# Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad

## Proposed Syllabus for Bachelor of Architecture

## First Year Architecture

## Date: 19th August 2017

# PREAMBLE

The academic council of **Dr.Babasaheb Ambedkar Technological University** aims at bridging the gap between the **Industry and the Institute** by framing a syllabus on the **Guidelines of Council of Architecture, India** and fine tuning the same with respect to the requirements of the building industry at the international and national level.

The students emerging out of the graduate level should be sound enough to proceed to masters in any part of the world and in any specific subject of his Masters on one hand and be suitable enough to support any good architectural practising office across the globe or alternatively has a platform to take off his own Professional Practice.

**The Education is desired to be oriented to equip students with modern skills and techniques of designing structures and detail them further with precise constructional details, use of most suitable materials, examine the sustainability attributes and further specify the process of implementation with the value addition of conservation of energy flavoured with modern architectural concepts giving justice to the various spaces (within and around the built form), they are meant to perform.**

The architectural institutes shall also educate the students on their **responsibility as a professional,** to create designs that shall adhere to all **the local regulations and laws of the land** and should provide **updated knowledge of procedures** to be followed from work commencement to completion.

The graduate course (B.Arch) shall be of Ten semesters (stage I & stage II) and the detailed subject wise pattern enclosed along with this preamble shall be strictly adhered to. The Council of Architecture stipulates that maximum students in each class be 40 only and sections may be added for additional intakes.

The libraries shall be equipped with internet facility with a computer lab to provide students networking opportunities with other Institutes/Universities across the world. Facebook /Twitter/Blogs/any other social media tool shall be used to create data that may be required time and again as student/faculty flow year on year.

The Institution shall encourage exchange programs of faculty and students with other Universities in India and abroad to help develop them and their valuable suggestions can be discussed and debated during BOS meetings to modify/amend syllabus or exam pattern if required.

**Emphasis shall be given to live site visits, interactions with the client's promoters, contractors and also approving authorities and project managers to get feedback on drawings, details, specifications, selection of materials, techniques of constructions.**

The institutes are expected to conduct **seminars on newer technologies and materials** by inviting players from the market/industry and faculty and the students should take it further through **interactive workshops**. The institutes shall also encourage students to attend conference and conventions of architectural organizations within India and Abroad.

The Institute shall guide students to leading architectural offices within and outside the Country for the internship course at stage I and shall conduct interactive feedback workshops for exchange of ideas and experience of the building industry and professional office working. The subject of Professional Practice shall be constantly updated based on changing trends and their expectation from professional architect's .Inviting leading architects to share on the above subject within the institute may help imbibing confidence within out-going graduates.

The BATU syllabus is composed by team of experts after thorough examination and comparative analysis of syllabi of colleges of architecture in India and intends to further modify or amend that may be required by the foreign universities offering BATU their accreditation in order to respond to rapidly changing industry, society and environment, national and international economic dimensions.

The Above architectural technology benchmark statement shall/may reflect these changes in the context of the building Industry, including the need to produce graduates that are employable yet adaptable, agile and flexible to respond to future challenges and changes.

| List of Abbreviations | | |
|---|---|---|
| **Sr.No.** | **Acronym** | **Full form** |
| 1 | TH | Theory |
| 2 | SWT | Sessional Work with Assessment |
| 3 | SV | Sessional Work with Viva |
| 4 | L | Theory Lecture |
| 5 | S | Studio |
| 6 | IA | Internal Assessment |
| 7 | MSE | Mid Semester Exam |
| 8 | ESE | End Semester Exam |

## Teaching Scheme:

Each Lecture to be conducted should be of 60 min duration.

Each Studio to be conducted should be of 60 min duration.

1 Credit Point = 1 Hour Lecture (For Theory subject)

1 Credit Point = 2 Hour Studio

## Mandatory Passing Criteria:

All the rules and regulations for Allowed To Keep Terms (ATKT) from Dr. Babashaeb Ambedkar Technological University (DBATU) should apply till Third Year Architecture of the B.Arch course.

In addition for Architecture, it is **mandatory** for the student to pass all the subject heads till Third year (till Semester 6).
On passing in all the subject heads till Semester 6, the student will be admitted to Semester 7 i.e. Fourth Year Architecture.
**Therefore, it is mandatory to pass in all subjects till Third Year Architecture.**

The semesters that will be counted towards the Final Class of the student will be the Semester 7, Semester 8, Semester 9 and Semester 10. Performance of these 4 semesters will together determine the Class of the student.

The candidate admitted to B.Arch. course shall complete the first stage (Third Year) within 5 years of admission to the course.
The candidate admitted to B.Arch course having completed the First Stage shall complete the second stage (Fifth Year) within 8 years of admission to the course.

## Reporting of Submissions by the students and Institutes:

All students should mandatorily submit the course work to the college, completed in the class at the end of the day through the servers to the college / university.
The evaluation of the work done in the class by the student should be done by the teacher on the same day and data to be maintained on the server.

## Use of Computers:

The institutes can allow the use of computers as found suitable from 2nd semester onwards.

## Study Tours:

Study tours can be organised by the institutes to make the student aware of the various aspects of architecture. At least 1 study tour per year should be organised.

## Professional Training – Guidelines for selection of Office for Professional training:

1. The practical training of one year duration shall be carried out in the office of an experienced architect registered with the Council of Architecture.
2. The Professional Training can be done in India in any city as is suitable for the student.
3. The Professional Training can also be done in any Foreign Country as is suitable for the student. (This is not mandatory.) The architect / architectural firm has to fulfil all the criteria's of registrations similar to the Indian Counterpart.
4. The Principal Architect of the firm chosen for Practical Training has to have minimum professional experience of 10 years in good standing.
5. The student should be exposed to all aspects of Architectural Practice as is envisaged in the Comprehensive Architectural Services – Scope of Work during the training period.

## Teaching and learning Process Matrix:

This matrix is to be used by the teachers and students to understand subject in detail.
It will unfold the desired skill sets required along with identification of teaching and learning process approach indicators.
It will also help teachers and students to evolve concepts and module development.
This is a tool recommended to be followed by subject teachers. It will create learning and understanding process of the subject.

| **Sr. No.** | **Subject Heads** → | **Subject -1** | **Subject -2** | **Subject-3** | **Subject -4** |
|---|---|---|---|---|---|
| | **Definitive questions for learning subjects** ↓ | | | | |
| | | | | | |
| 1 | How does learning occur? | | | | |
| | | | | | |
| 2 | What factors influence learning? | | | | |
| | | | | | |
| 3 | What is role of learning? | | | | |
| | | | | | |
| 4 | How does transfer occur? | | | | |
| | | | | | |
| 5 | What type of learning are best explained by theory / drawing? | | | | |
| | | | | | |
| 6 | How is technology used for learning in Architecture? | | | | |

