B. Arch I SEMI
COURSE AR101

STUDIO I - Basic & Architectural Design

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Architectural Design SEMI

Emphasis: Developing basic skill of expression that involves the ability to perceive, abstract and create the design of objects and spaces. Introduction to the principles and elements of TDesign

Contents: Principles of 2D and 3D composition, function specific design solutions, developing aesthetical and technical understanding of space making, Introduction of the form and function, order and variations, basic organizational principles, human scale, abstractions, sensory stimuli as components of architectural design

Projects: Space making and place making, theme based compositions, volumetric studies, fcrea studies, Literature Review

Basic Design SEM I

Emphasis: Developing visual literacy and basic expressional skill that involves the ability to perceive, abstract and create as a process of the design of objects and spaces.

Contents: Principles of 2D and 3D composition and introduction of basic terminologies related to it, Introduction to the Colour theories, Elements of Composition, Explorations of various materials and medias, developing visual literacy through the process oriented exerci-es and lateral thinking

Projects: Compositions of positive and negative, 2D compositions based on geometrical forms and other objects. Design exercises for developing abstract reasoning, model making and volumetric compositions

References:
1. Ching, Francis D. K. - Form, Space and Order
2. Rasmussen, Stein Eiler - Experiencing Architecture
3. Berger, John - Ways of Seeing
5. Corbusier, Le - Towards New Architecture
6. Gill, Robert - Rendering with pen and ink
7. ---- - Art in everyday life
8. Raskin, Eugene - Architecture: Scale and proportion
9. Gill, Robert - Basic Rendering
11. De Bono, Edward - Lateral thinking
B. Arch I SEMI
COURSE AR102
Technical Representational Drawings I

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**Emphasis:**
Developing skills for representation of geometric forms and compositions as a tool of design

**Contents:**
- Familiarization with drawing materials and equipments,
- Lettering and architectural abbreviations, calligraphy,
- Basic principal of geometry, orthographic projections of points, lines, planes and solids,
- Section of solids and development of surfaces of the solids,
- 3D representations of solids like isometric and axonometric diagrams

**References:**
1. Leaseua, Paul: Graphic Thinking for Architects and Designers
2. Ching, Francis D. K. - Graphics in Architecture
3. Bhatt, N. D. - Engineering Drawings
B ARCH - I SEM-I
COURSE-AR103
Building Material & Construction- I

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**Emphasis:** Understanding of building materials & basic building components in construction.

**Objective:**
- Study of basic materials of construction such as sand, cement, lime, aggregates, brick, stone, metal, glass, etc. and their structural and physical behavior with respect to their properties and application in building.
- Study of all types of masonry in stone construction.
- Study of brick masonry.
- Introduction to various components of building like floors, roofs, openings, staircase, etc.

**Projects:** Study through practical site visits, presentations, case studies & workshop based on the application of theory to construction field.

**Reference:**
1. Mackey W.L - Building Construction, Vol -I, II, III,
3. Barry R. - The Construction of Building
5. Allen Edward - Fundamentals of Building Construction
B. Arch I SEMI
COURSE C104
Structure-I

Teaching Scheme (No. of Contact hours) | Examination Scheme | Credits | Total | Grand Total
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Theory | Tutorials | Studio | Theory | Exam | Practical | Duration - Hours | Marks | End Semester Exam | Continuous Internal Evaluation
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2 | 1 | 2 | 3 | 100 | 30 | 20 | 5 | 50 | 100

Emphasis: Engineering Mechanics (Static)

Contents:

1. **Introduction**:
   Introduction to fundamental principles of Engineering Mechanics, Newton's Laws of motion, law of parallelogram of forces, principles of forces, principles of transmissibility & concept of rigid body, particle.

2. **Natural forms**:
   Understanding Nature a creative base for understanding structures, correlating natural & man-made structures.

3. **Forces**:
   Types of forces, Static loading, time dependent loading & impact loading. Causes & effect of various forces like dead load, imposed load, wind load, earthquake load, Hydrostatic load, erection force etc. on building. Forces acting through point, distributed forces on line, area & body.

4. **Forces system**:
   Free body diagram, resolution of forces into components, types of force systems, concurrent, coplanar nonconcurrent etc. forces in planes & space. Calculation of resultant for various types force system, calculation of moments, couple equivalent force system.

5. **Equilibrium**:
   Equilibrium conditions of equilibrium for force system, basic types of supports determinacy, Basic behavior of elements in load transformation. Bending torsion shear tension members compression members etc.

6. **Beam**:
   Introduction as a flexural element, simply supported, overhanging & cantilever beams, determinacy. Calculation of reaction at supports for beam, application.

