OBJECTIVES

- Understanding basic structure forms in relation to space and materials.
- To understand the different structural systems and their mechanism/logic.
- To understand the constraints and possibilities of designing with the range of structural systems available.
- To employ and integrate these structure systems into the design ideology, especially in proposals requiring large spans.
- Field trips to relevant sites shall be compulsory for all assignments.

Module-1 Introduction

Acquainting with the various structural systems and their relation to form, materials and function.

Module-2 Types of Structural Systems

Through seminars, drawings and models, a study of different structural systems, their mechanism of load bearing, adaptability, efficiency and limitations.

- **Trabeated:** Brick and stone, columns and beams slabs, one way and two way, coffers.
- **Arcuated:** Corbelled, Radiating Arch, Vault and Dome, Squinch and Pendentives.
- **Vector Structures:** Trusses and space frames.
- **Form Structures:** Folded slabs, Shells, Hyperbola-paraboloid.
- **Tensile:** Tents, Cables and Pneumatic vis-à-vis materials and plan shape/s.

It should be noted that emphasis would be on the design parameters and graphical presentation of systems rather than their structural analysis.

Module-3 Design Proposal

Design of functional spaces that incorporate large span structures, repetitive modules, medium column free spans and multi-storied aspects that use the varied structural systems. For example factories, institutes, auditoriums, stadium, commercial malls and other campus designs etc.

Module-4 Integration of design with structural system

Development of the design proposal to the stage of integrating structure system necessary for the execution of the project and making relevant drawing for the same.

SUGGESTED STUDIO EXCERCISES

1. Literature study and Case Study of different structural systems as used in famous buildings of the world.
2. Presentation of the system with scaled models or actual structures in construction yard.
3. Design of buildings like Stadia, auditorium, Petrol Pump, Factories, Museums, Malls, and buildings using varied structural systems.
4. Study tours to relevant urban destinations for primary documentation.

REFERENCE BOOKS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module - 1</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Seminar / Presentation &amp; Model of Module - 2</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Design Exercises (Minor) of Module - 3</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Design Exercises (Major) of Module - 4</td>
<td>1</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

|       | TOTAL                                               |                     |                      | 70     |
B. ARCH. SEMESTER – V
RAR – 502, CONSTRUCTION & MATERIALS – V

<table>
<thead>
<tr>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>SUBJECT CREDITS</th>
<th>DURATION OF THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LECTURE</td>
<td>TUTORIAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

OBJECTIVES
- To acquaint the students to usage of building materials such as Metals (Ferrous), Floorings.
- To understand the use of these building materials in building works.
- To understand the use of the metal doors/windows in existing and new construction.
- To familiarize the student with the building construction practices on site.

SECTION – A, BUILDING MATERIALS AND SCIENCES
Module-1 Metals (Ferrous) Ferrous-Iron (Pig, Cast & Wrought).
Variety of Mild Steel sections – Sheets (plain & corrugated), Flats, Bars (round & square), Angles (Equal and Unequal), R.S. Sections (I beams, Channels, Tees).
Hollow Tubular sections available for application in building industry.
Stainless steel and Alloys.

Module-2 Floor & Floor Finishes Brick, Cement Concrete, Stone, Terrazzo, Chequered Tile, Ceramic Tile, Vitrified Tiles, Wooden.

Module-3 Reinforced Brick Work Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)
1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit assembly workshops/shops etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE
Module-4 Workshop/Construction Yard Practice Practicing in construction yard / workshop by making the examples of metal joinery, fixing of flooring, fixing of dado, timbering of shallow trenches and door samples.

Module-5 Site Exposure Exposure to advanced building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS
1. To study the various tools, equipments used in structural steel works.
2. To construct examples of structural steel works in construction yard.
3. To survey construction work on site and submit report. To construct examples of reinforced brickwork and variety of flooring in construction yard.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY
Module-6 Structural Steel Works Typical metal joinery - Mechanical (riveted & bolted), Soldering and Brazing and welding.
Detailing of structural steel work – Beam to Column joint, Beam to Beam joint, Column Splice, Column Base, Roof Truss to Column Joint.
Steel Stairs.

Module-7 Doors & Windows (Metals) Mild steel L and Z section, Pressed steel section.

Module-8 Shutters (Operational Mechanisms) Complete understanding of operational mechanism (automatic and manual) of variety of Rolling shutters and Collapsible shutters.

Module-9 Reinforced Brickwork Reinforced brick piers, lintels, slabs and projections.
Module-10  Floor/Dado/Skirting  Complete process of laying of floor and skirting - Brick, Cement Concrete, Mosaic and Terrazzo floors. Laying and fixing of Stone slabs, Chequered Tile, Ceramic tiles, Vitrified tiles and Wooden (parquet and plank) on subfloors and walls.