| Dr. Babasaheb Ambedkar Technological University | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Proposed List of Subjects- Year Wise | | | | | | | | | | |
| First Year Bachelor of Architecture | | | | | | | | | | |
| Semester -1 | | | | | | | | | | |
| | | Marking Scheme | | | | Teaching Scheme | | Evaluation Scheme | | |
| Subject Code | Subject | TH | STW | SV | Credits | L | S | IA | MSE | ESE |
| | | | | | | | | | | |
| AR1010001 | Architectural Design Studio-1 | 100 | | 150 | 2 | 0 | 4 | 75 | | 75 |
| AR1010002 | Basic Design and Visual Arts | | | 150 | 3 | 1 | 4 | 75 | | 75 |
| AR1010003 | Architectural Drawing and Graphics-1 (Manual) | 100 | | 150 | 3 | 1 | 4 | 75 | | 75 |
| AR1010004 | Building Construction Technology and Materials-1 | 100 | | 150 | 4 | 2 | 4 | 75 | | 75 |
| AR1010005 | Environmental Science-1 (Focus on Built Form ) | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |
| AR1010006 | History of Architecture-1 | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |
| AR1010007 | Model Making Workshop-1 (Basic) | | 100 | | 2 | 0 | 4 | 40 | | 60 |
| AR1010008 | Elective (Any 1) | | | | | | | | | |
| AR1010008A | Personality Development | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| AR1010008B | Sketching | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| AR1010008C | Art in Public Spaces | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| AR1010008D | Craft Studies | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| | **Total** | **500** | **200** | **700** | **20** | **10** | **20** | | | |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| | | Marking Scheme | | | | Teaching Scheme | | Evaluation Scheme | | |
| Subject Code | Subject | TH | STW | SV | Credits | L | S | IA | MSE | ESE |
| | | | | | | | | | | |
| AR1020001 | Architectural Design Studio-2 | 100 | | 200 | 4 | 0 | 8 | 100 | | 100 |
| AR1020002 | Architectural Drawing and Graphics-2 (Manual) | 100 | | 150 | 3 | 1 | 4 | 75 | | 75 |
| AR1020003 | Building Construction Technology and Materials-2 | 100 | | 150 | 4 | 1 | 6 | 75 | | 75 |
| AR1020004 | Environmental Science-2 (Focus on Environmental Impact) | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |
| AR1020005 | History of Architecture-2 | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |
| AR1020006 | Model Making Workshop-2 (Civil Work) | | 100 | | 1 | 0 | 2 | 40 | | 60 |
| AR1020007 | Theory of Structures -1 | 100 | | | 2 | 2 | 0 | 20 | 20 | 60 |
| AR1020008 | Elective (Any -1) | | | | | | | | | |
| AR1020008A | Cultural Influences on Architectural Design | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| AR1020008B | Architectural Drawing and Graphics - Computer Based | | | | 2 | 2 | 0 | 0 | | 0 |
| AR1020008C | Photography | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| AR1020008D | Art in Landscape and Architecture | | | 100 | 2 | 2 | 0 | 40 | | 60 |
| | **Total** | **600** | **200** | **600** | **20** | **10** | **20** | | | |

# Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad

## BACHELOR OF ARCHITECTURE

## FIRST YEAR

## SYLLABUS 2017

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010001 | Architectural Design Studio-1 | 100 | | 150 | 2 | 0 | 4 | 75 | | 75 |

## Course Objective

To introduce the student the fundamentals of architectural design.

To initiate creative thinking and its relationship with activity spaces.

To apply principles of Basic Design and Visual Arts to Architectural Design

To act as an interface between Basic design-1, Workshop-1 and Architectural Design Studio-1

## Course Outcome

To understand human scale and proportion

Apply human scale and proportion in design

## Course Content

**Module-1**

Anthropometry

Scale and Proportion

Measured drawing of Human Activity space - Case Study -Living Room, Bedroom, Kitchen, Toilet

**Module -2**

Iterative Design Process

Activities and their relation with space

Principles of Architectural Planning

Co -relation between form, function and structure

**Module -3**

Design process using various methods like Idea Matrix, Concept Mapping and Pre Design

**Module -4**

Design of elements of furniture using Anthropometric data from Module -1

**Module-5**

Design of Interactive spaces such as Living room, Courtyard, Bus Stop, Atrium, Community spaces and similar areas.

**Studio Exercises**

Exercises in order to experiment basic proportions, body relations and spatial concepts.
Layout of furniture based on anthropometrics. Anthropometrics for physically challenged persons. Exercises in order to experiment basic proportions, body relations and spatial concepts. Designing of basic building components (like kitchens, bedrooms, toilets etc.)
Design exercise on threshold conditions and small-scale domestic space. Students will learn skills in problem solving, visualization, oral, and graphic communication. Field trips to relevant architectural sites.

**Mode of Examination**

Theory Paper in the form of Time Problem of duration 4 hours and Sessional Work with Viva

**Reference Books**

1. Ching, F.D.K.; Architecture Form, Space and Order, Van Nostrand Reinhold Staff, New York, 1996.

2. Rudofsky, Bernard; Architecture without Architects, University of New Mexico Press,New Mexico

3. Rasmussen, Steen Eiler; Experiencing Architecture, The MIT Press, Cambridge,Massachusetts, 1977.

4. Watson, Donald / Crosbie,Michael J.; Time Savers Standards for Architectural Design,Mc Graw Hill, New York, 2005

5. Chiara, Joseph De / Crosbie, Michael J.; Time Savers Standards for Building Type, McGraw Professional Publishing, New York, 1973.

6. Harris, Charles W. / Dines, Nicholas T.; Time Savers Standards for Landscape Architecture, Mc Graw Hill, USA, 1998

7. Chiara, Joseph De / Panero, Julius / Zelink Martin; Time Savers Standards for Interior design and Space Planning, Mc Graw Hill, New York, 2001

8. Gideon, Siegfried; Space, time & Architecture, Harvard University Press

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010002 | Basic Design and Visual Arts | | | 150 | 3 | 1 | 4 | 75 | | 75 |

## Course Objective

To familiarize the student with visual grammar, methods of visual composition and various mediums

To develop skills in manual presentation techniques,

To act as an interface between Basic design-1, Workshop-1 and Architectural Design Studio-1

## Course Outcome

Develop principles of 2 dimensional and 3 dimensional composition

Develop manual presentation techniques

Use of colours in design

## Course Content

**Module -1**

Relationship of Surface, Form, Masses.

Relationship of Point, Line, Motion, Light, Shade.

**Module -2**

Colour Theory

Explore the use of colour in design in context to emotional quotient and context

**Module -3**

Fundamental principles of design, Creativity tools like Synectics

Balance, Harmony, Rhythm, Contrast, Symmetry, Scale,
proportions, colours, tones, textures etc

**Module -4**

Sketching

Sketching using Pencil (Black and White) and Colour Pencil

Sketching using Pen, Watercolour and any other suitable medium

Free Hand presentations and rendering techniques

**Module -5**

2D Compositions

3D Compositions

Sculpture

Study of solids & voids to evolve sculptural forms & spaces

**Module -6**

Textures

Study of various textures and their use in architectural design

**Studio Exercises**

Suitable exercises on all the Modules mentioned above (Min 5 on each module on A2 Size)

| **Mode of Examination** |
| --- |
| Sessional Work with Viva. |

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| --- |
| **Reference Books** |
| 1. Ching Francis D. K., Form Space and Order. |
| 2. Ching Francis D. K., A Visual Dictionary of Architecture. |
| 3. John R. Mather -Climatology: Fundamentals and Application. |
| 4. Christopher Alexander- Pattern Language |
| 5.· Robert Sommer. -Design Awareness. |
| 6. C.M. Deasy -Design for Human Affairs. |
| 7.· Pierre Von Meiss -Elements of Architecture from form to place. |
| 8. Yatin Pandya- Elements of Space Making. |
| 9. Paul Lassau – Graphic Thinking for Architects and Planners. |
| 10. Peter Pearce, Structure in Nature – Strategy for Design. |
| 11. Peter Streens, Patterns in Nature. |
| 12. Anthony Antoniadis - Poetics in Architecture: Theory of design |
| 14. Am heim Rudolf, Visual Thinking. |
| 15. John R. Mather -Climatology: Fundamentals and Application.15 |
| 16. Maxwell Fry And Jane Drew -Tropical Architecture. |
| 17. Paul Lassau - Graphic thinking for Architects and planners. |
| 18. Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory. |
| 19. William J.J. Synectics: The Development of Creative Capacity (New York Harper and Row Publisher,1961) |
| 20.Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution (University of North Colorado) May 10 2007. |
| 21.Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought (Boston Massachusetts: Allan Bacon Publishers, 1996) |
| 22. Tassoul, M (2006) Creative Facilitation: A Delft Approach. VSSD |
| 23.https://www.free_esl.com |
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| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010003 | Architectural Drawing and Graphics-1 (Manual) | 100 | | 150 | 3 | 1 | 4 | 75 | | 75 |

| **Course Objective** |
|---|
| To introduce and familiarize students with drafting tools and accessories and provide basic knowledge and skill to draft a drawing manually. |
| Developing drafting skills through different types of lines, their intensity and interpretation. Also understanding the scale of drawing, dimensioning, lettering techniques and layout of sheets. |
| Visualizing and drawing geometric forms in different positions using orthographic projections and sciography will help the student to understand and develop drawings for various design proposals. |
| |
| **Course Outcome** |
| To recognize and select drawing tools and techniques for drafting basic drawing. |
| To identify a type of line, intensity, thickness, text to draw a shape. . |
| To implement a scale, dimension for a layout of sheet or drawing. |
| To demonstrate a line, plane or solid into drawing using orthographic projections. |
| To integrate the 2 dimensional drawings and 3 dimension form using development of surfaces. |
| To formulate the 2 dimension into 3 dimension drawing using metric projection. |
| |
| **Course Content** |
| **Module -1** |
| Introduction |
| Drawing instruments and its uses |
| Sheet layout |
| Lines, lettering , scales and dimensioning |
| Geometric Shapes |
| Drawing of basic geometric shapes |
| Drawing of complex geometric shapes |
| **Module -2** |
| Orthographic Projections |
| Concept, Principle and Methods of Projections |
| Orthographic Projections of Point, Line and Plane |
| Projections of Solids in different positions |
| Application of Projection for preparing architectural drawings |
| Application of Sciography in 2 dimensional drawings with rendering techniques |
| **Module -3** |
| Sections of solids and its application to building drawings |
| Introduction of section of solids with simple forms |
| Concept and methods of drawing section of solids |

