

BACHELOR OF ARCHITECTURE

Course Structure & Syllabus (Effective from A. Y. 2019-20)

**As approved by
BOS Meeting held on
Faculty of Architecture meeting held on
Academic Council meeting held on
Syndicate meeting held on
Senate meeting held on**

**SAURASHTRA UNIVERSITY – RAJKOT
Re-accredited Grade A by NAAC**



Design Studio-I (DS -I)

Course Code: 161001010101

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	12	8	-	8	-	100	50	---	50	2 Day

Emphasis: Human Body and Space Mapping.

Intent:

- To understand how space is formed in relation to human body dimensions and perception.
- To understand the impact of social behavior on space.
- To develop the skill in presenting the human body in space.
- To understand scale and degree of enclosure, light and perception.

Content:

- Body and object; relationship between human body and objects of use to understand body postures dimensions and required space bubble.
- Body and space; human body, social behaviour and space.
- Body and narrative.
- Body and nature (natural land formations, including trees and other natural objects)
- Body and man-made spaces (activity, use and value): scale and dimension, nature of activities, space formation and enclosure (Vertical, horizontal planes).
- Body with Enclosure values, light and human psychology.

Theoretical input:

Theory of proximity and space bubble
Anthropometry and anthropometrics

Process:

Several small exercises to be given instead of one large project to cover the content

- Free hand drawing and sketching using the mediums of graphite and colour.
- Peer learning through group work and discussions
- Field work and its application
- Measuring and drawing to scale
- Idea representation and interpretation in design through drafted scaled drawings and models of appropriate scale.

Reading list:

1. Indian Anthropometric Dimensions: for ergonomic design practise by D. Chakrabati, Published :National Institute of Design ,India
2. The Little Prince by Antoine de Saint-Exupéry.
3. The Hidden Dimension by Edward T. Hall
4. Experiencing Architecture by S. Rasmussen

Building Materials & Construction -I (BMC-I)

Course Code: 161001010102

Course Type: BS&AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- To understand various elements and components of a building and their appropriateness.
- To understand simple construction techniques and systems.
- To understand basic building materials in the context of various construction methods.

Content:

Unit - 1: Introduction to basic components of Buildings

- Introduction to building construction: understanding relation between architectural designs, building components and building materials. Glossary of technical words / technical terminology.
- Understanding various components and elements with respect to materials, location and function.

Unit-2: Introduction to Building Systems

- Introduction to classification of building structural systems based on spanning and support systems; different elementary forms of buildings based on these systems.
- Introductory lectures on load bearing and framed structures; their potentials and constraints for design.

Unit-3: Introduction to Building Materials, both natural and man-made.

- Classification of materials based on their source: primary and secondary/engineered.
- Materials from primary source; classification, tests and various grades available and their uses, physical and chemical properties.
- Introduction to ferrous and non-ferrous metals-their properties, types and application in building components.
- Composition of glass, manufacture, properties, treatment, uses and types.

Construction Studio:

Sketching of different elements to understand location and use and class discussions. Site visits to see and record construction process for first hand understanding. Market survey to know materials available. Making simple models to understand load bearing and frame structures.

Methods:

Case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting

Reading list:

1. Ching, F. D. K. (1943). *A visual Dictionary of Architecture*. John Wiley & Sons.
2. Ching, F. D. K. (2015). *Building Construction Illustrated* (5th ed.). John Wiley & Sons.
3. Grillo, P. (1960). *What is Design ?* P.Theobald.
3. krier, rob. (1992). *Elements of Architecture* (2nd ed.). London, UK: John Wiley and Sons Ltd.

Humanities –I (HUM –I)

Course Code: 161001010103

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	2	2	2	-	-	100	50	50	---	2 Hrs.

Intent:

To understand Man as an Individual and the inter-relationship of Man-Nature

Content:

- Identification/Realization of Man as an individual and his existence in the society
 - Understanding and decoding values and beliefs
- Nature as a designer and the evolution of mankind with reference to it.
- Man as a designer and the evolution of society with reference to it.
 - The influence of physical environment on the economic activity, society, culture and religion of the people of a region.