CONSTRUCTION PLATES
1. To understand the application of structural steel works in buildings.
2. To understand the application of metal doors and windows in buildings.
3. To understand the application of metal shutters (Rolling) in buildings.
4. To understand the application of metal shutters (Collapsible) in buildings.
5. To understand Reinforced brick piers, lintels, slabs and projections.
6. To understand laying of above mentioned floors and fixing of above tiles on floors and walls.

APPROACH
• The students would be familiarized with vernacular terminology as prevalent in this part of the country.
• The emphasis will be construction details as applicable to Indian conditions.
• Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS
5. Building Construction_Mitchell (Elementary and Advanced)
9. Mitchell’s Structure & Fabric-II
17. Engineering Material-Roy Chowdary

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction Sheets/Plates of Module 6 – 10</td>
<td>6</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial/Quiz/Sketches of Module 1 – 5</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Market Survey &amp; Seminar of Module 1 – 3</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Workshop/Yard of Module 4</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Site Visit Reports of Module 5</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>
### OBJECTIVES:
- To understand the various structural elements and their application in structural design and analysis by **LIMIT STATE METHOD**.

### APPROACH
- Lectures by Experts in the field of Design and analysis will be arranged to make the student’s exposure to practical aspects of design.

### REFERENCE BOOKS
4. Dr. B.C. Punmia; Er. Ashok Kumar Jain; Dr. Arun K. Jain “R.C.C. Designs”

### CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 5</td>
<td>5</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES

- To initiate students into theory and practice of Interior Design.
- To familiarize students with modern materials and techniques useful for furniture and interior design.
- To appreciate early interventions in design of furniture

Module-1 Introduction to Interior Design

Definitions related to interior design;
Review of enclosing elements like walls, floors, ceilings, openings, staircases, furniture & design elements such as color, light textures in interior spaces.
Principles of interior design.

Module-2 History of Interior & Furniture Design

Concise understanding of evolution from ancient to modern, post-modern ideologies to contemporary (Egyptian, Greek, Roman, Gothic, Baroque, Renaissance, Arts and Crafts Movement, Art Nouveau, De Stijl, Modernism, Post Modernism and Contemporary)
Understanding role of materials and technology in their transformation and various theories associated in their evolution

Module-3 Study of Materials, Finishes & their applications in Furniture & other Interior Elements

An in-depth understanding of the characteristics and workability of various materials used in interiors.
Their classification could be on basis of elements of usage (floors, ceilings, walls, doors, windows and fabric/upholstery) or materials based like wood, metal plastics and their variants.

Module-4 Understanding innovation in Furniture & Interior Design

Modern materials, Modular furniture, Interior landscaping, Fittings & fixtures.

Module-5 Analysis & Design of Furniture

Analyzing existing designs of selected furniture on basis of ergonomics, user type, economics, material, joinery and maintenance to ascertain their suitability
Design furniture for specific use complying to the aforementioned formulated design criteria.
Build scaled models of the designed furniture for better understanding of working and materials.

Module-6 Analysis & Design of small Interior spaces

Analyse small selected interior spaces like study, bedroom, executive/architect office, retail outlet, conference, reception & waiting lobby including toilets and kitchens in detail, for varied aspects like function, ergonomics, materials and establishing detailed design criteria.
Design of selected small interior spaces on specific sites/ locations based on formulated design criteria using modern design methodologies.
Develop design details of the afore-designed projects for their furniture and finishing.

APPROACH

1. Course should be covered through lectures and seminars by the students.
2. Attempts should be made for a thorough study of materials and techniques used in interiors and their applicability.
3. Scaled models of design exercises should be encouraged.
4. Regular studio work for total grasp of the subject is essential.
5. Report making for study of furniture and craft styles in India should be done.
REFERENCE BOOKS
3. Massey, Anne. Interior design since 1900.
4. Litchfield, Fredrick. Illustrated History of Furniture from the earliest to the present time.
5. Fiell, Charlotte and Peter. 1000 chairs

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seminar / Presentation of Module – 1, 2 &amp; 3</td>
<td>3</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Site/Market Survey of Module – 4</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Design Exercises &amp; Model of Module - 5</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Design Exercises of Module - 6</td>
<td>1</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
B. ARCH. SEMESTER – V
RAR – 505, WORKING DRAWINGS & DETAILS

<table>
<thead>
<tr>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>SUBJECT TOTAL</th>
<th>CREDITS</th>
<th>DURATION OF THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LECTURE</td>
<td>TUTORIAL</td>
<td>PRACTICAL/STUDIO</td>
<td>SESSIONAL ASSESSMENT</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>TA</td>
<td>TOTAL</td>
<td>THEORY</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
<td>35</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OBJECTIVES
- To understand and making drawing/details necessary for final execution of a project.
- To integrate all services and structure system in the working drawing project.