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|---|
| Application of sections for simple building drawings |
| Section of complex form or structures |
| **Module - 4** |
| Development of Surfaces |
| Introduction to development of surfaces and its uses |
| Methods of development of surfaces |
| Development of lateral surfaces of simple solids as cube, cone, pyramids and prism. |
| Development of complex solids, when two or more simple solids are joined together. |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper with 3 hour duration. |
| Sessional Work with Viva. |

| **Reference Books** |
|---|
| 1. Ching Francis D.K.: Architectural Graphics |
| 2. Kelsey W. E.: Geometrical & Building Drawing |
| 3. Leslie Martin: Architectural graphics |
| 4. B. James: Essential of Drafting |
| 5. H. Joseph and Morris: Practical plane and solid geometry |
| 6. Gill Robert: Rendering with pen and ink |
| 7. Burden Ernest: Architectural Delineation. |
| 8. Burden Ernest: Architectural Delineation. Gill, Robert W.; Manual of Rendering with Pen and Ink, Thames and Hudson, London,1997. |
| 9.JaxThemier, B.W., “How to Paint and Draw”, Thames and Hudson, 1985. |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010004 | Building Construction Technology and Materials-1 | 100 | | 150 | 4 | 2 | 4 | 75 | | 75 |

| **Course Objective** |
|---|
| To familiarize students with building elements of superstructure and foundations, materials and construction techniques |
| Introduction to elementary building construction methods and their applications |
| To understand the execution process of each building element |
| |
| **Course Outcome** |
| To define basic building elements. |
| To recognize the various types of masonry and foundation made up of suitable materials. |
| To be aware of the properties and applications of various materials. |
| To understand the construction of openings in various types of masonry. |
| Distinguish between various types of structures. |
| |
| **Course Content** |
| **Module -1** |
| Introduction to materials used in civil construction. |
| Bricks, Sand, Aggregate, Lime, Cement, Water, Stone and reinforcement Steel |
| Properties of materials and Quality tests of materials |
| **Module -2** |
| Introduction to various elements of building from foundation to roof. |
| **Module -3** |
| Building Envelope |
| Brick Masonry- All types of Bonds |
| Stone Masonry-All types |
| Composite Masonry- All types |
| Right angles in all types of masonry, T-Junctions and Corbelling |
| **Module - 4** |
| Arches |
| Various types of Arches |
| Lintels |
| Constructing openings in Walls as mentioned in Module -2 |
| **Module - 5** |
| Introduction to Types of structures- Load Bearing Structure and Frame Structure |
| Introduction to Types of Foundations- Shallow and Deep foundations |
| Types of Soil |
| Shallow foundations-Isolated, Combined and Raft foundations and Spread Foundations |
| Deep Foundations- Construction of Grillage foundations, Caisson foundations |
| Equipment for Deep foundations |
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| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper with 3 hour duration. |
| Sessional Work with Viva. |

| **Reference Books** |
|---|
| 1. 'Elements of Structure' by Morgan. |
| 2. Structure in Architecture' by Salvadori. |
| 3. 'Building Construction' by Mackay W. B., Vol. 1 – 4. |
| 4. 'Building Construction' by Barry, Vol. 1 – 5. |
| 5. 'Construction Technology' by Chudley, Vol. 1 – 6. |
| 6. 'Building construction Illustrated' by Ching Francis D. K. |
| 7. 'Elementary Building Construction' by Michell. |
| 8. 'Structure and Fabric' by Everet |
| 9. 'Engineering Materials' by Chaudhary. |
| 10. 'Building Construction Materials' by M. V. Naik. |
| 11. 'Civil Engineers' Handbook' by Khanna |
| 12. 'Vastu Rachan' by Y. S. Sane. |
| 13. National Building Code and I.S.I. Specifications |
| 14. 'Materials and Finishes' by Everet. |
| 15. 'A to Z Building Materials in Architecture' by Hornbostle. |
| 16. 'Elements of Structure' by Morgan |
| 17. Engg.Materials – K.S.Rangwala. |
| 18.Engg.Materials – B.K.Agarwal |
| 19. Building Materials – S.K.Duggal. |
| 20. Building Construction –Sushil Kumar. |
| 21. Building Construction –Bindra Arora. |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010005 | Environmental Science-1 (Focus on Built Form ) | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |

| **Course Objective** |
|---|
| To obtain knowledge required for understanding the influence of climate on architecture. |
| To familiarize students with the design and settings for buildings for daylight and factors that influence temperature. |
| The students are exposed to the various design strategies for building in different types of climatic zones. |
| To be dealt with reference to Architectural Design Studio |
| |
| **Course Outcome** |
| List the different elements of climate |
| Classify the factors of comfort |
| Infer the impact of climatic forces on built structures |
| Examine through mathematical formulae the thermal comforts levels of built form |
| Assess the effects of site, sun and wind in building response |
| Design of shelters in different climatic conditions. |
| |
| **Course Content** |
| **Module -1** |
| Introduction |
| Climate and Weather |
| Elements of Climate |
| Classification of tropical climates |
| Climate balanced Architecture |
| **Module -2** |
| Bio-Climatic Approach |
| Human Comfort- definitions and concepts |
| Thermal Comfort Factors |
| Bioclimatic Requirements |
| Relation of climatic elements to comfort |
| The Bio-Climatic Chart |
| **Module - 3** |
| Environment And Building Forms |
| Impact of External forces on Building |
| Reading of Psychometric chart and its applicability. |
| Building configuration and climate response. |
| **Module - 4** |
| Site & Building Design |
| Site Selection, Site Planning |
| Building Orientation and Placement |
| Effect of Landscaping |

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|---|
| **Module - 5** |
| Sun & Building Design |
| Basic Principles of Heat Transfer |
| Numerical based on heat transfer in buildings |
| Day lighting & Solar Control |
| Thermal Insulation |
| **Module - 6** |
| Wind & Building Design |
| Wind effect and Air Flow Pattern |
| Ventilation Techniques |
| Air movement around the buildings |
| Stack Effect and Thermally induced air currents |
| **Module - 7** |
| Architectural Application |
| Shelter for warm-humid climates |
| Shelter for hot-dry climates |
| Shelter for composite climate |
| Shelter for cold –cloudy and cold- sunny climates. |
| Application of software in climate responsive design |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| Suitable Case studies to be conducted |
| |
| **Mode of Examination** |
| Theory Paper of 3 hour duration |
| |
| |
| **Reference Books** |
| 1.An Introduction To Building Physics by Narashimhan |
| 2.Manual Of Tropical Housing And Building – Part I – Climatic Design by O.H. Koenigsberger |
| 3.Housing Climate & Comfort by M.Evans |
| 4.Man, Climate And Architecture, Applied Science, Banking Essex by B. Givoni |
| 5.Climatic Design by Donald Watson |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010006 | History of Architecture-1 | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |

| **Course Objective** |
|---|
| To introduce student to architectural development with reference to time, space and people |
| To introduce students to the historical architecture of various civilisations till 0 C.E. across the world. |
| Evolution of built forms manifested in spatial and formal abstraction, landscape, structural construction and material order, symbols and meanings with respect to Society, Culture, Climate, Land, Technology |
| |
| **Course Outcome** |
| To recognize importance of architecture and design through time and across cultures |
| Identify different styles of historic architecture. |
| Identify prominent / important historic buildings by their components / style of design |
| Describe prominent / important historic buildings |
| Analyse the contributing factors for the design development of different styles. |
| Compare and Contrast various styles on the basis of the contributing factors responsible for their development |
| Identifying contemporary buildings in the historic architectural styles |
| |
| Note: History of Architecture to be taught with reference to various styles of architecture. Appropriate examples should be included to explain it. |
| |
| **Course Content** |
| **Module -1** |
| Introduction to Ancient Civilizations their social systems and culture (Till 0 C.E) |
| Pre-History |
| Palaeolithic, Mesolithic, Neolithic, Neanderthal rituals, settled farming, hunter gatherer shelters |
| Settlements locations- river banks, valleys, fertile soils. |
| Underlying values of relationships between Man, Nature and Society. |
| |
| **Module -2** |
| River valley Civilisation - Mesopotamian Civilization |
| Salient features of Ziggurats and their development |
| Generic Temple Layout |
| Palace Complex/Citadel |
| **Module -3** |
| River valley Civilisation - Egyptian Civilization |
| Salient features of important buildings |
| Temples & temple complexes - Cult Temple and Mortuary Temple |
| Mastaba – development and typical components |
| Pyramids ,Standard mortuary complex layout of pyramids |
| **Module - 4** |
| River valley Civilisation – Indus Valley Civilization, Yellow River Valley Civilisation - China |
| Salient features of important buildings |

| |
|---|
| Public Buildings |
| Citadel |
| **Module -5** |
| Aryan invasion, tribal republics, rise of Magadha, religious philosophies- Upanishads, Jainism, Buddhism. Spread of Buddhism in Mauryan kingdom, Stupa at Sanchi, Rock cut architecture, Buddhist architecture |
| **Module -6** |
| Greek Architecture |
| Classical Order – Doric, Ionic, Corinthian |
| Salient features of important buildings |
| Temple types on basis of column layout |
| Discussion of Hellenic Temple (Parthenon, Athens) versus Hellenistic Temple (Athena Polias, Priene) |
| Public Buildings and Square – Agora, Stoa, Prytaneum, Bouleuterion, Tholos, Gymnasium, Theatre |
| **Module -7** |
| Roman Architecture |
| Introduction to Roman civilization, their social systems and cultures |
| Contribution in new materials and new construction/structural systems, eg, Pozzolana, Cementae, Stone Blocks, Stone Masonry, Arch, Vault, Dome |
| Salient features of important buildings |
| Forums of Rome |
| Aqueduct |
| Theatres |
| Baths |
| Basilicas |
| **Module -8** |
| Meso American |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper with 3 hour duration. |
| Sessional Work with Assessment. |
| |
| **Reference Books** |
| History Of Architecture by Sir Bannister Fletcher |
| The Story Of Architecture by Patrick Nuttgens |
| Space, Time And Architecture by Siegfried Gideon |
| |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| Subject Code | Subject | TH | STW | SV | Credits | L | S | IA | MSE | ESE |
| AR1010007 | Model Making Workshop-1 (Basic) | | 100 | | 2 | 0 | 4 | 40 | | 60 |

## Course Objective

To familiarise students with different types of materials and manufacturing techniques for creating art forms/ models.

To introduce use different kinds of tools and machinery for production of design models.

To act as an interface between Basic design-1, Building Construction and Materials-1 and Architectural Design Studio-1

## Course Outcome

To become aware about the usage of various materials for production of art work.

To apply different mediums and machine tools for production various types of art work.

To create art forms with different mediums.

## Course Content

**Module -1**

Introduction to various materials for model making

Materials like paper, thermocol, clay, ceramic, plastic sheet, sheet metal, wood etc

**Module -2**

Selection of material for model making

Understanding the Applicability of Scale and Proportion through models

**Module -3**

Implementing the geometric shapes

Implementing the solid shapes

**Module - 4**

Introduction to various tools for model making

Application of tools, suitability and safety precautions

**Studio Exercises**

Models to be created for Basic design-1, Building Construction and Materials-1, History of Architecture-1 and Architectural Design Studio-1

**Mode of Examination**

No Theory paper

Sessional Work with Assessment.

**Reference Books**

1.John Taylor, Model Building for Architects and Engineers.

2.Rolf Janke, Architectural Models. Sandeep Singh, Beginning Google Sketch up.

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010008A | Personality Development | | | 100 | 2 | 2 | 0 | 40 | | 60 |

| **Course Objective** |
|---|
| To create awareness about effective personality and imbibe in the student the need for professional self-presentation |
| To imbibe the values of responsible professional |
| To instil the importance of body language, sharing of thoughts and communication |
| |
| **Course Outcome** |
| Gain confidence in making public presentations. |
| To analyse and express individual opinions and views. |
| To present oneself professionally in the industry. |
| To express ideas and views through oral and written mediums. |
| To initiate thinking process. |
| Identifies the important aspects on verbal communication. |
| Compares differences in intents within communication. |
| Interprets the verbal and non-verbal communications. |
| Able to revise judgments and change behaviour in light of new evidence. |
| |
| **Course Content** |
| **Module -1** |
| English- as a medium of expression. |
| Essay writing, Articles to be written in English on current topics |
| **Module -2** |
| Body Language - as a mode of communication |
| Study of Body language, facial expression, inferences from body language. |
| **Module -3** |
| Public Speaking/Debate - as a mode of promotion of ideas |
| Public speaking / debate to be conducted on current issues. Each student to speak in public so as to gain confidence in speaking as well as to loose stage fright. |
| **Module - 4** |
| Group discussion- as a mode of exchange of ideas |
| Group discussion sessions to be organised in group of 5 students. Any suitable topic to be discussed. Preferably the group should be heterogeneous consisting of students and teachers or students from senior classes. |
| |
| **Studio Exercises** |
| Assignments related to above mentioned modules. Minimum 10-15 assignments in the form of essays, articles and workshops |
| |
| **Mode of Examination** |
| No Theory Paper |
| Sessional Work with Viva |

| Reference Books |
| --- |
| 1: Steve Jobs, by Walter Isaacson |
| 2: I can Win, Shiv Khera |
| 3: Alchemist, Paulo Coelho |
| 4: Books on Soft Skills |
| 5: Books on Body Language |
| 6: Autobiographies, Magazines on current issues, English Grammar |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010008B | Sketching | | | 100 | 2 | 2 | 0 | 40 | | 60 |

| **Course Objective** |
|---|
| To develop basic design and expressional skills, visual and perceptual skills, Manual skills of use. |
| Skills involved in different media and techniques shall be studied for this purpose |
| To act as an interface between Basic design-1 and Architectural Design Studio-1 |
| |
| **Course Outcome** |
| To become aware about the usage of various skills for development of design process. |
| To use different mediums and techniques for production various types of art work. |
| |
| **Course Content** |
| **Module -1** |
| Observation and recording through drawing using. Sketching and Object drawing, drawing from memory. |
| Observation and recording through drawing using brush, crayons, paint. |
| Using various paints like Water based, Oil based, etc. Colour theory. |
| **Module -2** |
| Drawing simple geometric objects, complex geometries and objects in nature. |
| Contour drawing, Outdoor sketching exercises, etc. |
| Line drawing, shade and shading techniques, using pencil, pen, paint, brush, charcoal, crayons etc. |
| **Module -3** |
| Abstraction of perceived images, conceptual statements using different media, like pen & paper, brush & paint etc. |
| **Module - 4** |
| Perspectives of formal geometric solids and spaces and informal geometries, rendering techniques and use of colour. |
| |
| **Studio Exercises** |
| Assignments related to above mentioned modules. Minimum 20-25 assignments in the form sketches |
| |
| **Mode of Examination** |
| No Theory Paper |
| Sessional Work with Viva |
| **Reference Books** |
| 1: Steve Jobs, by Walter Isaacson |
| 2: I can Win, Shiv Khera |
| 3: Alchemist, Paulo Coelho |
| 4: Books on Soft Skills |
| 5: Books on Body Language |
| 6: Autobiographies, Magazines on current issues, English Grammar |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010008C | Art in Public Spaces | | | 100 | 2 | 2 | 0 | 40 | | 60 |

