

Uttarakhand Technical University
Dehradun
Faculty of Architecture

B. Arch. First year Semester II
AR – 201 Architectural Design – II

Schedule of Teaching and Examination

Examination Duration

| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL |
|---|------|----|-------|-----|-----|-----|-------|
| 1 | - | 5 | 6 | 100 | 100 | 50 | 250 |

6 Hours

OBJECTIVES

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built up structures.

CONTENTS

| | | |
|-----------------------------------|---|---|
| Anthropometrics Studies | - | Studies and introduction to human dimension and functions, space –activity, relationships, measure drawings of simple living units. |
| Living spaces and building | - | Measuring, drawing and dimensioning of simple components, building components. Designing for basic functions of human beings, e.g. living, eating, sleeping, cooking etc. |
| Building design | - | Design of mono-cellular-units/structures on a level plane, designing of simple spaces involving primarily horizontal circulation. |

APPROACH :

- Exercise to emphasis the significance of the user in the process of design.
- Selection of building for measure drawing of prototypes only.
- The design of building unit to be completed in the following stages: prototypes study, problem identification, site analysis, preliminary sketch etc. Models of the final design necessary for greater comprehension.
- Ref. books.

Uttarakhand Technical University
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Faculty of Architecture

B. Arch. First year Semester II
 AR – 202 Construction & Materials – II

| Schedule of Teaching and Examination | | | | | | | | Examination Duration |
|--------------------------------------|------|----|-------|-----|----|-----|-------|----------------------|
| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL | |
| 1 | - | 5 | 6 | 100 | 50 | 50 | 200 | 3 Hours |

OBJECTIVES

- To acquaint the students to building materials such as Timber, Reinforced Concrete and Reinforced Brick Work.
- To familiarize the students with construction techniques for use for the above materials in building works.

CONTENTS

1. Materials

| | | |
|--|---|--|
| Timber | - | Classification, Characteristics, Defects, Preservation. |
| Reinforced Cement Concrete and Reinforced Brick Concrete | - | Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability. |
| 2. Construction | | |
| Brick Work | - | Arches, Brick, Stone, elementary principles, definition and centering. Corbelling. Coping, String Courses, Decorative Brick Work, Brick Jalis. Special Bonds – Rat Trap Bond, Garden Bond etc. |
| Timber | - | Elementary Carpentry, Common Joints, Details of Ledged and Braced Batten Doors. |
| D.P.C. | - | Vertical Damp proofing. |

APPROACH :

- The students would be familiarized with glossary of vernacular terminology as prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits to Timber market, Lime Kiln and Cement factory.
- Knowledge about rates of materials should be given.
- Ref. books.

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

OBJECTIVES

- To understand the basic principles of structural mechanics so that it forms the basics for study of structural design.

CONTENTS

| | | |
|-------------------------------------|---|--|
| Stress in Trusses | - | Definitions, forces in members, analytical method, method of sections, Graphical method, Link polygon. |
| Direct and Bending stresses | - | |
| Distribution of shear Stress | | Shear stress in the section of a beam, different sections. |
| Deflection of Beams | | Simple cases. |
| Column | | Definition, end conditions, buckling and critical loads, slenderness ratio. |

APPROACH :

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of design.
- Ref. books.

Uttarakhand Technical University
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B. Arch. First year Semester II
 AR – 204 Architectural Drawing – II

| Schedule of Teaching and Examination | | | | | | | | Examination Duration |
|--------------------------------------|------|----|-------|-----|-----|-----|-------|----------------------|
| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL | |
| 1 | - | 5 | 6 | 100 | 100 | - | 200 | 3 Hours |

OBJECTIVES

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To introduce the students to graphic treatment of two dimensional drawings.
- To development perception and presentation of simple architectural forms and buildings.

CONTENTS

| | | |
|----------------------------|---|--|
| Metric Drawing | - | Types, uses and advantages. Isometric, axonometric and pictorial view. Metric Drawing and projection and their dimensioning. Metric of plane figures composed of straight lines. Metric of circles. Metric of simple and complex blocks. |
| Perspective Drawing | - | Purpose and use. Differences with metric projections. Anatomy of a perspective – cone of vision, station point, picture plane, eye level, horizon line, ground line, vanishing point, etc. Types of perspective – One point, two point, three point perspectives. Perspective of simple and complex box blocks. Perspective of simple curved surface. Perspective of simple household furniture items. |
| Shades and shadows | | Values in Shades and shadows. Constructing plan shadows (point, line and plane) Short – cut methods for Constructing shadows Presentation techniques in Sciography. |
| Solid Geometry | | Construction of section, intersection and interpenetration of solids |

APPROACH :

- The emphasis will be on drawing in the studio and different mediums will be used.
- The sun – path model would be used as a teaching aid while teaching shades and shadows.
- Ref. books.