Module-1 Working Drawings
Making complete set of working drawings for the residence or any other project designed by the student. The drawings to incorporate all necessary information complete with schedule and all specifications. The Working Drawings to include:
1. Site plan.
2. Foundation layout with details of foundations and D.PC.
4. First Floor Plan.
5. Terrace Plan
6. Sections
7. Elevations.

Module-2 Services Drawings
Making complete set of services drawings for the above said project. The drawings to incorporate services details complete with schedule and all specifications. The Services Drawings to include:
1. Electrical Layout.
2. Plumbing Layout.
4. Drainage Layout.
5. Rain Water Disposal / Harvesting Layout and Details.
6. Toilet details.
7. Kitchen / Pantry Details.

Module-3 Working Details
Making complete set of working details for the above said project. The drawings to incorporate details complete with schedule and all specifications. The Working Details to include:
1. Doors and Windows Drawings and Details.
2. Staircase Details including railings.
3. Details of Grills, Parapet or railings.
4. Typical wall section showing foundation, DPC, skirting, sill, lintel, slab and terracing details.

Module-4 Finishing Drawings
Making complete set of finishing drawings for the above said project. The drawings to incorporate finishing details complete with schedule and all specifications. The Finishing Details to include:
1. Doors and Windows Frame and Shutter details.
2. Flooring & Skirting pattern and fixing details.
3. Dado / Wall tile pattern and fixing details.
4. Wall Cladding pattern and fixing details.
5. Plaster Pattern with Colour schemes.

SUGGESTED STUDIO EXCERCISES
1. Complete set of working drawings as suggested above for a medium sized residence or any other project designed by the student.
APPRAOCH
1. Course should be covered through lectures and studio exercises.
2. The students would be familiarized with vernacular terminology as prevalent in this part of the country.
3. The emphasis will be working drawings (as per various codes) and construction details as applicable to Indian conditions.
4. Site visits to understand the importance of working drawings and market surveys to understand modern materials and their manufacturers’ details will be an integral part of sessional work.

REFERENCE BOOKS
- Various codes prevalent.

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Major of Module 1 - 4</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>b Minor of Module 1 - 4</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Site Visit &amp; Report of Module 1 - 4</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES

- To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

SECTION – A, AIR CONDITIONING SYSTEMS

**Module-1 Introduction & Principles**
- Fundamentals of Air Conditioning System Design.
- Building Plans, Drawings, and Schematics.
- Refrigeration Cycle, Psychometric chart, Cooling load for air conditioning.

**Module-2 AC systems**
- Comfort cooling systems & their working - Unitary air conditioning - window ac & split ac. Package ac system. Evaporative cooling systems.
- Central air conditioning their parts- A.H.U., Cooling plant, Cooling tower.

**Module-3 Air Distribution Systems**
- Air Distribution Systems - fans, filters, fan coil units, ductwork, outlets, dampers.

SUGGESTED EXERCISES

- Site visits of buildings where different types of Air-conditioning systems have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-storied building installation of an air-conditioning system and the location of their parts and how they will be connected.

SECTION – B, LIFT SERVICES

**Module-4 Introduction & Principles**
- Fundamentals of lift services System Design.
- Building Plans, Drawings and Schematics.
- Definitions regarding lifts such as average travel lift carrying capacity, rated load, rated speed, RTT etc. Grouping of lifts and design standards of a lift lobby.

**Module-5 Lift types**
- Types of Lifts. Working of lifts with details of lift section describing various parts of lifts.

**Module-6 Escalator**
- Types of Escalators.
- Fundamentals of escalators, Function and working of Escalators.

SUGGESTED EXERCISES

- Site visits of buildings where different types of lifts & escalators have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-storied building installation of these systems and the location of their parts and how they will be connected.

APPROACH

- Specialized lectures from technical people in the field.
- Practical and site based exercises to make the data more comprehensive.

REFERENCE BOOKS

5. Understanding Buildings: A Multi-disciplinary Approach, E Reid, MIT.
8. ASHRAE Publications.

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 5</td>
<td>5</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Seminar/Presentation of Module 1 - 6</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Site Visit Reports of Module 2 &amp; 5</td>
<td>2</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
PERIODS | EVALUATION SCHEME | SUBJECT TOTAL | CREDITS | DURATION OF THEORY
---|---|---|---|---
LECTURE | TUTORIAL | PRACTICAL/STUDIO | SESSIONAL ASSESSMENT | ESE | OF THEORY |
| | | | CT | TA | TOTAL | THEORY | VIVA | TOTAL | PAPER |
2 | 1 | 0 | 15 | 35 | 50 | 50 | 0 | 50 | 100 | 2 | 3 HRS.