| **Course Objective** |
|---|
| To understand reference and relevance of Art in Public Spaces. |
| To create awareness about Public spaces and their aesthetics. |
| |
| **Course Outcome** |
| To analyse the Public Space in relation to Art. |
| Design Public Space. |
| To use Art as medium of expression in Public Space. |
| |
| **Course Content** |
| **Module -1** |
| Evolution , Necessity of art in Public Spaces |
| Use of Public Space |
| **Module -2** |
| Types of art in public places |
| Murals, Sculptures, Paintings, Statues etc |
| **Module -3** |
| Usable art in Public Space |
| Furniture, Water Bodies, Landscape |
| **Module - 4** |
| Concepts of Public Art and aesthetics |
| City Squares, City Gardens, Water fronts, Large gathering spaces |
| |
| **Studio Exercises** |
| Assignments related to above mentioned modules. Minimum 10-15 assignments in the form of workshops and Case Study. |
| |
| **Mode of Examination** |
| No Theory Paper |
| Sessional Work with Viva |
| |
| **Reference Books** |
| 1: Art, Space and the City, Malcom Miles |
| 2: The uses of Art in Public Space, Edited by Julia Lassau and Quentin Stevens |
| 3: Public Art by the Book, Edited by Barbara Goldstein |
| 4: Urban Interventions- Personal projects in Public Spaces, Edited by Robert Klanten, S.Khmann and M.Hubner |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -1 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1010008D | Craft Studies | | | 100 | 2 | 2 | 0 | 40 | | 60 |

## Course Objective

To enable students to explore the linkages between environment, craft traditions and society through field studies

## Course Outcome

To become aware of how craft traditions are influenced by environment and society and vice-versa.

## Course Content

**Module -1**

Identifying a craft process with respect to materials used, stages of process, techniques used to handle materials through various tools

**Module -2**

The history of a particular craft tradition, its geographical distribution, myths and legends associated with different influences on the craft and patterns of patronage etc. may be discussed.

**Module -3**

To understand the process of creating craft objects from start to finish and documenting it.

Documenting crafts in their own locality / home / state to enable students to understand the design and function of craft traditions in their daily life.

**Module -4**

To equip students with the tools to extend craft traditions to wider applications.

Students can develop their creative innovation skills and can choose any development topic to translate theory into practice.

**Studio Exercises**

Assignments related to above mentioned modules. Minimum 10-15 assignments in the form of workshops and Case Study.

**Mode of Examination**

No Theory Paper

Sessional Work with Viva

**Reference Books**

1: Art, Space and the City, Malcom Miles

2: The uses of Art in Public Space, Edited by Julia Lassau and Quentin Stevens

3: Public Art by the Book, Edited by Barbara Goldstein

4: Urban Interventions- Personal projects in Public Spaces, Edited by Robert Klanten, S.Khmann and M.Hubner

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020001 | Architectural Design Studio-2 | 100 | | 200 | 4 | 0 | 8 | 100 | | 100 |

## Course Objective

To introduce the student the fundamentals of architectural design.

To initiate creative thinking and its relationship with activity spaces.

To apply principles of Basic Design and Visual Arts to Architectural Design

To act as an interface between Basic design-1, Workshop-1 and Architectural Design Studio-1

## Course Outcome

The application of the architectural design process for small scale projects of human habitat.

To transform the human behavioural needs into architectural program requirements.

To compose the architectural spaces in a design project

To communicate architectural drawings with the help of various mediums

## Course Content

**Module-1**

Design process using various methods like Idea Matrix, Concept Mapping and Pre Design

**Module-2**

Analysis of User / Client living / behavioural profile

Questionnaire to extract client requirements

Case study

**Module -3**

Identify user requirements of space

Deriving the requirements of the space

Transform the behavioural requirements into space form

**Module -4**

Design and Planning of Space

Distribution of the human activity spaces along the context considering the context as visual

Analyse the relationship among the spaces

Verbal presentation on planning of built environment with different mediums

**Module-5**

Detail design

Application of building materials with colour and texture in detail design

**Studio Exercises**

Design of Ground +1 Bunglow / Farm house approx 150 sq.m.

Design of Simple activity spaces such as College Canteen, Small Office, Creche/ Day Care Center etc

**Mode of Examination**

Theory Paper with 4 hour duration.

Sessional Work with Viva.

| |
|---|
| **Reference Books** |
| 1. Ching, F.D.K.; Architecture Form, Space and Order, Van Nostrand Reinhold Staff, New York, 1996. |
| 2. Rudofsky, Bernard; Architecture without Architects, University of New Mexico Press,New Mexico |
| 3. Rasmussen, Steen Eiler; Experiencing Architecture, The MIT Press, Cambridge,Massachusetts, 1977. |
| 4. Watson, Donald / Crosbie,Michael J.; Time Savers Standards for Architectural Design,Mc Graw Hill, New York, 2005 |
| 5. Chiara, Joseph De / Crosbie, Michael J.; Time Savers Standards for Building Type, McGraw Professional Publishing, New York, 1973. |
| 6. Harris, Charles W. / Dines, Nicholas T.; Time Savers Standards for Landscape Architecture, Mc Graw Hill, USA, 1998 |
| 7. Chiara, Joseph De / Panero, Julius / Zelink Martin; Time Savers Standards for Interior design and Space Planning, Mc Graw Hill, New York, 2001 |
| 8. Gideon, Siegfried; Space, time & Architecture, Harvard University Press |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020002 | Architectural Drawing and Graphics-2 (Manual) | 100 | | 150 | 3 | 1 | 4 | 75 | | 75 |

| **Course Objective** |
|---|
| Students will be introduced to a variety of tools and techniques for visual expression with emphasis on manual drawing. |
| To develop essential manual skills such as proficiency in drawing, largely used as primary mode of communication of ideas in architectural design. |
| |
| **Course Outcome** |
| Recognize the need to combine the use of manual drawing tools and techniques for drafting and freehand drawing for architectural design communication. |
| Apply the projected drawing method of exterior and interior perspective. |
| Construct one and two point perspective drawings from floor plans and elevations. |
| Produce by Drawing/sketching 3- Dimensional Architectural drawings using and freehand techniques. |
| Demonstrate an understanding of furniture, people and accessories in one and two point projected perspective drawing. |
| Construct conceptual and presentation drawings as a design presentation tool for various purposes. |
| |
| **Course Content** |
| **Module -1** |
| 3D representation of Solids |
| Isometric views |
| Axonometric Views |
| Oblique Views |
| **Module -2** |
| Basics of Perspective Drawing |
| Anatomy of perspective: Station point, Eye level, Cone of vision, Picture plane, Horizon line, Ground line, Vanishing points |
| Types of perspectives : One point, Two point, Three point |
| **Module -3** |
| Perspectives for Building Exteriors |
| 2 point perspectives of building exterior |
| 3 point perspectives of building exterior |
| Perspectives of Interior space |
| Preparation of perspectives using Diagonal Method, Grid Method, approximate method |
| **Module - 4** |
| Rendering Techniques for perspectives |
| Rendering using various mediums such as Pen and Ink, Water colour, Poster Colour, Pencil Colour,Crayons |
| **Module - 5** |
| Basics of Sciography Drawing. |
| Application of Sciography in 2 dimensional drawings with rendering techniques |

| |
|---|
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper of 3 hour duration |
| Sessional Work with Viva |
| |
| **Reference Books** |
| 1. Ching Francis D.K.: Architectural Graphics |
| 2. Kelsey W. E.: Geometrical & Building Drawing |
| 3. Leslie Martin: Architectural graphics |
| 4. B. James: Essential of Drafting |
| 5. H. Joseph and Morris: Practical plane and solid geometry |
| 6. Gill Robert: Rendering with pen and ink |
| 7. Burden Ernest: Architectural Delineation. |
| 8. Burden Ernest: Architectural Delineation. Gill, Robert W.; Manual of Rendering with Pen and Ink, Thames and Hudson, London,1997. |
| 9.JaxThemier, B.W., “How to Paint and Draw”, Thames and Hudson, 1985. |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020003 | Building Construction Technology and Materials-2 | 100 | | 150 | 4 | 1 | 6 | 75 | | 75 |