**Uttarakhand Technical University
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B. Arch. First year Semester II
AR – 205 Arts and Graphics – II

| Schedule of Teaching and Examination | | | | | | | | Examination Duration |
|--------------------------------------|------|----|-------|----|----|-----|-------|----------------------|
| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL | |
| 1 | - | 5 | 6 | 50 | 50 | - | 100 | 3 Hours |

INTENT

The subject of Arts and Graphics would encompass :

- Introduction to Arts and appreciation of art and its philosophies.
- Familiarization with principles and theories of graphics and architectural composition.
- Development of Art and Graphic skills.

CONTENTS

| | | |
|--|---|---|
| Philosophy of Art (Introduction to great Masters and Modern, Art Movements) | - | Renaissance – Giotto, Leonardo da Vinci, Michael Angelo. Baroque – Rembrandt. Realism – Rodin, Ingres. Impressionism – Manet, Renoir, Gauguin, Van Gogh. Cubism – Picasso, Henry Moore, Duchamp. Expressionism – Paul Klee, Chagall. Surrealism – Dalí. |
| Theory of Design (Introduction to Architectural Composition) | - | Unity, Elements of unity, - Texture, Colour, Tone Direction, Proportion, Form and shape, solids and voids. Aspects of unity – Dominance, harmony, proportion, rhythm, vitality. |
| Arts and Graphics skills | | Free hand drawing – drawing people, furniture, fabric and transport from imitation, observation and recapitulation. Rendering techniques – for textures of materials and finishes ; using equipments like transfers, airbrush, rendering architectural drawings. |

APPROACH :

- The theory part of the course will be an overview, covered through audiovisual lectures delivered by experts in the field.
- Studio exercises of graphic composition will be in the form of drawing, collage models.
- The students would be taught to handle various mediums in studio work as part of development of art and graphic skills. The examination paper would be set so to test the knowledge and understanding of the student for each distinct part of the syllabus.
- Ref. books.

**Uttarakhand Technical University
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B. Arch. First year Semester II
AR – 206 Surveying and Leveling – II

| Schedule of Teaching and Examination | | | | | | | | Examination Duration |
|--------------------------------------|------|----|-------|----|---|-----|-------|----------------------|
| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL | |
| 1 | 2 | - | 3 | 50 | - | - | 50 | 3 Hours |

OBJECTIVE

- To bring about awareness of the role of surveying and leveling in architectural and planning.
- To familiarize the student will be techniques of surveying and leveling.

CONTENTS

| | | |
|------------------------|---|--|
| Surveying | - | Role of surveying in Architecture, Types of survey. Introduction to various techniques – Chain and Plain Table Survey, Travers Survey. Contouring – Contour Maps, characteristics, use and interpretation. |
| Leveling | - | General principles and application of application of photography in Surveying. |
| Photogrammatery | | Definition, principles and application of photography in Surveying. |

APPROACH :

- Emphasis on field exercises and on site surveys.
- The theoretical part of the course shall be covered through lectures.
- Ref. books.

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B. Arch. First year Semester II
AR – 207 Computer Applications to Architecture – II

| Schedule of Teaching and Examination | | | | | | | | Examination Duration |
|--------------------------------------|------|----|-------|----|---|-----|-------|----------------------|
| L | P/TV | ST | TOTAL | S | T | P/V | TOTAL | |
| 1 | 2 | - | 3 | 50 | - | - | 50 | - |

OBJECTIVES :

- To acquaint the students with the basic knowledge of Computers.
- To familiarize the students with the different Computer Operating System.
- To introduce the Computer Data entry skills to the students.

CONTENTS

| | |
|---|--|
| Operating of Computers | - General historical background of Computer development. Introduction to Hardware and general idea of their use. |
| Operating Systems | - Basic knowledge of the different operating systems and Basic commands in MS DOS, Windows – Salient features. Unix Linux etc. |
| General Idea about other Popular Operating systems | |
| Data Entry & Data retri | General Typing skills. |

APPROACH :

- The emphasis should be given to actual working on computer and
- Typing skills to be developed.
- Ref. books.

