects in Disaster Management and in risk reduction and mitigation.

Unit-I: Understanding

Disasters, Risk Reduction and Management

1. Definitions and terminologies: disaster- prevention, mitigation, and recovery
2. Multi Hazard Vulnerability: Basic understanding of fragile Eco-systems and factors that “heighten vulnerability to disaster risk”
3. Factors Causing Disasters
4. Introduction to Natural Disasters: Hydro-Meteorological; Geological:

Unit-II: Overview of design and planning solutionsfor disaster mitigation, organizational and management aspects

1. Understand the Sendai Framework for Disaster Risk Reduction 2015-2030
2. United Nations Hyogo Framework for Action (2000-2015)
3. Disaster Management in India and the National Disaster Management Plan
4. State Disaster Management Authority.

Unit-III: Why architects matterin disaster recovery

(Reconstruction, Resettlement and Reintegration)

1. Dimensions of Disaster; the inter-linkage between Disaster and development
2. Sphere Charter: Human charter and minimum standards in Humanitarian Aid:
3. Case studies of natural disasters in India and overseas.

Unit-IV: Techno-legal regime for resilient building structures

1. Vulnerability Atlas of India
2. Legislation and controlling authorities
3. Regulation and building codes for building structures resistant to natural hazards
4. Sphere Charter: Human charter and minimum standards in Humanitarian Aid.

Unit-V: Design and Retrofitting of Building for resistance to natural hazards

(Integrate with Interior Design in current year and Construction class with Second Years)

Design, construction and detailing of buildings, materials and methods to be adopted for

1. Cyclone and flood resistant building
2. Earthquake resistant buildings and retrofitting of earthquake affected buildings.

Sessional Work: Reviews, Presentations, small design problems, manuals, tests, exams

Reference Books:

1. Disaster management in India, Ministry of Home Affairs, Govt. of India, 2011
2. National Disaster Management Plan, NDMA, Ministry of Home Affairs, GOI, 2016
3. SatishMoudh : Introduction to Disaster Managementt, 2010
4. Elizabeth Wageman and MichealRamage, Relief for the curriculum: Architecture Education and Disaster Recovery; 2013
5. Sphere Handbook. Human Charter and Minimum Standards in Humanitarian Aid, 2011.
6. S. Rajagopal- Problems of housing in cyclone prone areas- SERC, Vol2, Chennai,1980



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Research Skills

This course introduces the fundamental concepts, and applications of research methods

Objective:

- To equip students of architecture in professional and academic research
 - Students will be exposed to research framework and methods in architectural planning and design that may be quantitative, qualitative as well as techniques in visual, spatial and contextual evaluation.
- To research, write, present and prepare draft research paper for publication?
- To prepare a comprehensive and defensible thesis/dissertation proposal.

Methodology:

Workshops and Seminars

Learning Outcome:

By the end of semester students should be able to:

- Student prepare a comprehensive and defensible thesis/ dissertation proposal.
- Students learn to research, write present and prepare draft research paper for publication (time permitting)

Unit I: Course outline introduction

Article or Presentation Review/ Book Review/ Portfolio for Practical Training

Identifying a topic for research (5 minute presentations from Faculty)

Preliminary study to support the research work: annotated bibliography; Literature Review

Unit II - Research Methodology

Qualitative and Quantitative Research

Research Questions and problems in the real world

Unit III – DATA Collection Part 1 (With Theory of Human Settlements II)

Data collection from secondary sources: Reference books, internet resource, monographs, microfilms, tables and charts and statistical data.

Data Collection from Primary sources: survey and questionnaires; Case study as an example of a qualitative research method - Identifying case studies, conducting them

Compilation of data, analysis of results, presenting arguments based on data collected

Unit IV – Elements of a Design Thesis (Seminar mode)

Research in Design; Empathy in Design thinking; Desirability-Feasibility-Viability

Balancing Ethics and Aesthetics (Sustainability and Basic Design)

Identifying a position for individual Design thesis, short listing topics of interest, keyword identification and literature and case study selection.

