

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 301 Architectural Design – III

Schedule of Teaching and Examination

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|---|------|----|-------|-----|-----|-----|-------|
| 1 | - | 8 | 9 | 100 | 100 | 50 | 250 |

Examination Duration

12 Hours

OBJECTIVES

The objective of Arch. Design in the 1st semester was concerned with 'space and form' and 'formal transformations'. The objective of Arch. Design in the 2nd semester was to study 'activity and space'. The continuation of this leads to understanding of architecture as an outcome of 'space and structure'.

- Understanding basic structure forms in relation to space and material.
- Application of structure forms in design.

CONTENTS

Evolution of structural systems.

- • **TRABEATED-:** Brick and stone, columns and beams.
- **ARCUATED-:** Corbelled, Radiating Arch, Vault and Dome, Squinch and Pendentives.
- **VECTOR STRUCTURE-:** trusses and space frames, slabs, one way and two way, coffers.
- **FORM STRUCTURE-:** Folded slabs, shells, Hyperbola-paraboloid.
- **TENSILE-:** Tents, Cables, and Pneumatic vis-à-vis materials and plan shapes.

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

Suggested studio exercises

- Making of models of various structural forms with appropriate and innovative materials.
- Making a scale model of important historical buildings incorporating one of the structural forms.
e.g. Trabeated-: Parthenon, Arcuated- :Santa Sophia Parthenon, Vector Active- : Pompidou Center, Form Active-: Sydney Opera House, Tensile-: any of the famous bridges or stadiums.

Design programmes incorporating imaginative use of space and forms.

- **Suggested studio exercises**
 - Small spaces structures such as kiosks, Bus snekers, Petrol pumps, Entrance gates, Rain shelters, Exhibition stalls etc.
 - Large space structures such as Gymnasiums, Skating, Rinks, Badminton halls, Exhibition

- pavilions, Religious buildings etc.
- Written assignments and seminar presentations could be made by students on the architectural characteristics that identifies the building types as well as intentions of the period in response to its context and demands of the time.
 - Free hand sketches and orthographic drawings could be made by the students in the tutorials on specific building examples to familiarize them with the architectural character that identify the works of the particular period.

APPROACH:

- Architectural models of various structural forms and important historical buildings will be preserved in the Architecture museums of the college for the use in History of Architecture classes.
- Students shall be taught Model making, Pasting, Cutting, soldering also as a part of this class.

NOTE FOR CONDUCT OF EXAMONATIONS:

The duration of Examination for this subject is 6x2=12 hours. The examination shall be held over two days. The drawings completed on the first day shall be left in the examination hall and shall be completed and submitted on the second day.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 302 Construction & Material – III

Schedule of Teaching and Examination

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|---|------|----|-------|-----|----|-----|-------|
| 1 | - | 6 | 7 | 100 | 50 | 50 | 200 |

Examination Duration

3 Hours

OBJECTIVES

- To introduce and familiarize the students with constituents, manufacturing process/ availability, properties/ characteristics, defects, classifications and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building work.

CONTENTS

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Materials

- **Surface Finishing:** Plastering, Jointing & Pointing.
- **Floor Finishing:** Brick flooring, Cement Concrete, Stone, Terraz Ceramic & Vitrified Tiles, Wooden.
- **Glass:** Translucent, Transparent and special glasses.
- **Glass Fiber Construction**
- **Brickwork Continued:** Cavity walls.
- **Woodwork Continued:** Paneled doors, Fiush doors and Windows. Mosquito proof Shutters.
- **Temporary Timbering:** Timbering of shallows trenches Ranking, Flying Needle shorting.

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian condition.

Site visits and market surveys will be integral part of sessional work.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 303 Architectural Structures-III

Schedule of Teaching and Examination

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|----------|-------------|-----------|--------------|----------|----------|------------|--------------|
| 2 | 1 | - | 3 | 50 | 50 | - | 100 |

Examination Duration

3 Hours

OBJECTIVES

- To understand the analysis of indeterminate structures and their use in field.

CONTENTS

- - **Fixed End Beams.**
 - **Continuous Beams:** Introduction, Analysis of continuous beams. Reaction at the supports. Effects of sinking of supports.
 - **Elastic Theorems And Energy Principles:** Introduction, Potential energy, General principles, Principles of superposition.
 - **Slope Deflection:** Introduction, Analysis of indeterminate beams and continuous beams.

APPROACH:

- The lectures by the experts in the field of design and analysis will be arranged to make student's exposure to practical aspect of design.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 304 Architectural Drawing -III

Schedule of Teaching and Examination

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|---|------|----|-------|-----|----|-----|-------|
| 1 | - | 3 | 4 | 100 | 50 | - | 150 |

Examination Duration

3 Hours

OBJECTIVES

- To develop greater perception of complex Architectural forms and buildings.
- To develop innovation skills for presenting Architectural Drawings (like plan, elevation etc.) in different media.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.

CONTENTS

Sciography

- Shades and Shadows of objective and building elements cast on irregular surfaces, rendered in suitable medium.
- Shades and shadows in perspective views and for exterior and interiors.
- Shades and Shadows cast by point source of light in interiors.

Perspective Drawing

- One point and Two-point perspective views, using measure point method of simple & medium sized buildings- isolated or in-group, showing shades and shadow using different media like- Pencil, Pen-Ink, Water Colour, Poster Colour and Airbrush etc.
- Other innovative methods of perspective presentation techniques should be encouraged.
- One point and two point perspective drawing of interiors rendered in different media.
- Introduction to short cut methods in perspective drawing.
- Free hand perspective.