Process:

The course is a seminar based one, conducted through Inquiry guided learning that includes auto-ethnography and mapping of people, places and the activities. The tools employed will be Reading extracts from books, storytelling, movies/ documentaries, writing short papers, etc.

Reading list:

1. The Ascent of Man – J. Bronowsky
2. Sapiens – Yuval Noah Harari
3. Guns, germs, and steel: The fates of human societies – Jared Diamond
4. The Atlas of Mankind – The Story Of The Peoples Of The World - Gamlin L.
5. Nature and the Idea of a Man-made World by Norman Crowe, The MIT Press, Cambridge, 1994
6. Various biographies/ autobiographies
7. Newspapers, magazines, and journals

Basics of Design–I (BOD–I)

Course Code: 161001010104

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	3	6	-	-	6	100	100	---	---	---

Intent:

- To develop the ability to observe and represent (drawing and sketching).
- To develop an understanding of the nature of space, its making and experiential qualities.
- To understand the role of light in experiencing and perceiving space.
- To cultivate “design thinking” through the ability to distill concrete experiences and represent abstract ideas.
- To develop skills of working with different materials.

Content:

- **Drawing and Sketching.**
Observing and recording natural and manmade objects in the form of drawings and sketches; use of different mediums for presentation.
- **Abstraction and representation.**
Exposure to different experiences, distilling the experience (essence) and representation through different media.
- **Understanding space.**
To understand carved and built up spaces, the nature of their making and qualities.
- **Understanding Light.**
To understand light as a means of perceiving space, form, colour and texture; Direct, indirect light and experiential quality of the space; emotional and spiritual dimensions of light.

Theoretical input:

Lectures and assignments on types of light and its effect on experiential quality of space; examples of built spaces.
Importance of drawing and sketching as a process of understanding and design.

Process:

The content mentioned above will be explored through various exercises of a shorter duration rather than a single project. The emphasis will be on three dimensionality and experiential learning. Each exercise will be discussed individually and/or collectively. The key component will be class discussions at the end of each exercise/project.

Reading list:

1. Language of Vision by Gyorgy Kepes, Courier Dover Publications, 1995.
2. Module, Proportion, Symmetry, Rhythm Editor: Gyorgy Kepes, G.Braziller, 1966.
3. Learning to See (5 books, Editor: Paul Olive, Ginn, London, 1971
4. The Architecture of Natural Light by Henry Plummer, Thames and Hudson, London, 2012.

Structure-I (STR-I)

Course Code: 161001010105

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	2	2	2	-	-	100	50	50	---	2 Hrs.

Emphasis: Fundamentals of structure in architecture

Intent:

- To introduce the concept of 'structure' in architecture
- To understand Structure as an arrangement and organization of interrelated elements in a material object or system.
- Behaviour of structural systems in response to forces of nature.
- Structural understanding of natural forms and their relationship with manmade forms.

Content:

- Introduction to structure
- History of structural design
- Introduction to structural systems and types
- Introduction to loads and types
- Introduction to forces and deferent structural actions
- Mechanical properties of materials
- Statics, Equilibrium & Graphic static
- Glossary of technical terms

Process:

Class presentations and discussions, complemented with models and on-site studies.

Reading list:

1. Structure and architectural design, by Philip A Corkell
2. Building structure primer, by James A Ambrose
3. Form and structure in architecture –the role of statical function, Alexander Zannos
4. Salvadori's Structure in Architecture: The Building of Buildings, by Mario Salvadori, Robert Heller

Architecture Graphic Techniques–I (AGT–I)

Course Code: 161001010105

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
1	4	6	2	-	4	100	---	---	---	---

Intent:

- To develop an understanding of technical drawing as a tool for representation.
- To develop an ability to perceive a form in three dimensions and represent it through technical drawings in both two and three dimensions.
- To enhance the sense of visualization and strengthen it by means of technical representation of form and space.