Unit V – Synopsis Writing

Ideas for Dissertation; Developing a 1200 word synopsis

A synopsis must include the following: (1) Title; (2) Introduction; (3) Objectives/Purpose/Key Question (4) Material and Methods; (5) Literature Review (6) Outcome, Scope and Limitation

Sessional Work: Practical training Portfolio, Writing a research report and/or 1 article for printing + draft outline of possible thesis proposal, presenting the Synopsis

References:

1. Groat, Linda and David Wang. *Architectural Research Methods* (2002)
2. Research methods for Architecture. Ray Lucas, Laurence King Publishing (2016)

Cross-linked with the PhD Cell at the Sri Sri University



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Professional Practice-I

(Architectural Professional Practice & Building Bylaws)

Objective:

To acquaint the student to responsibilities of an architect and understand the technicality of the profession.

Methodology:

The course is an introduction to Profession and its code of conduct. The course will cover the general practice of profession, interaction with the client, role of Professional Society, Architects Act, Architects Responsibilities, Organization structure, Types of tenders, Types of Contracts. It will also include the Building Bye Laws and Process of Statutory Approval. The mode of teaching will be through a combination of lectures and document study.

Learning Outcome:

By the end of semester students should be able to:

Have a good knowledge on the Architectural Profession, its code of conduct and Procedure general Architectural practice, which will guide them for their upcoming Professional training of VIII & IX Semester.

Unit I:

Nature of profession, difference between trade, business and profession, taking instructions from the client, its interpretation, design process and its stages.

Role of professional society, Professional code of conduct, Ethical ways of getting architectural commission, Importance of conduct of architectural competitions, architectural copy right.

Unit II:

Responsibilities and Liabilities of an architect towards the client, scale and basis of fees, professional charges of various jobs, stages of Architectural design and the specific task in each of such stage.

Unit III:

Architects Office, Organization and Administration, Office set up, Correspondence, filing, preparation of drawing, standardization and documentation

Professional partnership, various options, advantages, Partnership deal, responsibilities and liabilities of partners, Provisions of Professional Tax, Service Tax, Income Tax rules.

Unit IV:

Tender, types of tender, tender document, tender notice, procedure for opening and selection of tender, analysis bids, comparative statement, report to owner, work order.

Unit V:

Contract, type of contract, contract document, detailed knowledge of various condition of contract as published by Indian Institute of Architects with special reference to responsibilities and liabilities of architect, contractor and the client.

Unit VI:

Architects Act 1972, its effects on profession and education, general information and introduction to various acts and laws such as land acquisition Act, urban land ceiling Act. Building bye-laws, Sale deed procedure, ownership documents.

Sessional Work

Notes, Tutorials & Report writing on above topics.

Reference Books:

1. Professional Practice by Dr. Roshan H. Namavati.
2. COA Handbook of Professional Documents.



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Year - 4 - Eighth Semester B.Arch

-Focus-

Practical skills and setting the stage for Thesis Dissertation

Including

Practical Training

Synopsis development

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Practical Training-I

Portfolio Submission & Training VIVA-I

Learning Outcome:

By the end of semester students should be able to:

- A first-hand experience of the professional world.
- Wholesome development of a future Architect by filling up possible lacunae in academia

Details of Practical Training:

- (1) The Practical Training/ Internship/Practicum of one year duration (under a Registered Architect only) envisage the following varied experience in order to ensure exposure of the student to various tasks. A guide will be assigned to the student from the department to counsel and guide the student during the internship period, and who will also coordinate activities with the reporting architect in the architectural firm.
 - a) Office experience with respect to (1) preparation of working drawing, detailing, perspectives, architectural models, building estimates as well as (ii) study of filing systems for documents, drawings, prints and (iii) preparation of tender document.
 - b) Site experience with respect to supervision of the construction activity, observation and quality control notes, layout on site, study of the staging methods for various building materials, taking measurements and recording work for preparation of bills.
- (2) Student will maintain a weekly record of their engagement for the period of training. This will be recorded in an authorized log-book to be counter-signed by the reporting authority – the architect, at the end of each month.
- (3) At the end of the training period the student will produce a Certificate of Training and satisfactory performance from the concerned office in the prescribed format.