OBJECTIVES
- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building ‘types’ and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

Module-1 Introduction: Introduction and understanding of ‘Islam’s’ philosophy and its consequent rituals and their interpretation in building type e.g. mosque, tomb, fort and their elements like domes, minarets, arch, squinch, landscape, motif, calligraphy, directionality, symmetry, geometry, material, court, water, patterns etc.

Module-2 The Sultanate Style: The architecture of early Islamic dynasties that ruled from Delhi like the Slave, Khalji, Tughlaq, Sayyid, Lodhis and ShershahSuri regimes. The formation of ‘Indo-Islamic’ style that was the amalgamation of Islamic space and prevalent Hindu techniques of building and materials.

Module-3 Provincial Architecture: Development of colloquial styles in various provinces of India like Punjab, Jaunpur, Gujrat, Bengal, Bijapur, Bidar and Deccan.

Module-4 Cities and Citadels: Morphology of fortified cities of Jaisalmer, fort/ palaces like Mandu, Chittorgarh, Orchha, Datia, Jodhpur etc. with an overview on architectural types like havelis, stepwells, gates, baradaris etc.

Module-5 Mughal Architecture: The architecture of the Timurids in India- Babur, Hamayun, Akhbar, Jahangir and Shahjahan, which was the culmination of the Indo-Islamic paradigm. The proportions, structure systems, landscape, materials, scale and distinct features.

Module-6 The Later Moghuls: The Oudh architecture, which was a blend of the Mughal style and the British features, in Lucknow and its environs. The manzils, baghs, kothis, imambaras, kARBALAS: their planning, materials and techniques.

Module-7 Colonial Architecture: The British architecture of the colonial days in India- the capitol at Delhi and the residency at Lucknow emphasizing on their planning criteria and architectural features. Incorporation of local motifs and materials.

APPROACH:
1. Lectures to be specifically conducted with the visual aids and seminars presented by students.
2. Students will make written assignments and seminar presentations on architectural characteristics that identify the building types and the intentions of the period in response to context and time.
3. Free hand sketches and orthographic drawings could be made by students in the tutorials on specific building examples to familiarize them with the architectural character that identify the works of the particular period.
4. Scaled, sectional models of historical buildings to be encouraged to understand the scale and proportion.
REFERENCE BOOKS
3. Rober Hillenbrand “Islamic Art and Architecture” Tames and Hudson.
4. Rober Hillenbrand, “Islamic Form Function and Meaning”.

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sheets/Sketches of Module 1 - 7</td>
<td>4</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial/Quiz of Module 1 - 7</td>
<td>3</td>
<td>2.5</td>
<td>7.5</td>
</tr>
<tr>
<td>3</td>
<td>Seminar</td>
<td>1</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
B. ARCH. SEMESTER – V
RAR – 508, RESEARCH / SEMINAR / WORKSHOP - IV

PERIODS | EVALUATION SCHEME | SUBJECT TOTAL | CREDITS | DURATION OF THEORY
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LECTURE</td>
<td>TUTORIAL</td>
<td>PRACTICAL/STUDIO</td>
<td>SESSIONAL ASSESSMENT</td>
<td>ESE</td>
</tr>
<tr>
<td>CT</td>
<td>TA</td>
<td>TOTAL</td>
<td>THEORY</td>
<td>VIVA</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>15</td>
<td>35</td>
</tr>
</tbody>
</table>

OBJECTIVES
- Understanding basic principles of any research with special reference to architectural research and applications.
- To understand the basic methodology of writing a technical paper.
- To be able to write a technical paper of about 2000 words.

Module-1 Introduction
- Anatomy of a technical paper- parts of a technical paper; its chronology

Module-2 Technical Writing
- Intent of the paper
- Structuring the paper; formulating a synopsis
- Identifying sources- categorization into direct and indirect; sequencing them in order of significance.
- Referencing

Module-3 Writing a technical paper
- Writing a paper of 2000 words in following stages:
  - Synopsis with clear heads of Intent, Background, Aims and Objectives, Scope, Methodology.
  - Structuring the body of the paper in detail
  - Ascertaining Primary and Secondary Sources
  - Utilizing the sources to reach to the desired objectives
  - Editing the paper

LIST OF ASSIGNMENTS
1. Writing a paper of 2000 words. This should be broken down stage wise and a feedback be given at every stage.
2. The assignments preferably should be associated with the ongoing design assignments and design workshops could be clubbed with research also.

REFERENCE BOOKS
3. Joseph Gibaldi, MLA handbook for Writers of Research Papers

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module - 1</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial of Module - 2</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Tutorial of Module - 3</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
PERIODS | EVALUATION SCHEME | SUBJECT | CREDITS | DURATION
---|---|---|---|---
LECTURE | TUTORIAL | PRACTICAL/STUDIO | SESSIONAL ASSESSMENT | ESE | TOTAL | OF THEORY | PAPER
---|---|---|---|---|---|---|---
1 | 1 | 0 | 15 | 35 | 50 | 0 | 50 | 100 | 2 | 3 HRS.