7. **Truss**:
   Introduction, types of truss, analysis of Plane truss & space truss, application.

Graphical Methods:
Graphical methods for resolution of forces, Bow's notation, Force polygon for coplaner force system, Funicular polygon, Analysis of beam 7plane truss by graphical method.
8. Distributed forces:

1. Tutorial based on course contents.
2. Practical in lab based on understanding of forces, equilibrium, beam & truss.
3. Making models based on stability, forces in members & centre of gravity.
4. Creative exercise based on course content.

1. Bear & Johnston - Vector mechanics for engineers- static
2. Desai & Mistry - Engineering mechanics, static & Dynamics
4. Jeffery Cook - Seeking structures from nature.
### B ARCH -I  SEM-I  
COURSE-AR105 History of Culture I

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**Emphasis:** Elementary concept of society, culture and its articulation in Architecture & built form.

**Contents:**

- Society & its institutions, culture & cultural elements, traits, attributes, important theories of society & change, urbanization its impact on various cultural attributes & o built form.
- Prehistoric shelters - evolutionary stages of man
- Indus valley civilization
- Egyptian & Mesopotamian civilization

**References:**

1. Metta Spencer, Alex Inkeles- Foundations of modern society.
2. A.L. Basham-The Wonder that was India
3. Michal Coogan-Worlds Religion -The illustrated guide
4. R.E.M.Wheeler- The Indus Valley Civilization
5. Encyclopidia of Vernacular Architecture, Vol I
B. Arch I SEMI
COURSE AR106
Photography and Graphical Representational Skills

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**Emphasis:**
Use of different medias and techniques as tools to develop visual and perceptual skills

**Contents:**
- Observations and representation through drawings with different media as pencil, charcoal, paint brush, crayon, dry pastels etc.
- Object drawings and shading techniques.
- Drawings of simple geometric objects.

**Observation and representation through camera**
- Introduction to camera and various lenses and filters.
- Shutter speed, aperture, field of depth.
- Frames of reference, framing a composition.
- Various types of photography such as nature, architecture, portrait, landscape, urban landscape etc.
- Presentation and display of the photographs, printing and developing.

**References:**
1. Thames & Houdson - Pen & Ink Rendering
2. Gill, Robert - Basic Rendering
### B. Arch I SEMII

**COURSE AR 201 STUDIO II - Basic & Architectural Design**

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**Architectural Design SEM II**

**Emphasis:** Introduction to the fundamentals of architectural design like form, space, scale and proportions, functions and anthropometrics, structure and materials, sensory qualities

**Contents:** Anthropometric studies, human physiology and ergonomics, understanding of interrelationships of functions, Design parameters like spatial order, basic modulation, space-structure-form correlation, principles of abstractions, spatial scales, ordering mechanism, evolution of form

**Projects:** Detailed Study of Anthropometrics, Small scale design projects, Design of small structures and spaces with specific functions, theme based compositions, volumetric studies, area studies, literature Review

**Basic Design SEM II Emphasis:** Introduction to the principles design like function and form, scale and proportions, colour and texture, materials and surfaces

**Contents:** Application of colour theories and cycles, Study of various textures and colours with its inherent expressions and effects, Study of natural forms like leaf, shell, tomato etc., Application of various materials like Clay, Paper Mache, Timber, Steel etc, Application of various graphic techniques and development of abstract reasoning

**Projects:** Theme based compositions, volumetric studies, Literature Review
Drawing & Painting

Developing visual and perceptual skills with the help of different medias and techniques

- Observations and representation through drawings with different media as pencil, charcoal, paint brush, crayon, dry pastels etc.
- Object drawings and shading techniques
- Drawings of simple geometric objects, complex geometries, objects in nature
- Abstraction of perceived images
- Rendering techniques and use of colours
- Human figure studies in line drawings, shade and sculptural mass

1. Ching, Francis D. K. - Form, Space and Order
2. Rasmussen, Stein Eiler - Experiencing Architecture
3. Berger, John - Ways of Seeing
5. Oorbusier, Le - Towards New Architecture
6. Scriven, Peter and Bhatt, Vikram - After the Masters
7. Gill, Robert - Rendering with pen and ink
8. Ruskin, Eugene - Architecture: Scale and proportion
9. Gill, Robert - Basic Rendering
11. De Bono, Edward - Lateral Dunking
12. Thames & Houdson - Pen & Ink Rendering
B. Arch I SEMII  
COURSE AR 202 Technical Representational Drawings II

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**Emphasis:** Developing the skill for visualization & representation of geometric forms and compositions as a tool of design