Content:

- **Architectural drafting.**
Drawing / drafting / inking Instrument s and method. Types of lines, lettering & dimensioning, titles and scales, composition of sheets.
Basic and Planer geometry: Construction of lines, angles, planes, circles, tangent, curves and regular polygons.
- **Simple Orthographic projections** from 3D model
Introductions to projections, methods of orthographic projections
- **Complex Orthographic projections** from 3D model
Intersection, Curves, Model making, Development of surfaces.
- **Three dimensional views**
Introduction to 3D views, types and its advantages.
Isometric, Axonometric and Oblique view of objects, building components and interior.
Exploded View.
Sectional Isometric / Axonometric View.

Process:

Preparing hand drawn drawings as per exercises, making models and sketching.

Reading list:

1. Ching, F. D. K. (2011). *A Visual Dictionary of Architecture*. 2nd Ed. John Wiley & Sons.
2. Bhatt, N.D. (2011). *Engineering drawing. 50th Revised and Enlarged Ed* : Charotar Publishing House Pvt. Ltd.
3. *Graphic Thinking for Architects and Designers* by Paul Laseau, John Wiley & Sons

Design Studio-II (DS -II)

Course Code: 161001010201

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	12	8	-	8	-	100	50	---	50	2 Day

Emphasis: Elements of Place making.

Intent:

- To understand how space becomes place, basic vocabulary of elements, physical as well as non-physical, that play a part in place making.
- Specificity of human activity, dimensions and nature of space in accordance to use.
- To make students aware of value of human body as a basic premise of space design and people in place design.
- To develop skill to understand abstraction and representation of human body, space and place.

Content:

- Body and fundamental architectural elements (plinth, wall, column, roof).
- Fundamental architectural elements and space - place.
- Fundamental architectural element - Assembly and function.
- Categorization of element of a place and understanding enclosure values and human scale
- Relationship between the elements in place making.
- Anthropometry, nature of activity and function, appropriate scale, degree of enclosure, light and element assembly.

Theoretical input:

Elements of place making, examples of built spaces/places, difference between space and place,

Process:

- Free hand, drafted drawing and sketching.
- Model making in different materials
- Peer learning through group work and discussions
- Observation and representation those through various mediums.
- Field work and its application

Reading list:

1. Element of space making by Yatin Pandya, Vastu Shilp foundation
2. Architecture: Form, Space and Order: Francis. D. K. Ching
3. Understanding Architecture: Its Experience History and Meaning by L M Roth
4. Introducing Architecture by Francis D.K. Chang & James F. Eckler
5. Elements of Architecture – from form to place by V M Peter

Building Materials & Construction -II (BMC-II)

Course Code: 161001010202

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- To understand basic materials such as mud, stone and brick and their construction techniques and structural behavior with focus on regional methods.
- To expose the students to alternative construction techniques and innovation in masonry using mud, stone and brick.

Contents:

Unit - 1: Mud as a building material

- Classification of soil and use of soil mixture, types of admixture, physical properties and composition of soil.
- Vernacular mud construction such as adobe, cob, wattle & daub, rammed earth, stabilized earth block.

Unit - 2: Brick Masonry

- Manufacturing process of brick, physical and chemical properties, various field tests, unit types, principles of masonry, types of bonds with various junction and conditions, their purpose/use, jointing and pointing details.
- Construction of various elements such as foundations, different types of walls, jalis pier, buttresses, paving, curbing, capping, coping, parapets, madras terrace roof, jack arch, brick arches, dome, vault .

Unit-3: Stone Masonry

- Geological Classification of rocks/stones, uses, deterioration & preservation, availability, properties and application of stones for construction in India. Finishing, cutting & polishing. Types of stone masonry, jointing and pointing details.
- Construction of various elements such as foundations, walls, pier, buttresses, paving, curbing, capping, coping, parapets, arches, dome and vault.

Construction studio:

Case study, sketching, drafting, field trip, measure drawing, hands-on experience of constructing with brick, mud and stone. Individual design exercise on brick /stone masonry for given conditions.

Methods:

Case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting

Reading list:

1. Brick construction manual
2. Building Construction by WB Mc Kay
3. Materials for Architects & Builders by Arthur R Lyens
4. Construction technology by Roy Chudley

Humanities –II (HUM –II)

Course Code: 161001010203

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	2	2	2	-	-	100	50	50	---	2 Hrs.