OBJECTIVES
- To expose the students to the relationship between man and environment.
- To familiarize the students with basic concepts, theories and issues of Sociology and its relevance to Architecture.

Module-1 Introduction
Study of Sociology, Sociology and Architecture, Basic concepts – Society, Group, Community (Rural and Urban), Association, Institution.

Module-2 Culture and Society
Concepts of culture, Cultural identity and cultural diversity, Factors of socio-cultural changes.

Module-3 Social Development
Introduction to the concept of development, Types of development - rural, urban and urban.

Module-4 Demography

Module-5 Social Institutions
Family, Marriage, Religion.

Module-6 Social Infrastructure
Education, Health, Recreation.

REFERENCE BOOKS

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1, 2, 3 &amp; 5</td>
<td>4</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Seminar/Presentation of Module 4 &amp; 6</td>
<td>2</td>
<td>7.5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES

- To understand the constraints of multiple housing units in an urban setting with respect to social norms, climate and client’s expectations.
- To understand design limitations due to authority guidelines and making drawings / details necessary for final execution of a project.
- To integrate services and structure system in the housing design project.
- Field trips to relevant sites shall be compulsory for all assignments.

Module-1 Introduction Acquainting with the various ways of designing a group housing in urban context i.e. low/medium rise- high density; high rise - high density etc.

Module-2 Study and Analysis Through literature studies and case studies analyze the constraints, typologies and interventions in housing throughout India and the rest of the world.

Module-3 Design Proposal Design of a housing project incorporating varied formats of grouping on an actual site with specific bye-laws and regulations.

Module-4 Integration of Services and Structure Development of the housing proposal to the stage integrating services, structure and other infrastructural facilities necessary for the final execution of the project and making relevant drawing for the same.

SUGGESTED STUDIO EXCERCISES
1. Design of group Housing in varied formats with diverse by-laws and regulations.

REFERENCE BOOKS

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module - 1</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Seminar / Presentation of Module - 2</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Design Exercises (Minor) of Module - 3</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Design Exercises (Major) of Module - 4</td>
<td>1</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>
B. ARCH. SEMESTER – VI
RAR – 602, CONSTRUCTION & MATERIALS – VI

<table>
<thead>
<tr>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>SUBJECT CREDITS</th>
<th>DURATION OF THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LECTURE</td>
<td>TUTORIAL</td>
<td>PRACTICAL/STUDIO</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>TA</td>
<td>TOTAL</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

OBJECTIVES

- To acquaint the students to usage of building materials such as Metals (Non -Ferrous), Additives & Admixtures and Construction Equipments.
- To understand the use of these building materials in building works.
- To introduce and familiarize the students with the various temporary construction works required for RCC construction works.
- To familiarize the student with the building construction practices on site.

SECTION – A, BUILDING MATERIALS AND SCIENCES

**Module-1 Metals (Non-Ferrous)**
Non Ferrous – Copper & Copper based alloys (Brass & Bronze), Tin, Cadmium, Chromium, Zinc, Lead and Nickel.
Metal Coatings – Electroplating, Anodizing.

**Module-2 Additives & Admixtures**
Various additives and admixtures – Cementitious (crystalline) systems, Integral systems, Proprietary systems, Cementitious Coating system.

**Module-3 Construction Equipments**
Electric hand tools, Vibrators, Pumps, Compactors/Rollers.
Earth Moving & Excavation – Dozers, Scrappers, Graders, Shovels, Backactor, Dragline, Trenchers.
Transportation – Lorries, Trucks, Dumpers, Hoist, Cranes (mobile, static, tower).
Concrete mixers and pumps for ready mix concrete.

LIST OF ASSIGNMENTS (Market Surveys, Seminars & Report)
1. To study the availability, constituents, properties, manufacturing processes, storage, transportation and applications of above mentioned materials.
2. To visit assembly workshops/shops etc. for better understanding and submit report.

WORKSHOP/CONSTRUCTION YARD PRACTICE & SITE EXPOSURE

**Module-4 Workshop/Construction Yard Practice**
Practicing in construction yard by making the examples of components covered under ‘Building Construction Technology’.

**Module-5 Site Exposure**
Exposure to advanced building construction practices on site of various items of work from foundation to roof and finishes.

LIST OF ASSIGNMENTS
1. To study the various tools, equipments used in RCC and temporary construction works.
2. To construct examples of RCC works in construction yard.
3. To survey construction work on site and submit report.