| **Course Objective** |
|---|
| To introduce the construction methodology of structures |
| To understand various types of structures |
| To understand the execution process of each building element |
| |
| **Course Outcome** |
| To develop understanding about complex foundations and the constructions techniques involved |
| Understand various construction materials. |
| Recognise various building envelop systems and their application |
| |
| **Course Content** |
| **Module -1** |
| Introduction to materials used in civil construction. |
| Concrete, Mortar, Structural Steel, Mild Steel, Glass, Aluminium, PVC, u-PVC |
| Properties of materials and Quality tests of materials |
| **Module -2** |
| Building Envelope |
| Cavity Walls |
| Precast partition walls |
| Internal partition walls in Gypsum |
| **Module -3** |
| External Wall Section |
| Construction details of external brick wall section |
| **Module -4** |
| Construction of Load Bearing Structure- Foundation and Super structure |
| Ground Floor Structure in Load Bearing |
| **Module - 5** |
| Composite Masonry- Stone, Brick |
| External Cladding Materials and their details of Application |
| Stone Masonry |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper of 3 hour duration |
| Sessional Work with Viva |
| |
| **Reference Books** |
| 1. ‘Elements of Structure’ by Morgan. |

| |
|---|
| 2. Structure in Architecture' by Salvadori. |
| 3. 'Building Construction' by Mackay W. B., Vol. 1 – 4. |
| 4. 'Building Construction' by Barry, Vol. 1 – 5. |
| 5. 'Construction Technology' by Chudley, Vol. 1 – 6. |
| 6. 'Building construction Illustrated' by Ching Francis D. K. |
| 7. 'Elementary Building Construction' by Michell. |
| 8. 'Structure and Fabric' by Everet |
| 9. 'Engineering Materials' by Chaudhary. |
| 10. 'Building Construction Materials' by M. V. Naik. |
| 11. 'Civil Engineers' Handbook' by Khanna |
| 12. 'Vastu Rachan' by Y. S. Sane. |
| 13. National Building Code and I.S.I. Specifications |
| 14. 'Materials and Finishes' by Everet. |
| 15. 'A to Z Building Materials in Architecture' by Hornbostle. |
| 16. 'Elements of Structure' by Morgan |
| 17.ENGG.MATERIALS – K.S.RANGWALA. |
| 18.ENGG.MATERIALS – B.K.AGARWAL |
| 19.BUILDING.MATERIALS – S.K.DUGGAL. |
| 20. BUILDING CONSTRUCTION –SUSHIL KUMAR. |
| 21.BUILDING CONSTRUCTION –BINDRA ARORA. |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020004 | Environmental Science-2 (Focus on Environmental Impact) | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |

| **Course Objective** |
|---|
| To provide fundamental knowledge about natural and built environment. |
| To introduce the students to fundamental concepts to understand environmental processes |
| An attempt to have a detailed understanding of India's natural environment and the threats to them |
| |
| **Course Outcome** |
| To make the students aware about the scientific knowledge and current debates on the environment at three nested scales, including their interlink ages – Global, Regional and Local. |
| To enable the students to understand cause-and-effect relationships between various human, natural and climatic factors that impinges upon ecological systems and their linkages. |
| To familiarize students with global & national environmental issues, the scale of impacts, important conventions, laws and policies in the field of biodiversity, and environmental protection. |
| To integrate with higher level studios that have complex briefs, including environmental and ecological concerns. |
| |
| **Course Content** |
| **Module -1** |
| Fundamentals of Environment & Ecology |
| Environment definition, Environmental Segments, Concepts of Ecosystem: Fundamentals of Ecology and Ecosystem, Components of ecosystem, definition of Ecology, ecosystem processes in a site, Organisms and the Environment, Habitat and Niche, Environmental Factors, Ecological Adaptations, Population, Biotic Community and Succession |
| Introduction, types, characteristic features, structure and function of different ecosystems: Forest, Grassland, Desert and Aquatic ecosystem |
| Effects of human activities on environment: Agriculture, Housing, Industry, Mining and Transportation activities |
| Cite the known threats to India's & the World's Biological Diversity |
| **Module -2** |
| India's Bio-geographic regions |
| List India's Biological Diversity in relation to the physio-geographic regions |
| Identification of Principal Bio-geographic Zones of India and their description |
| List of Eco-regions of India –Floristic and Physiographic (eg. IMI0301 etc.) |
| Distinguish Between Floristic differences in an eco-region say Narmada Valley Dry Deciduous Forest, say Topical Moist Deciduous Forest (Pachmarhi) |
| Evaluate the importance of biological diversity to all Life – Interconnections between Biological diversity and Human life – sustenance |
| **Module - 3** |
| Environmental Degradation and Human Impacts |
| Analyse Global Climate Change & impacts – with respect to your rural/urban community (Increased risk/ vulnerabilities) |
| Analyse the impacts of environmental degradation on traditional communities by abstracting from published reports. Write an essay on the theme |
| **Module - 4** |

| |
|---|
| Applications of Ecological Methods and Techniques in Architecture |
| Develop a Site Plan for Wildlife, Landscape and environmental conservation |
| Develop a Master Plan for Wildlife, Landscape and environmental conservation |
| **Module - 5** |
| Techniques and Details |
| Rain water harvesting (contour bunds, wells, bunds, etc.) |
| Techniques of waste water management (house level, bio swales etc.) |
| Ecological planting (planting for wildlife, land improvement etc.) |
| **Module - 6** |
| Environmental Movements |
| Environment movements in world and in India (Chipko movement etc) |
| Environmental activists and their contribution (water conservation movements) |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| Suitable Case studies to be conducted |
| Illustrated Lectures, Texts, Case Studies and examples |

| |
|---|
| **Mode of Examination** |
| Theory Paper of 3 hour duration |
| Sessional Work with Assessment |
| |
| **Reference Books** |
| 1: Rio Declaration on Environment and Development |
| 2: Environmental Impact Assessment – A guide to best professional practices, Charles H.Eccleston |
| 3: Hand book of Environmental Impact Assessment, Judith Petts |
| 4: Illustrated Lectures, Films, and Introduction of Texts on Environmental Science and Human Ecology |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020005 | History of Architecture-2 | 100 | 50 | | 2 | 2 | 0 | 20 | 20 | 60 |

## Course Objective

To provide analytical tool to students to overview the historical evolution of designing and construction technique.

To understand the expanse of styles spread across the time period from 0 C.E.to 1300 C.E. in India, East Asia, West Asia, Europe, Africa & America.

## Course Outcome

Identify different styles of historic architecture.

Identify prominent / important historic buildings by their components / style of design.

Describe prominent / important historic buildings

Analyse the contributing factors for the design development of different styles

Compare and Contrast various styles on the basis of the contributing factors responsible for their development

Design buildings in the historic architectural styles.