Intent:

- To understand the inter-relationship of Man-Society.
- To understand how culture forms and how a civilization is built.
- To locate architecture as the resultant of people-place relationship

Content:

- Society – its evolution, types (tribal and civilized/ pre-industrial & post-industrial) and attributes
- Culture – its formation and attributes
- Ancient River Valley Civilizations
- Evolution of various modes of expressions – arts, science, technology, languages, philosophy

Process:

Inquiry guided learning through literary sources(books/magazines/journals/periodicals)
Storytelling, movies/ documentaries, presentations, maps, etc.

Reading list:

1. Social and Cultural Anthropology : A very short Introduction.- Monaghan John
2. Ancient Indian Social History. – Romila Thapar
3. A cultural history of India. – A L Basham
4. The Early River Valley Civilizations - Rebecca Kraft Rector
5. The Encyclopedia of WORLD RELIGIONS - Robert S. Ellwood
6. The story of philosophy – Will Durant

Basics of Design–II (BOD–II)

Course Code: 161001010204

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	3	6	-	-	6	100	100	---	---	---

Intent:

- Understand the importance of physical context in design and relationship between intervention and context
- Understanding size, scale, dimension and proportion in design and as ordering tools.
- Understanding how different elements come together as integrated whole through principles of organization.

Content:

- **Understanding Scale and Proportion:**
Understanding size, scale and dimension with respect to use and context. Using different systems of proportion as an ordering tool for design and composition in both two and three dimension.
- **Understanding Context:**
Experiencing natural and man-made physical settings and the elements that constitute the setting. Understanding the context by intervention as installation. Relationship between context and intervention and how they influence/change each other.
- **Principles of Organization:**
Ways in which different parts come together to make integrated wholes and the principles that govern the organization of parts.

Theoretical input:

Presentation by faculty on the theoretical underpinning above topics.
Examples of built works that illustrate and complement students' work.

Process:

The exercises on the various topics will be predominantly in three dimension which will involve model making using different materials. At the end of each exercise, students will present architectural examples to demonstrate their understanding of the topics covered.

Reading list:

1. Architecture, Form, Space & order by Francis D.K.Ching.
2. Universal Principles of Design by William Lidwell, Kritina Holden, Jill Butler
- 3.

Structure-II (STR-II)

Course Code: 161001010205

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	2	2	2	-	-	100	50	50	---	2 Hrs.

Emphasis: Structural Mechanics

Intent:

- To understand the actions of forces on materials.
- To understand the concept of efficiency in structural systems.
- To understand the relationship between materials and structural systems.
- To understand the relationship between structural systems, design and infrastructure.

Content:

- Classification of structures, different classification methods
- Funicular structures –transformations from basic shapes
- Geometric properties of section
- Theory of bending & shear stress
- Concept of buckling & structural instability

Process:

Apart from lectures and tutorials; emphasis will be on learning-by-doing which is making scaled models supplemented by studying built examples.

Reading list:

1. Structure and architectural design, by Philip A Corkell
2. Form and structure in architecture –the role of statical function, Alexander Zannos
3. New science of strong materials, by J. E. Gordon

Architecture Graphic Techniques–II (AGT–II)

Course Code: 161001010206

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
2	4	6	2	-	4	100	100	---	---	---

Intent:

- To develop an understanding of technical drawing not only as a tool for representation but also of communication.
- To develop an ability to perceive a form in three dimensions and represent its three dimensional quality through technical drawings.
- To develop the ability of making drawings and models as a means of visualization and representation of a design idea.

Content:

- **Fundamentals of Perspectives:**
Introduction to perspectives, difference between views & perspectives, Types of perspectives: One, two and three point. Anatomy of Perspectives, its variables & effects on view. Perspective drawing of simple and complex objects, one point and two point perspective of interiors and exteriors, sectional perspectives
- **Sciography:**
Introduction to Sciography, Principles of shade & shadow, Shadows of lines, planes & simple solids due to near & distant sources of light, shadows of architectural elements, Construction of sciography on building, Application of sciography on pictorial views.
- **Documentation:**
Measured drawings and model of selected building; application of technical drawing.
- **Drawings and models as communication tools:**
Types of drawings (concept, structural etc) and models (block, detailed etc), Representation techniques in architectural drawing. Kinetics & Optics, Monochromatic & different themes of rendering, architectural rendering techniques using different media. Architectural representation of objects, symbols and features.