SECTION – B, BUILDING CONSTRUCTION TECHNOLOGY

**Module-6 Doors, Windows & Partitions (Aluminium)**

**Module-7 Temporary Constructions**
Centering, Shuttering and scaffolding

**Module-8 R.C.C. – I (Formwork & Laying)**

**Module-9 R.C.C. – II**
Columns, Lintel, Projections/Chujjas and Beams.
CONSTRUCTION PLATES
1. To understand the application of Aluminium Doors and Windows.
2. To understand the application of Partitions in Aluminium framework with other suitable panel materials.
3. To understand the application of temporary construction in buildings.
4. To understand the construction of RCC Foundations along with its’ steel works.
5. To understand the construction of RCC Columns, Lintels, Projections and Beams along with its’ steel works.
6. To understand the construction of RCC Slabs & Staircases along with its’ steel works.

APPROACH
• The students would be familiarized with vernacular terminology as prevalent in this part of the country.
• The emphasis will be construction details as applicable to Indian conditions.
• Site visits and market surveys will be an integral part of sessional work.

REFERENCE BOOKS
5. Building Construction_Mitchell (Elementary and Advanced)
9. Mitchell’s Structure & Fabric-II
10. Concrete: Microstructure, Properties and Materials P. Kumar Mehta
11. Properties of Concrete A. M. Neville
20. Engineering Material-Roy Chowdary
25. Testing of Concrete in Structures J H Bungey and S. G. Millard

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction Sheets/Plates of Module 6 – 10</td>
<td>6</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial/Quiz/Sketches of Module 1 – 5</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Market Survey &amp; Seminar of Module 1 – 3</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Workshop/Yard of Module 4</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Site Visit Reports of Module 5</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>
B. ARCH. SEMESTER – VI
RAR – 603, ARCHITECTURAL STRUCTURES - VI

<table>
<thead>
<tr>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>SUBJECT CREDITS</th>
<th>DURATION OF THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LECTURE</td>
<td>TUTORIAL</td>
<td>PRACTICAL/ STUDIO</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>TA</td>
<td>TOTAL</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

OBJECTIVES
- To understand the structural behavior of various structural elements.
- To understand the analysis and design of R.C.C. structures and their use in building industry by **LIMIT STATE METHOD**.
- To understand the analysis and design of Steel structures and their use in building industry by **LIMIT STATE METHOD**.

Module-3 Analysis & Design of R.C.C. Column
- Introduction, Effective height of column, Assumptions, Minimum eccentricity, Analysis and design of short R.C.C. column under pure axial load as well as under axial load and bending moment and detailing of its reinforcement.

Module-2 Analysis & Design of R.C.C. Foundation & Footing
- Introduction, Type of foundation, Depth of foundation, Theory & design of axially loaded isolated square footing and detailing of its reinforcement.
- Pile foundation - Introduction, classification and its application.

Module-3 Analysis and Design of R.C.C. Retaining wall
- Introduction, Types of retaining walls, Analysis and Design of cantilever retaining walls and detailing of its reinforcement.

Module-4 Analysis and Design of Steel Structure
- Various types of connections-
  - Riveted connection – Introduction, Classification, Strength of riveted joint.
  - Bolted connection – Introduction, Classification of bolts based on type of load transfer, Terminology, Specifications for spacing and edge distances of bolt holes as per I.S. 800-2007, Types of bolt connections, Type of actions on bolts, Design strength of plates in a joint, Design strength of bearing bolts.
  - Welded connection – Introduction, Types of welded joints, Important specifications for welding as per IS code, Design strength of welded joints.
  - Analysis and Design of various types of members -
    - Tension members – Introduction, Design Strength, Analysis and design of tension member.
    - Compression members – Introduction, Slenderness ratio, Actual length, Effective length, Design strength, Analysis and design of Compression member.

Module-5 Steel Structure
- Understanding of Miscellaneous Structural Elements –
  - Beam and plate girder & its use in building industry.
  - Grillage foundation and its’ components & its use in building industry.
  - Types of roof trusses and nomenclature of its members.

APPROACH
- Lectures by Experts in the field of Design and analysis will be arranged to make the student’s exposure to practical aspects of design.

REFERENCE BOOKS
4. Dr. B.C. Punmia; Er. Ashok Kumar Jain; Dr. Arun K.Jain “R.C.C.Designs”
5. S.S Bhavikatti “ Steel Structures by Limit State Method as Per I.S. 800-2007
<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 5</td>
<td>5</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>
PERIODS | EVALUATION SCHEME | SUBJECT TOTAL | CREDITS | DURATION OF THEORY
--- | --- | --- | --- | ---
LECTURE | TUTORIAL | PRACTICAL/STUDIO | SESSIONAL ASSESSMENT | ESE | OF THEORY | PAPER
1 | 2 | 0 | 15 | 35 | 50 | 50 | 0 | 50 | 100 | 3 | 3 HRS.