**Contents:**
- Auxiliary projections, perspectives — one point and two points
- Rendering techniques
- Development of lateral surfaces in sections
- Interpenetration of geometric solids and conditions of intersections
- Sciography — methods to represent shadow and depth of an object in 2D and 3D projections with introduction to sun movements

**References:**
1. Leaseua, Paul: Graphic Thinking for Architects and Designers
2. Ching, Francis D. K. - Graphics in Architecture
3. Bhatt, N. D. - Engineering Drawing

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## Teaching Scheme (No. of Contact hours) vs Examination Scheme

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### Key Terms:

- **Duration (Hours):**
- **Marks:**
- **End Semester Exam:**
- **Continuous Internal Evaluation**

### Literature:

1. Mackey W.L -Building Construction, Vol-I,II,III,
3. Barry R -The Construction of Building
5. Allen Edward -Fundamentals of Building Construction

### Content:

- Study of building systems & various building components.
  - Understanding the concept of load bearing & framed structures & composite structures
  - Study of building components such as foundations, walls, floors, openings etc. in Load bearing & framed structures.
  - Forming of opening in various materials for the building types such as lintels arches etc.
  - Types of footings & shallow foundations.
  - Study the various RCC construction equipment
  - Study of joinery in timber & metal.

### Projects:

Projects: Study through practical site visits, presentations, case studies & workshop based on the application of theory to construction field.

### Reference:

1. Mackey W.L -Building Construction, Vol -I,II,III,
3. Barry R -The Construction of Building
5. Allen Edward -Fundamentals of Building Construction
B. Arch I SEMI
COURSE C204
Structure-II

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Emphasis: Strength of Material

Contents:

1. **Simple stress & strain:**
   Introduction behavior of material under loading, stress & strain due to axial force, Hook's law working stress, Ultimate stress, factor of safety, permissible stress, lateral strain, Poisson's ratio, volumetric strain, Young's modulus, Modulus of rigidity & their interrelation ship, stress due to temperature.

2. **Principle Stress & strain:**

3. **Shear Force & bending Moment diagram for Determinate beams:**
   Introduction to shear, bending, calculation of Shear force & bending moment for beams subjected to various types of load combination i.e. point load, distributed load with various types of support conditions like simply supported, overhanging, cantilever etc. Relationship between bending moment & shear force diagram, determination of point of contraflexure, Application of Shear force & bending moment diagram.

4. **Shear force & Bending moment diagram for Indeterminate Beams:**
   Calculation of shear force & bending moment for Fixed 7 Continuous beams using meorern of diree moments. Shear force & bending moment diagrams, interpretation of diagram & its application.

5. **Shear force & Bending moment diagram for Determinate Beams & Indeterminate plane frames & arches:**
   Calculation of Shear force & bending moment for statically determinate & indeterminate plane frames subjected to gravity & lateral load.

6. **Torsion:**
   Introduction to torsion, basic behavior

Projects:

1. Tutorial based on course contents.
2. Practical in lab based on - Testing of materials under various action like compression, tension etc.
7. S .Ramamrutham-Strength of Material
BARCH - I  SEM-II
COURSE- AR205
History of Culture II

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**Emphasis:**
Study of society; its historical, socio-institutional developments; settlements, public & private spaces; symbols & meaning in built, form & spatial structures.

**Content:**

A. **World history.**
- Minonian/ Mycenaean civilizations
- Rise & decline of Greek city
- Early Rome - Roman Empire & its decline
- Chinese Civilization
- Civilizations of South America

B. **Indian History**
- Vedic period / Aryanization in India
- Mauryan Period

C. Religion & its articulation in architecture & scared built forms with special emphasis on Bhagvatism /Shaivism & Hindu Cosmogony

**References:**
1. Doughlas Goodwine - A brief history of Ancient World
2. Ancient Egypt; Time- Life books Series
3. Romilla thapar, Percival Spear-A History of India; Vol-I & 2
4. Cambridge History & Culture of the Indian People; Vol-I & 2
5. R.C. Mujumdar- Ancient India
### B. Arch I SEMII
**COURSE: AR 206s**
**Environment & Ecology**

<table>
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Understanding of ecology & the relationship of built & natural environment

**Contents:**
- Concept of ecology & ecosystem.
- Study of biological cycles.
- Resources & its conservation.
- Study of various climatic zones & issues of ecological balance.
- Study of various climatic forces.
- Urbanization & its impact on natural environment such as forestry, agriculture, water bodies, landforms etc.
- Pollution & its types.
- Introduction to the concept of sustainable habitats.

**References:**
1. Donum E.P. - Fundamental of Ecology
2. Forest Steams & Tom Montang - The Urban Ecosystem; A Holistic approach.
4. World Resources - WHO