Process:

Exercises in drawing, model making, rendering with different media, documentation and representation.

Reading list:

1. Ching, F. D. K. (2011). *A Visual Dictionary of Architecture*. 2nd Ed. John Wiley & Sons.
2. Bhatt, N.D. (2011). *Engineering drawing*. 50th Revised and Enlarged Ed : Charotar Publishing House Pvt. Ltd.

Design Studio-III (DS-III)

Course Code: 161001010301

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	15	10	-	10	-	100	50	---	50	2 Day

Emphasis: Site and Place, Material and Structure.

Intent:

- To develop an understanding of the interactive processes between Man & Land in a given location and Eco-cultural context.
- To understand the concept of Man in nature and the relation with environment.
- To understand the concept of place as opposed to space.
- To understand correlation between structure and space with structure as one of the determinants of form.

Content:

- Man-Nature interaction –sensory engagement with place and time
- Elements of Earth, Water, Fire, Air & Space – Their architectural associations
- Study of Land –includes responses to topography, climate, vegetation, soil etc.
- Structure, materials and construction techniques as disciplines in space making.
- Sensory qualities of space such as light, view comfort etc.

Theoretical input:

Concept of Place in natural setting
Site Planning with respect to climate and topography
Space defining elements and spatial ordering principles
Crafting of building and Material expression

Project:

Short (6 weeks): Exercises on spatial and structural systems using a limited set of materials, which in turn determine the structural system/s
Main (10 weeks): Design of a small institution preferably in vernacular contexts, to explore identified design parameters.

Process:

Documentation of physical and cultural context. Simulation of Patron, beneficiary and users, Site documentation and Case Studies

Reading list:

1. Pattern Language by Christopher Alexander
2. Prakriti: An Integral vision (Man in Nature) by Kapila Vastayan
3. Analyzing architecture by Simon Unwin
4. Space for Engagement by Himanshu Burt
5. Genius Loci by Christian Norberg-Schulz

Building Materials & Construction - III (B.M.C. – III)

Course Code: 161001010302

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- To understand timber as fundamental building material and as a renewable resource, including its design potential and constraints
- To understand the use of timber in the making of various building elements both structural and non-structural, in traditional as well as contemporary construction methods
- To study innovation in non-engineered and engineered timber form, their details and application.
- To study bamboo and cane as building materials, their detail and application.

Content:

Unit -1: Introduction to wood as renewable resources and timber as building material

Ecological impact due to use of wood; Classification and anatomy of trees, types of timber, defects, seasoning and preservation of timber (type and process), conversion of wooden log through different methods, physical and chemical properties of different timber through various attributes.

Unit -2: Timber as building elements and its applications

- Application of timber in building components such as doors and windows, post and beams, stair, floor, roof with Joinery details. Types of joints and joineries in wood work. The study of engineered wood used in buildings of various types. Wood finishes of various kinds. Each component to be studied with various aspects like, functional, environmental, technical, aesthetical and practical. Specifications and I.S. Code

Unit -3: Bamboo and cane as building materials

To understand bamboo and cane as constructional material in detail with their properties and various joineries used in construction. Specifications and I.S. Code

Construction studio:

Individual exercises for design of various elements for given conditions. Construction in full scale/ scaled models of elements. Case study, sketching, drafting, field trip Material study and construction study, market survey, measure drawing, technical drafting.

Methods:

Case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting.

Reading list:

1. Building construction by WB Mackay
2. Understanding wood Carpentry and Joinery
3. Metirate Series. Building construction principles & practices by D. Watten
4. Wood & Wood Joints by Klaus Zwerger
5. Bamboo : As A Viable Construction Material by Falguni Shah
6. The Complete Japanese Joinery : Japanese Woodworking, Japanese Joinery by Hideo Sato, Yasua Nakahara.