Presentation Techniques

- Introduction to represent different textures and finishes in plan and elevation.
- Graphical representation of furniture, automobiles, human figure etc. in plans and elevation and 3-Dimension.
- Preparation of presentation drawings of small buildings, through plans, Elevation site plan etc. using various rendering techniques and media incorporating sciography creating three dimensioned effect.

APPROACH

- Emphasis on experimentation with different presentation techniques and medium in two dimensioned drawings and making building perspective, Interior perspective.
- The free hand drawing and perspective need be encouraged.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 305 Arts & Graphics -III

Schedule of Teaching and Examination

Examination Duration

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|----------|-------------|-----------|--------------|----------|----------|------------|--------------|
| 1 | - | 3 | 4 | 50 | 50 | - | 100 |

3 Hours

OBJECTIVES

- To develop an appreciation of India Arts & Crafts among the students.
- To strengthen the skill of Architectural Rendering.
- To develop the skill to design smaller elements of building.

CONTENTS

Theory

- Lectures on outline History of Indian Art from earliest times to the renaissance of Indian Art in late 19th century.
- Contemporary arts in India and the works of Abhinendra Nath Tagore, Nand Lal Bose, Jamini Roy, Amrita Sher Gill, M.F.Hussain, Satish Gujral and S.H.Raza.

Exercises

- Rendering in different media. Works of masters of Modern Architecture.
- Rendering of students own works (AR-301) interior and exterior perspectives.
- Enlargement and Rendering in Ink the India Decorative motifs.
- Preparation of college and Murals for exterior and interior of the buildings such as waiting areas in hotels, schools and hospitals.
- Design for window grills and railings in steel, balustrades in wood, precast concrete.
- Preparation in clay the design for concrete jails for use in buildings.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 306 History of Architecture-I

Schedule of Teaching and Examination

Examination Duration

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|---|------|----|-------|----|----|-----|-------|
| 2 | 1 | - | 3 | 50 | 50 | - | 100 |

3 Hours

OBJECTIVES

- Understanding of the period in terms of its context of location, climate as well as the socio-culture, historical, economical and political influences of 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 interiors of the period and architects as a solution to the need or demands of the period.

CONTENTS

1. INTRODUCTION

- **Primitive Beginnings:** Introduction to history and architecture with special emphasis on Stone Age to Neolithic settlement in Europe and around with examples from Carnac and Stonehenge.

2. HISTORY OF CIVILIZATIONS

- **Birth of Civilization:** In reference to the Asia-minor region with nascent cities like Jericho, Catalhoyuk and Hattasus etc.
- **Egyptian:** Particularly in reference to early tomb architecture and later temple architecture with example like Great pyramids of Cheops, Mastabas, Funery temples and later temples like Khons etc.
- **Mesopotamian:** With special attention to cities in Aegean like Troy, Sparta, Mycenae which formed the basic of Greek civilization.

3. INDIAN CONTEXT

- **Indus Valley civilization:** Particularly in reference to the town planning principles exemplified with examples from Mohenjodaro and Harappa.
- **The Aryan civilization:** With its emphasis on the Vedic town plan, its motifs and patterns.
- **Buddhist Architecture:** In specific reference to the lats, eddicts, stupas, viharas and chaityas. Both in rock-cut or otherwise.
- **Hindu Architecture-Indo Aryan:** With special attention to the evolution of the temple form, the shikhara in north India. Reference also to be made to the three schools of Architecture-the Gujrat, the Khajuraho, and the Orrisan styles.
- **Hindu Architecture-Dravidian:** Particularly in reference to the evolution of the vimana and the contributions of the Chalukyas, the Pallavas, the Pandyas and Cholas as well as the contributions of the Nayaks to the temple cities.
- **Jain Architecture:** With specific reference to the temple cities of Palitana and Cemar.

APPROACH

- Lectures could be specifically conducted with the visual aids and seminars presented by students.

Uttarakhand Tech. University, Dehradun
Faculty of Architecture

B. Arch. Second year Semester III
AR – 307 Computer Applications to Architecture .

Schedule of Teaching and Examination

Examination Duration

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|----------|-------------|-----------|--------------|----------|----------|------------|--------------|
| 1 | - | 2 | 3 | 50 | - | - | 50 |

OBJECTIVES

- To introduce various software to the students helping them in compilation of their text/report etc.
- To enable the students to understand the role of various data storing devices such as scanners, Digitizers etc. and their applications.

CONTENTS

Learning M.S.OFFICE

- Basic Command to operate the components of M.S.Word.
- Knowledge about DTP Techniques in M.S.Word.
- Use of various commands to make charts, graphs, tables to help students compile their reports in M.S.Word exporting & importing such work done in other software and using of Clip Art and making elementary shapes in M.S.Word.
- Use of Mail Merge in M.S. Word.
- Learning the other components of M.S.office like M.S.Exel, M.S.Power Point etc.
- Presentation in M.S.Power point in making slides etc.
- Making work sheets in M.S.Exel.

Use of Photo editing Software

- Using Photo editing software such as Adope Photoshop, Photo editor etc.

Introduction to use of PageMaker.

- Familiarizing the use of scanners, printers, plotters their hardware and other related systems.

APPROACH

- The emphasis shall be to enable the student to master M.S. Office and the other related software to help in the compilation of his reports and other text related exercises.
- To give the student a deep understanding of the software and hence helping in the formation of a strong base for the complicated and other drawing related software.

Suggested Exercises

- Compiling reports inclusive of Tables, Charts, Text etc.
- Logo design using M.S.Word.
- Slide Presentations.
- Photo Editing sessions.