Certificate of Training indicating satisfactory completion of the internship shall be submitted to the head of the Faculty of Architecture immediately after the training, in a sealed envelope, along with a report, log-book and copies of drawings made during the training period.

There will be an oral examination (presentation followed by viva-voce) on a date suggested by the University.

Details of Practical Training Portfolio

There will be an oral examination (presentation followed by viva-voce) on a date suggested by the University.

Portfolio will include all drawings in A3 size (spiral bound with table of content), sketches, Log book and any other documentation of the jobs done by students during training.

Portfolio should be submitted in triplicates with at least 2 in coloured and one in black and white.

Regularity in sending your log book will be reflected in internal marks given by your training mentor.

Viva will be conducted by one external and one or two internal faculty member.

Applied Research Seminar (Synopsis)

Learning Outcome:

By the end of semester students should be able to:

- Realise their skills as an architect by way of program formulation, integration of services, Research and final manifestation by way of Architectural Design.

Details of Thesis Synopsis Seminar

Synopsis presentation will be done in the presence of one external and all internal faculty members. Guide will be assigned immediately after the Presentation.

Hard copy of synopsis in triplicate has to be submitted on the scheduled date. It should include an overall design brief and site information.

Thesis is design based, which means the component for Research is 20% and Design 80%.

However, **Material oriented Research work or modular based designs** may involve more research. Such students will still have to translate the research into a design of a built form. In such cases the Research component may be up to 50% and design 50%.

Students have to select **three topics** to present to jury members who will decide if the students are competent to take up the topics presented, based on the ability of the student and the clarity of presentation,

All three topics will be done using templates discussed in ARC-15-413. The main topic is expected to be 1800-2000 words while topic 2 and 3 only 800 words.

Students may choose their internship mentors in their respective Practical Training offices as external Guides. If they are willing, the department will communicate with them and appoint them formally in the Student's Thesis Committee

Senior Faculty members will be assigned as guides to the students before they leave for their internship. Students will discuss your thesis synopsis in detail with them and plan out a schedule of activity/work, before returning to their offices for the second phase of internship.

Sessional Work/Submission

1. All three topics have to be submitted in hard copy properly bound together, with a cover page and a Table of Contents
2. Beside the hard copy, to be provided in triplicate, students will give a 15 minute Power Point presentation of their thesis topic...8-10 slides on main topic and 2 slides on each of the second and third topic: total not more than 12-15 slides.



Year - 5 - Ninth Semester

-Focus-

Practical Training through Office Apprenticeship

Developing Analytical and Writing Skills through a Documentation Project

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Practical Training-II

Learning Outcome:

By the end of semester students should be able to:

- A first-hand experience of the professional world.
- Wholesome development of a future Architect by filling up possible lacunae in academia

Details of Practical Training (same as ARC -15-402):

- (4) The Practical Training/ Internship/Practicum of one year duration (under a Registered Architect only) envisage the following varied experience in order to ensure exposure of the student to various tasks. A guide will be assigned to the student from the department to counsel and guide the student during the internship period, and who will also coordinate activities with the reporting architect in the architectural firm.
 - a) Office experience with respect to (i) preparation of working drawing, detailing, perspectives, architectural models, building estimates as well as (ii) study of filing systems for documents, drawings, prints and (iii) preparation of tender document.
 - b) Site experience with respect to supervision of the construction activity, observation and quality control notes, layout on site, study of the staking methods for various building materials, taking measurements and recording work for preparation of bills.
- (5) Student will maintain a weekly record of their engagement for the period of training. This will be recorded in an authorized log-book to be counter-signed by the reporting authority – the architect, at the end of each month.
- (6) At the end of the training period the student will produce a Certificate of Training and satisfactory performance from the concerned office in the prescribed format.