OBJECTIVES
- To make the students understand the disaster management cycle.
- To create awareness about natural disasters, factors that cause them, and to foster knowledge about strategies for disaster prevention and management.
- Overview of major natural disaster through case studies.
- Their role in design & planning solutions, for reduction of risk and damages caused.

Module-1 Hazards & Disasters
Introduction to disaster management, Indian scenario, Understanding of disaster, Hazard and its classification, Vulnerability, Capacity, Risk.
Various Types of disasters.
To understand in detail for the cause, adverse effects, distribution patterns, mitigation measures of Earthquake, Tsunami, Cyclone, Flood and Landslide.
Disaster Management cycle.

Module-2 Case Studies
Studies to understand above mentioned disasters (National as well as international) occurred in the past & their inferences.

Module-3 Disaster Preparedness
Disaster Management Act, guidelines NDMA.
Vulnerability Assessment & warning systems for above said disaster types.

Module-4 Disaster Response
Programmes and studies for disaster reduction, Communications.

Module-5 Disaster Mitigation
Pre disaster, emergency, transition, and recovery. Disaster management plan, Natural crisis management committee, State crisis management group.

Module-6 Disaster Resistant Construction Techniques
Risk reduction measures through land use control, site planning and land management, design and construction of structures for above mentioned disaster.

REFERENCE BOOKS
1. Building Configuration and Seismic Design-Christopher Arnold.

CRITERIA FOR ASSESSMENT OF SESSIONALS
<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 6</td>
<td>5</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Seminar / Presentation of Module 1</td>
<td>1</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
B. ARCH. SEMESTER – VI
RAR – 605, ESTIMATION & SPECIFICATION

<table>
<thead>
<tr>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>SUBJECT TOTAL</th>
<th>CREDITS</th>
<th>DURATION OF THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LECTURE</td>
<td>TUTORIAL</td>
<td>PRACTICAL/STUDIO</td>
<td>SESSIONAL ASSESSMENT</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>TA</td>
<td>TOTAL</td>
<td>THEORY</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>0</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

OBJECTIVES
- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

Module-1 Specifications (Materials)
- Introduction, importance and scope.
- Types of specifications. Correct form and sequence of clauses for writing specifications. Study and uses of standard specifications viz; drafted by C.P.W.D.

Module-2 Specification (Items of works)
- Writing detailed specifications for various items of work eg. Earthwork in foundation, Cement concrete, Reinforcement cement concrete work, Brick work in cement mortar, Damp proof course, Wood works (door & windows), Glazing, Plastering (cement & sand), Flooring (cement concrete & tiles), Distempering (dry & oil bound), Painting on wood & iron work, Water proof cement painting, Brick bat coba terracing.

Module-3 Estimation
- Introduction, Importance & scope.
- Types of Estimates – Preliminary, Plinth area, Cubical content, Approximate quantity, Detailed / Item rate method estimates.
- Method of Estimation – Separate / individual wall, Centre line methods of estimation.

Module-4 Estimation Exercises
- Exercises in estimation using different methods, for small or medium size buildings.

Module-5 Rate Analysis
- Labour out turn and norms of consumption of basic materials.
- Principles of analysis of rates, Market / DSR rates of labour and materials.
- Exercises in rate analysis of various items of work mentioned in Module – 2.

Module-6 Accounting Procedures
- Introduction to P.W.D accounts procedure, measurement book, daily labour, muster roll, stores, stock, and issue of material from stock, indent form, impress account, cash book, and mode of payment.

LIST OF ASSIGNMENTS
1. To study the various types of estimates.
2. To prepare detailed estimate for a small building.
3. To study the importance and correct form of writing specifications.
4. To prepare detailed specifications for various items.
5. To study the principles of analysis of rates and prepare analysis of rates for various items of work.
6. To understand the standard accounts procedure and record keeping.

APPROACH
- The course would be covered through lectures and tutorials.
- The students’ seminars will help realize the grasp on the subject matter.

REFERENCE BOOKS
2. Birdie, G. S. Estimating and Costing
3. Chakraborthi, M. Estimation, Costing and Specifications, Laxmi Publications
12. Standard Schedule of Rates for Delhi, CPWD & UPPWD.
13. Standard Specifications, CPWD & UPPWD
14. I. S. 1200 Parts I to XXV – Method of Measurement of Building and Civil Engineering Works, Bureau of Indian Standards

### CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 6</td>
<td>5</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Seminar of Module 1 - 2</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>
OBJECTIVES

- To develop an understanding of the advanced building services such as Fire Protection and Security and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

SECTION – A, FIRE PROTECTION

Module-1 Introduction
- Causes and spread of fire.
- Fire triangle/ tetrahedron. Classes of fire.
- Combustibility of materials and fire resistance.
- Building Plans, Drawings, and Schematics.

Module-2 Fire Detection & Alarm Systems
- Fire Alarm Systems.