## Course Content

**Module -1**

India

Brahminical resurgence

Buddhist monuments

Cave architecture

Architecture of Gupta period

Chalukya Period

Pallava period

Chola and Pandyas development of temple styles

Shankaracharya in South

**Module -2**

Islamic invasions in North

Nagara temple style developed

Slave dynasty founded

Era of saints Dnyaneshwar, Tukaram

Independent Muslim states founded

**Module -3**

West Asia

Trade between India, Asia, Europe

Zoroastrianism in Iran

Buddhism in Afghanistan

Sassanid rule in Persia

Spread of Islam, Caliphates, Arab renaissance

Mongol invasion, Destruction of Baghdad by Genghis Khan, Mongols rule over West Asia, Ottoman rule starts.

| |
|---|
| **Module – 4** |
| East Asia |
| Invention of Paper, First writings |
| Buddhism in China, Srilanka , Japan |
| Buddhist influence in Chinese art & arch. |
| Nara civilization in Japan |
| Angkor Wat in Cambodia |
| Planned city of Peking capital of Ming dynasty. |
| **Module – 5** |
| EUROPE – Christianity spreads in Rome |
| Fall of Roman Empire |
| Dark Ages begin, Crusades. |
| Rise of monasteries, |
| Moorish rule in Spain, The Alhambra |
| **Module – 6** |
| Romanesque architecture |
| Early Christian & Romanesque Architecture |
| Introduction to society and culture of 400 -1150 AD in Europe |
| Early Christian Architecture |
| Development of Early Christian Church from Roman Basilica |
| Salient building – St. Peter's Basilica |
| Romanesque Architecture |
| Development of Romanesque architecture from Early Christian architecture |
| **Module -7** |
| Gothic Architecture |
| Introduction to society and culture of 1150 – 1350 AD in Europe |
| Development of Gothic church and its new elements |
| Pointed Arch window |
| Different arch types – lancet, equilateral, depressed |
| Trefoil arch |
| Cluster column and intersecting vault roof |
| Clerestory window and triforium |
| Flying buttress |
| Glazed window, stone and metal trellis, flamboyant window, rose window |
| Entrance of church |
| Salient features of important buildings |
| Cathedrals of St. Dennis |
| Cathedrals of Chartres |
| Cathedrals of Notre Dame (Paris) |
| Cathedrals of Reims |
| **Module -8** |
| Africa: |
| Kingdom of Ghana, Rapid spread of Islam |
| America : Mayan cities, Peak of Mayan empire, Peak of Chimu empire, Inca rule begins, Beginning of Aztec rule |
| |
| **Mode of Examination** |

| |
|---|
| Theory Paper of 3 hour duration |
| Sessional Work with Assessment |
| |
| **Reference Books** |
| History Of Architecture by Sir Bannister Fletcher |
| The Story Of Architecture by Patrick Nuttgens |
| Space, Time And Architecture by Siegfried Gideon |
| Architecture Of Mughal India by Catherine Asher |
| Indian Architecture (Buddhist Hindu) Vol. 1 by P. Brown |
| Indian Architecture (Islamic Period) Vol. II by Percy Brown |
| A History Of Indian And Eastern Architecture by J. A. Fergusson |
| The Architecture Of India, Buddhist & Hindu by S. Grover |
| The Architecture Of India (Islamic) by S. Grover |
| Islamic Architecture, Form, Function and Meaning by Robert Hillenbrand |
| The Hindu Temple by George Michell, |
| Architecture Of the Islamic World by GeorgeMichell |
| Architecture Of World , India by Henry Sterlin |
| Architecture Of World, India ( Islamic ) by Henry Sterlin |
| The History Of Architecture In India by Christopher Tadgell |
| The tradition Of Indian Architecture Continuity, Controversy – Change since 1850 by G.H.R.Tillotson |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020007 | Model Making Workshop-2 (Civil Work) | | 100 | | 1 | 0 | 2 | 40 | 0 | 60 |

| **Course Objective** |
|---|
| To familiarise students with different types of materials for civil works |
| To introduce use different kinds of tools and machinery civil works |
| To act as an interface between Basic Design and Visual Arts-1, Building Construction and Materials-1 and Architectural Design Studio-1 |
| |
| **Course Outcome** |
| Use tools and equipment for civil works. |
| To recognize the actual construction process of civil works. |
| |
| **Course Content** |
| **Module -1** |
| Creating scale models for Basic Design using suitable material |
| **Module -2** |
| Creating Building elements using actual materials for construction |
| Students to construct scale models of construction of Building elements |
| **Module -3** |
| Understanding the tools used in construction industry. |
| Understanding application of the construction methodology |
| **Module - 4** |
| Analysis of Art work from history of Architecture using models |
| |
| **Studio Exercises** |
| Models to be created for Basic design-2, Building Construction and Materials-2, History of Architecture-2 and Architectural Design Studio-2 |
| Module -3 to be done in group of 5 students under the guidance of subject teacher |
| |
| **Mode of Examination** |
| Sessional Work with assessment |
| |
| **Reference Books** |
| All books for Basic Design, Building Construction and Materials, History of Architecture and Architectural Design Studio. |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020007 | Theory of Structures -1 | 100 | | | 2 | 2 | 0 | 20 | 20 | 60 |

| **Course Objective** |
|---|
| To Introduce Applied Mechanics as an important Subject for Architecture. |
| The course would enable students to understand various principles of strength of materials especially in the case of beams, columns and trusses |
| To Understand Different Systems of Forces and their Equilibrium and that a Building is a System of Forces in Equilibrium. |
| To Introduce and Understand Concepts of Support, Support Reactions, Beams, Loads, Bending and Shear. |
| |
| **Course Outcome** |
| Understand basis applied mechanics. |
| To calculate Shear Force and Bending Moment in structural members. |
| |
| **Course Content** |
| **Module -1** |
| Forces |
| Applied Mechanics, Statics and Dynamics. Importance of Study. |
| Forces, Definition, Effects, Different Systems, Principle of Transmissibility and Superimposition of Forces. Resolution and Composition of Forces. |
| Equilibrium of Concurrent Forces. Parallelogram, Polygonal & Triangular Law of Forces Lami's Theorem. Analytical and Graphical Solution of Forces. Resultant and Equilibrant of a System of Concurrent Forces |
| Equilibrium of Non Concurrent Forces. Varignon's Principle. Resultant of a system of noncurrent forces as in a beam. |
| **Module -2** |
| Centre of Gravity |
| Definition of Centre of Gravity and Centroid. C.G of Regular Shapes. Computing of C.G of complex Shapes limited to Standard Steel Sections like C, T, L, I and Compound Sections |
| **Module -3** |
| Moment of Inertia |
| Definition of Moment of Inertia and M.I of Standard Shapes. Parallel Axis Theorem, Perpendicular Axis Theorem, Radius of Gyration. Computing M.I of Complex Shapes Limited to C,T.L,I and Compound Sections using these Shapes |
| Supports and Loads |
| Supports, Definition, Reactions offered by Simple, Fixed, Hinged and Roller Support. |
| Statically Indeterminate and Determinate Structures and Degree of Indeterminacy. Beams classified as Simply Supported, Cantilever, Over Hanging, Propped Cantilever, Fixed and Continuous. |
| Loads Classified as U.D.L, Point Load & Varying Load. |
| Loads Classified as Dead, Live, Wind, Snow, Seismic. Introduction to Densities of Material and Calculation of Dead loads on a Beam from slab, Brick work above to act as U.D.L and from a abutting beam as a Point Load |
| Support Reactions. For Simply Supported Beams and Cantilevered Beams only. Loading limited to Point Loads and U.D.L only |
| **Module - 4** |

| |
|---|
| Shear Force and Bending Moment |
| Shear Force and S.F.Diagram & B.M.D and B.M.Diagram for :: Simple Support with an U.D.L., Simple Support with a Central Point Load, Simple Support with an eccentric point Load, Cantilever with a full U.D.L, Cantilever with a Point Load. |
| S.F.D and B.M.D of a Simple Supported Beam and Over Hanging Beams with U.D.L and Point Loads. Point of Zero Shear, Point Of Max S.F and B.M max. Point of Contra flexure |
| Relationship between S.F.D and B.M.D |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| Theory Paper with 3 hour duration. |
| |
| **Reference Books** |
| 1. Engineering mechanics by A. K. Tayal |
| 2. Mechanics of structure Vol. I By Junnarkar. |
| 3. Design of steel structures-Vazirani – Rathwani. |
| 4. Design of steel structures- L.S. Negi. |
| 5. R.C.C. Design – Khurmi, Punmia, Sushilkumar. |
| 6. Elements of Structures – Morgan. |
| 7. Structure in Architecture – Salvadon and Heller. |
| 8. Structure Decisions – F. Rosenthal |
| 9. Strength of Materials by Amol Dongre. |
| 10.Engineering Mechanics – RK Bansal and Sanjay Bansal , Laxmi publications, New Delhi. |
| 11.Engineering Mechanics - F.L. Singer, Harper Collins publications. |
| 12. Khurmi, R.S.; Strength of Materials, S. Chand & Company, New Delhi, 2001. |
| 13.Ramamrutham, S.; Strength of Materials, Dhanpat Rai Publication, New Delhi, 1998 |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020008A | Cultural Influences on Architectural Design | | | 100 | 2 | 2 | 0 | 40 | 0 | 60 |