Certificate of Training indicating satisfactory completion of the internship shall be submitted to the head of the Faculty of Architecture immediately after the training, in a sealed envelope, along with a report, log-book and copies of drawings made during the training period. There will be an oral examination (presentation followed by viva-voce) on a date suggested by the University.

Details of Practical Training Portfolio (Same as ARC-15-402)

There will be an oral examination (presentation followed by viva-voce) on a date suggested by the University.

Portfolio will include all drawings in A3 size (spiral bound with table of content), sketches, Log book and any other documentation of the jobs done by students during training.

Portfolio should be submitted in triplicates with at least 2 in coloured and one in black and white.

Regularity in sending your log book will be reflected in internal marks given by your training mentor.

Viva will be conducted by one external and one or two internal faculty member.

Documentation of Heritage Building/ Arch. Landmark/Any Architects Work

Learning Outcome:

By the end of semester students should able to:

- Demonstrate the value and procedure of Documentation.
- Sensitize the value of Good Architecture.
- Imbibe a culture of archiving and presentation

Details of Documentation

Students are expected to analyze architecture through drawings (Unwin, 2003) and/or Photographs by choosing a heritage building, an architectural landmark or the work of an architect, whichever is possible in the geographical area of their training placement.

Students will study, document, analyze the building by picking up themes related to subjects that they have studied (Basic Design, Conservation, Climatology, Vernacular Architecture, Human Settlements, Construction, structures, services etc.) or based on papers/books that they have referenced. Students will identify patterns of spatial arrangements in different combinations and compositions in the building(S) they study. One suggestion is to use Simon Unwin's idea that the core of architecture lies in *identification of place, and that learning to do architecture is like learning to use language. Architecture like language has its patterns and arrangements, in different combinations and compositions as circumstances suggest.*

An A4 Report, 1800-2000 Words, excluding the Bibliography/References and including an introduction, architectural documentation, analysis and lessons/conclusions will be submitted on a date determined by the University.

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Year - 5 - Tenth Semester

-Focus-

Thesis Design Dissertation

Appended with

**Technical sheets on material/construction techniques and
Research component of Dissertation**

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Project (Thesis)

Objective

- To orient students about thesis projects that must reflect the culmination of the development of the student's architectural skills and design attitude.
- To choose a project, to address and resolve, through design all aspects of the design.

Learning Outcome:

By the end of semester students should able to:

- Demonstrate their ability to Identify, Formulate & Manifest thereby Address a social concern through Architectural Design.

Details of Project Thesis

Every student selects a subject for research project of Architectural relevance, Experimental work, dissertation or a combination. The nature of the problem shall be based on the synthesis of their total experience and knowledge gained from allied subjects. Emphasis will be on the approach to the design solution rather than the end-result. The subject of the project shall be approved by the Department at the commencement of the term.

The students have to give at least one seminar on their subject.

Students have to submit to the department a bound report of the project containing the following: identification of the problem, scope of work, data collection, case studies, analytical studies, and its application to the final design solution.

On the date prescribed by the University, final reports shall be submitted in the department, for the Final Viva-Voce.

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Advance Construction Technology & Materials-VIII

Objective:

- To enable students to make a suitable choice of building material and construction techniques to be adopted in their Thesis Design
- To help students strike a relationship between structural stability, aesthetics, economic viability and sustainability
- To encourage students to explore Innovative and vernacular materials and techniques depending on the site conditions.

Learning Outcome:

By the end of semester students should able to:

- Know about new technologies in Architecture.(Technology changes continually thus future architects must be equipped with knowledge of new technology for employability)

Unit 1

Foundation System used for the building/buildings.

Unit 2

Details of walling system (Internal and External) and openings.