Module-3 Fire fighting & Extinguishing Techniques
- First stage fire fighting equipment, Ladders, Snorkel ladder.
- Fire fighting pump and water storage, Hose and hose fittings, Dry and wet risers, Automatic sprinklers.
- Fire Extinguishers - Portable fire extinguisher and other fire fighting equipments.

SUGGESTED EXCERCISES

- Site visits of buildings where different types of Fire protection equipments have been installed, their working and the merits and demerits of the system.
- In an already designed project of a large covered area & multi-strayed building installation of these systems and the location of their parts and how they will be connected.

SECTION – B, ELECTRONIC SECURITY AND SURVEILLANCE SYSTEMS

Module-4 Perimeter Protection, Intrusion Detection & Alarm Systems
- Perimeter Protection - Barriers, Doors, Gates, Turnstiles and Fences.
- Intrusion Detection Sensors and Systems - Outdoor & Indoor.
- Building plans, Drawing & Schematics.

Module-5 Access Control
- Introduction to Access Control Systems, Locks & Emergency Exits.
- Visitor Management Systems.
- Identification Systems – PIN, Card, Wireless systems and Biometric systems.

Module-6 Surveillance & Recording System
- Components of Basic Systems.
- Security Lighting, Illumination including Infra-red.
- Understanding CCTV cameras - Pan, Tilt & Zoom mechanisms.
- Recording Systems – Digital and Analog Recording.
5. CCTV (Newnes) by Vlado Damjanovski (1999).
9. Building Automation Online by McGowan; McGowan, John J.
10. CCTV by Damjanovski, Vlado; Edition: 3 Publisher: Butterworth-Heinemann.

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 6</td>
<td>6</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Seminar/Presentation of Module 1 - 6</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Site Visit Reports of Module 1 - 3 &amp; 4 - 6</td>
<td>2</td>
<td>3.5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES

- Understanding of the period in terms of its location, climate as well as the social cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

Module-1 Picturesque and Neo-classical architecture:

Module-2 Enlightenment and beginnings of Modern:

Module-3 Modern Architecture:

Module-4 Post Modern Architecture:

Module-5 Post Modern – Historicism:

Module-6 Neo- Modern:

Module-7 Deconstructive:
REFERENCE BOOKS
1. Kenneth Frampton, “Modern Architecture; A Critical History” by, Tames and Hudson
5. Leland M Roth; Understanding Architecture: Its elements, history and meaning; CraftsmanHouse; 1994
6. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams,
8. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,
11. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962
15. Marvin Trastctenberg, “ Architecture from Prehistory to Post modernism”

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sheets/Sketches of Module 1 - 7</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial/Quiz of Module 1 - 7</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Seminar / Presentation of Module 1 - 7</td>
<td>1</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES
- Understanding basic principles of any research with special reference to architectural research and applications.
- To write a technical paper of about 5000 words with original input.

Module-1 Introduction
Learning the formulation of research question or hypothesis

Module-2 Writing a technical paper
Writing a paper of 5000 words in following stages:
- Formulation of an original research issue by ascertaining the gaps in research
- Synopsis with clear heads of Intent, Background, Aims and Objectives, Scope, Methodology.
- Structuring the body of the paper in detail
- Ascertaining Primary and Secondary Sources
- Referencing in Harvard Style
- Utilizing the sources to reach to the desired objectives
- Editing the paper

LIST OF ASSIGNMENTS
1. Writing a paper of 5000 words. This should be broken down stage wise and a feedback be given at every stage.

REFERENCE BOOKS

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module - 1</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial of Module - 2</td>
<td>1</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>
OBJECTIVES

- To develop an understanding among the students regarding management of physical and human resources including evaluation techniques pertaining to a business organization in general and specific to construction industry.

Module-1 Elementary concepts of Economics
Introduction to Economics - Definitions, Needs & Wants, Nature & Scope of Economics.
Division of economics –
- Macro Economics - Economic system in India.

Module-2 Economics in relation to Architecture, Engineering and other sciences
Meaning and scope of building economics, Issues and challenges associated with building projects.
Building Efficiency, Building Life-cycle.
Costs and Benefits of Building – Monetary and Non Monetary.

Module-3 Project Financing
Types of Mortgage, Lease Arrangements.

Module-4 Economic performance of building
Decision Making using techniques of economic performance to measure tangible and non-tangible issues - Cost-Benefit Analysis, Incremental Analysis and Multi-criteria Analysis.

REFERENCE BOOKS

CRITERIA FOR ASSESSMENT OF SESSIONALS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PARTICULARS</th>
<th>NO. OF ASSIGNMENTS</th>
<th>MARKS PER ASSIGNMENT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutorial of Module 1 - 4</td>
<td>8</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Seminar/Presentation of Module 1 - 4</td>
<td>1</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35</td>
</tr>
</tbody>
</table>