| **Course Objective** |
|---|
| To appraise about architecture and its relationship to its historical, political, social, economic, technological contexts |
| To Interpret the aesthetics related to more general systems of ordering within a particular society or group |
| To recognize architecture to be approached as a cultural practice. |
| To gain understanding of society, culture and civilization |
| |
| **Course Outcome** |
| To recognize importance of architecture and design through time and across cultures. |
| To comprehend what have been the major issues in the development of architectural design in socio- cultural context. |
| To appraise about architecture and its relationship to its historical, political, social, economic, technological contexts. |
| To Interpret the aesthetics related to more general systems of ordering within a particular society or group |
| |
| **Course Content** |
| **Module -1** |
| Culture |
| Introduction to Sociology and its relationship to architecture |
| Different theories about culture and social identity with reference to architecture |
| Socio-economic systems, Political systems |
| Forms of social organization |
| **Module -2** |
| Architectural Traditions |
| Cosmological models and architectural form |
| Articulation of people and built environments |
| **Module -3** |
| Classical architecture |
| Vernacular architecture |
| **Module - 4** |
| Society and Civilisation |
| Socio-economic its relationship to architecture |
| Political systems and its relationship to architecture |
| Social and cultural aspects of building practices |
| |
| **Studio Exercises** |
| Suitable exercises on all the Modules mentioned above |
| |
| **Mode of Examination** |
| No Theory Paper |
| Sessional Work with Viva |
| |
| |

| Reference Books |
| --- |
| Conformity and Conflict: Readings in Cultural Anthropology by McCurdy, David W., Dianna Shandy, and James Spradley, eds. |
| Case examples of research on cultural anthropology |
| House, Form and Culture by Amos Rapoport |
| Case studies of various examples from India |
| Case studies of various examples on social and cultural issues relating to architectural history in India and world. |
| Architecture in Cultural Change: Essays in Built Form and Culture Research by David G. (ed). Saile (Author) |

| Second Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -3 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020008B | Architectural Drawing and Graphics - Computer Based | | | 100 | 2 | 2 | 0 | 40 | 0 | 60 |

| **Course Objective** |
|---|
| To study Architectural drawing and graphics with computer as a tool |
| To understand use of computers as tool for drawing |
| To understand architectural drawing in relation to use of software. |
| To understand presentation techniques using software |
| Focus on 2D Drawing |
| |
| **Course Outcome** |
| Develop understanding of computer aided drafting. |
| Comprehends computer aided drafting and its parameter as tools and its application in architecture. |
| Evaluates CAD techniques for quicker methods and presentation skills. |
| Demonstrate the concepts of CAD drafting methods and techniques in 2D. |
| |
| **Course Content** |
| **Module-1** |
| Basics of Computers |
| Introduction to use of computers in architecture |
| Computer operating systems. |
| **Module -2** |
| Computer aided drafting |
| Introduction and use of Computer aided drafting (CAD) |
| Use of CAD Base software's such as AutoCAD and similar software's |
| **Module -3** |
| 2D Drawing using CAD software's |
| Orthographic projections, Development of surfaces, Solids as covered in ADG-1 |
| **Module-4** |
| Drafting and Printing |
| Model space , Paper space, Parametric |
| Blocks, Attributes, Templates |
| Printing to the scale |
| |
| **Studio Exercises** |
| Similar exercises from ADG-1 to be done using CAD software |

| **Mode of Examination** |
|---|
| Theory paper of 3 hour duration |
| Sessional work with Viva |
| |

| Reference Books |
| --- |
| 1.Fundamentals Of Three-Dimensional Computer Graphics by Watt |
| 2.Computer Aided Design guide For Architecture, Engineering And Construction by Aouad |
| 3.Latest versions of AutoCAD |
| 4. Architectural drawing: a visual compendium of types and methods; Rendow Yee; John Wiley and Sons, 2007 |
| 5. Architectural Graphics; Francis D. Ching; John Wiley and Sons, 2009 |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020008C | Photography | | | 100 | 2 | 2 | 0 | 40 | 0 | 60 |

| **Course Objective** |
|---|
| To understand photography as a medium of expression |
| To understand photography in relation to architecture |
| |
| **Course Outcome** |
| Use of Photography with architectural projects. |
| Using photography as a tool of expression. |
| Create photographical effects. |
| Use of Photography with architectural projects. |
| Use various modes of photography such as Still photography and Motion photography. |
| Documentation in digital format. |
| |
| **Course Content** |
| **Module -1** |
| History of photography |
| **Module -2** |
| Different types of Cameras and lenses. Optical materials, Plastic/glass, lens coating, Types of lenses Normal / Standard, Wide angle, Fish Eye lenses, Zoom, Micro Lenses, Macro Lenses, Faults in lenses, aberrations, resolution, Flare and Ghost image. |
| **Module -3** |
| Art of photography and great photographers of the world |
| **Module - 4** |
| Effects |
| Effect of lighting, Effect of filters in Photographs |
| Lighting for form and shape, Lighting for texture, Lighting for Still Life, Lighting for a product, High Key lighting, Low Key Lighting, Night Photography. |
| **Module – 5** |
| Digital photography-Still and Motion |
| **Module – 6** |
| Film based photography |
| **Module – 7** |
| Editing and Mixing of visuals |
| **Module – 8** |
| Documenting architectural work through photography |
| |
| **Studio Exercises** |
| Assignments related to above mentioned modules. Minimum 10-15 assignments. |
| |

| **Mode of Examination** |
| --- |
| No Theory Paper |
| Sessional Work with Viva |
| |
| **Reference Books** |
| 1: The 35mm Handbook-Michael Freeman |
| 2: Focal encyclopaedia of Photography, Focal press |
| 3: Basic Photography, M.J.Langford, Focal press |
| 4: Advanced Photography (Vol-1 and Vol -2), M.J.Langford, Focal press |
| 5: Creative Colour Photography Techniques- Marshall Cavendish |
| 6: Digital Photography in Available Light- Essential Skills, Mark Galer, Focal Press |
| 7: The Art of Digital Photography, John Hedgecoe, DK Ltd, UK |
| 8: Mastering Digital SLR Photography, David D.Bush, Thomson |
| 9: Understanding Exposure, Bryan Peterson, Amphoto Books |
| 10:Learning to see creatively, Bryan Peterson, Amphoto Books |
| 11: The Art of Photography : An approach to Personal Expression, Rocky Nook |
| 12: The Photographer's Eye, Michael Freeman, Focal Press |
| 13: Architectural Photography, Adrian Schulz, Rocky Nook |
| 14:The Beginners Photography Guide, DK |

| First Year Bachelor of Architecture | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester -2 | | | | | | | | | | |
| **Subject Code** | **Subject** | **TH** | **STW** | **SV** | **Credits** | **L** | **S** | **IA** | **MSE** | **ESE** |
| AR1020008D | Art in Landscape and Architecture | | | 100 | 2 | 2 | 0 | 40 | 0 | 60 |

## Course Objective

To understand reference and relevance of Art in Architecture and Landscape

To create awareness about Art form that can be used in Architecture and Landscape

## Course Outcome

Relate Art, Architecture and Landscape.

Use various art forms in architecture and landscape.

## Course Content

**Module -1**

Role of Art in Architecture and Landscape

**Module -2**

Symbiotic relationship of art ,architecture and Landscape

Identify, evaluate the relationship

**Module -3**

Application of different art forms in architecture and Landscape

Use of Murals, Sculptures, Paintings, Statues etc.

**Module - 4**

Works of different artists and architects that reflect the inter relationship.

Study of various landmark structures with reference to us of Art work

**Studio Exercises**

Assignments related to above mentioned modules. Minimum 10-15 assignments in the form of workshops and Case Study.

**Mode of Examination**

No Theory Paper

Sessional Work with Viva

**Reference Books**

Literature available on above modules