Basics of Design – III (B.O.D.-III)

Course Code: 161001010303

Course Type : PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	3	6	-	-	6	100	100	---	---	---

Intent:

- Understand form and its relevance in design
- Introduction to colour as an important element and its application in design
- Understand the role of effective composition in communication of an idea/information

Content:

- **Form and structure:**

Study of primary forms, their geometry and surface development. Structure and organization of forms in nature. Design as meaningful transformation of forms. Organization of parts/elements.

- **Understanding Colour**

Introduction to Colour theory, colour wheel, primary and secondary colours, complimentary and contrast colours. Effect of natural and artificial light on colour. Influence of colour on human psychology and behavior. Application of colour theory.

- **Graphic Design: Two dimensional compositions**

Explore compositions in two dimension, elements of composition, page making, posters, book, brochures, drawing sheets; Composition as a means of effective communication.

Theoretical input:

Colour theory and colour wheel; hue, saturation, shade and tint.

Principles of two dimensional compositions.

How forms are generated, meaning and structure, examples of built structures.

Process:

Rendering, drawings, model making. Use of different media and materials can be explored in pattern/texture development and also in model making.

Reading list:

1. A search for form-a fundamental approach to Design by Siliei Gaarines.
2. Form, space and vision –discovering design through drawing Collier Graham.
3. Design and Form – Basic Course at Bauhaus.

Structure – III (STR – III)

Course Code: 161001010304

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	2	2	2	-	-	100	50	50	---	2 Hrs.

Emphasis: Structural analysis

Intent:

- To understand the conceptual application of the principles of mechanics on rigid & deformable bodies.
- To understand Structure optimization and simple ways in which it can be incorporated in design
- To be able to design the components of a structure with given system of forces, actions and stress levels.

Content:

- Introduction to structural elements & its design principles
- Statically Determinate & indeterminate *structures*
- Determinate structural behavior and the plotting of shear force, bending moment and other similar action diagrams
- Analysis of beam, column, slab, trusses, frame
- Analysis of arch, vault, dome
- Bearing capacity of soils, footing design & settlement of foundation
- Understanding structural failure.

Process:

Class presentations and discussions, complemented with models and on-site studies as well as study and analysis of built structures from around the world.

Reading list:

1. Structures, by Daniel L. Schodek
2. Form and structure in architecture –the role of statical function, by Alexander Zannos
3. Structures : Or Why Things Don't Fall Down, by J. E. Gordon
4. Why Buildings Stand Up – The Strength of Architecture, by Mario Salvadori
5. Why Buildings Fall Down – How Structures Fail, by Matthys Levy, Mario Salvadori, Kevin West

History of Architecture – I (H.O.A. – I)

Course Code : 161001010305

Course Type : PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

To identify the beginnings of formal/ monumental/ public/ institutional/ Sacred architecture and understand its emergence with reference to people and place. Bridging the line between sacred and scientific

Content:

1. Architecture of the Indian sub-continent
Indus valley civilization, Chinese civilization, Rock-cut architecture and Hindu Temple Architecture (Early Phase: Evolution of two major styles – the Nagara and the Dravida)
2. Architecture of the Western World –
Mesopotamian, Egyptian, & Mayan Civilization & its Architecture, Greek and Roman Architecture
3. Canonical Texts – Mayamatam, Manasara, Shilpa Shastra
4. Ancient Cities – Cities of major river-valley civilization and its planning

Process:

Participatory and non-participatory methods
Individual as well as group exercises

Reading:

1. A Global History of Architecture – Francis D.K. Ching
2. The History of Architecture in India – Christopher Tadgill
3. The Guide to the Architecture of the Indian Sub-Continent – Takeo Kamiya
4. The Hindu Temple – George Mitchell
5. Architecture in India – Marilia Albanese
6. Mayamatam (2 Vols.): Treatise of Housing Architecture and Iconography (IGNCA)
7. The Architecture of Manasara – Prasanna Kumar Acharya

Environmental Science & Services – I (E.S.S. – I)

Course Code: 161001010306

Course Type : BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
3	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- Understanding the basics of environmental climatology and its adaptation by human beings in built form
- Understanding of climate as modifying factor of built environment
- Passive Thermal Design, Natural Ventilation and Natural Lighting in the building.