Unit 3

Suitable Roofing/ Flooring system

Unit: 4

Finishes for external and internal walls

Unit: 5

Details of vertical transport system

Sessional Work:

Design development and potential construction techniques will be developed in the form of sketches and reviewed at every stage. Development of models will be encouraged to understand the structure. Working details will be developed keeping in mind, choice of materials. Some of the outputs will include:

- a. Report on the selection of materials and construction techniques based on site criteria.
- b. Detail Technical drawings of Foundations, Walls, Roofs/flooring and openings.
- c. Sectional details through vertical openings.

Reference Books

1. Structure in Architecture, M.Salvadorri. Advances in Tall Buildings by L.S.Beedle
2. Construction Technology 1-4 Vol. B R.Chudley, British Library Cataloguing.
3. Explanatory Handbook on Codes for Earthquake Engineering, IS-1893-1975 & is 4326 -1976, Bureau of Indian Standards
4. National Building Code

Research Skills-II *DISSERTATION RESEARCH SEMINAR*

Objective:

- To enable students to document research methods used in their Thesis including case studies to append to their main Dissertation
- To highlight the research component in the students' Thesis dissertation and assist them to defend their work

Learning Outcome:

By the end of semester students should able to:

- Ability of developing first NANO solutions to impeding Issues. (This is of particular significance in the ever changing world of today)

Details of Dissertation Research Seminar

Students will be assisted in picking up a research component related to buildings, habitat and human settlements embedded in their design thesis, and in framing a proposition. This will be developed into a minor research proposal.

Once the research proposal is approved, the students will develop tools and methodology for conducting the research, collect data, analyze information and finally presenting it in the form of a dissertation with chapter's detailing the research.

Students will be encouraged to use both qualitative and quantitative study techniques, and be assisted in their research by a guide/advisor appointed by the department.

The department will orient the students to ethics in research that the students will have to strictly adhere to.

The faculty will also assist the students to develop papers from the dissertation to be submitted to an appropriate, peer-reviewed Journal.

The dissertation will be approximately 100 A4 size pages, single sided and double spaced (11 points in Arial or other equivalent font), including references in an appropriate style (Harvard or Chicago Style). The dissertation will be bound and submitted to the department, and in addition an electronic version will also be submitted to the library for archiving.

Professional Practice-II (Valuation & Arbitration)

Objectives:

To familiarize the student with the aspect of valuation and arbitration

Methodology:

The course is an introduction to Professional arbitration maintaining the professional code of conduct. The course will also cover the basic concept of valuation of land and properties. The mode of teaching will be through a combination of lectures and document study.

Learning Outcome:

By the end of semester students should able to:

Have a good knowledge about valuation and Estimation. Which will give them a clear perception on the valuation of property and clear the Do's and Don'ts of the Professional Code of Conduct which will help to clear the dispute raised on the Arbitration of a matter in the project.

Unit I Introduction

Techniques of valuation and elements and valuation and factors affecting valuation

Unit II Methods of Valuation

Methods of valuation: of landed and building properties, comparable cost of sale, purchase and mortgage, capital gains, taxes, state duties and death duty

Unit III Compensation

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

Unit IV Types of Valuation

Valuation for renewal or lease / extension of lease, standard rent, easement right, dilapidation, insurance, state development and advice on investment policy

Report:

Preparation of feasibility report, valuation report, awards etc.

Unit V Arbitration

Arbitration, arbitrator, umpire, nature of arbitration, appointment conduct, powers and duties of arbitrators Procedure of arbitration, preparation and publication of awards and impeachment

Unit VI Claims & Injunction

Fire insurance and arbitration of insurable value, claims and damages with specific relevance to insurance regulatory authority, easement and its definition, features of easement, interim, permanent and mandatory injunctions.

Sessional Work

Notes, Tutorials & Report writing on above topics

Reference Books:

1. Professional Practice by Dr. Roshan H. Namavati
2. Estimating and Costing in Civil Engineering (Including Specifications & Valuations) by B.N. Dutta.
3. Professional Practice by MahadevoBhava



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