Content:

Unit-1 Basics of Climatology:

- Earth & relation with solar system
- Atmosphere and its stratification, phenomena of seasons
- Climate and weather, Elements of climate
- Classification of climatic zone, sub-zone, their formation and design responses in general and across culture
- Site-climate and local responses
- Organizing climatic data and its interpretation; Mahoney table, Bio-climatic chart

Unit-2 Passive Thermal Design & Human-comfort Criteria:

- Human body's comfort level
- Defining Comfort, Comfort zone & scale
- Thermal factor, its impact on human comfort
- Different way of heat gain in the building
- Behavior of material/s to heat gain
- Types of thermal design - active & passive methods
- External shading devices and design

Unit-3 Natural Ventilation:

- Purpose of Ventilation, Methods of Ventilations
- Issues related to cross ventilation at building level - Form & orientation, Design and detail of openings, and Shading devices

Process:

Individual design/project/exercise to incorporate climate responsive aspects such as natural ventilation and passive thermal design. The design project from design studio can be taken as a base to work out the requirements. This will integrate ESS with design studio for wholistic learning.

Reading list:

1. Manual of Tropical Housing And Building - Koenigsberger, Ingersoll, Mayhew
2. Design with Climate-Bio-climatic Approach to Architectural Regionalism -Olgyay Victor and A. Olgyay.

Design Studio-IV (STU-IV)

Course Code: 161001010401

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	15	10	-	10	-	100	50	---	50	2 Day

Emphasis: People, Place and Dwelling/s

Intent:

- To grasp concept of Dwelling as an expression of culture and sense of place.
- Integration of cultural patterns, place and environment in built form
- To understand the concept of “to dwell”, “dwelling” and “habitat
- To articulate cultural and environmental dimensions of “place” over time
- To analyze manifestation of commune/ community in built form and settlement.

Content:

- Spatial organization as expression of collective living, interdependency and sense of community.
- Families and Habitat: Geographical locations, Year cycle & Day cycle, Seasons & Festivals, icons & Symbols
- Society, culture, place and its specific impact on usage of space, correlation of individual within group and its influence on shared spaces and built form,
- Change and constancy with reference to place and time, articulating changing life style, occupation and peoples’ aspirations.
- Usage pattern, cultural elements, climatic elements of space and form
- Appropriate material and construction techniques, clarity of details and architectural expression in functional and constructional elements
- Back and forth design process for part and whole resolution

Theoretical input:

Study of traditional/vernacular built environments, techniques of survey, documentation and analysis of existing building/s, analysis of space and form on the basis of culture and lifestyle, constancy and change with respect to tradition, Influence of environment on built form, Introduction to concept of shared open space, clustering, community, and economy

Project:

Single dwelling and cluster (10-15 units) scale design project to form small community, including site planning. Project can be individual or group exercise with each member handling a different aspect or a different portion of the total project

Process:

Documentation, field study/ analytical studies of indigenous settlement/s to understand usage pattern, cultural elements, climatic elements of space and form

Reading list:

1. Pattern Language
2. Type as a social agreement by N. John Habraken
3. Concept of multi-family dwelling

Building Materials & Construction – IV (B.M.C. – IV)

Course Code: 161001010402

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- Advances in the usage of ferrous and non-ferrous metal, Cement as material, initially as mortar & later as concrete has revolutionized the possibilities of building.
- To develop a grasp of possibilities & limitations of Metals, Cement, Concrete & RCC.

Content:

Unit-1 Cement concrete, RCC

- History of Cement as material from Lime to Cement., manufacturing, storage and handling, its physical and chemical properties, its making types and properties, Quality control and quality components
- RCC as a composite material, its components and properties, supervision of construction,
- Precast concrete and Prestressed concrete
- Tests, defects and failure, maintenance & repair
- Applications
- Specifications and I.S. Code

Construction studio:

The studio focuses on various building construction elements and/or practices using cement concrete, RCC and Metals as building materials. Individual design project based on using RCC for appropriate conditions.

Field work to expose the student to the practical aspect of construction process and utilization of various tools and structural behavior of various building elements.

Methods:

Case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting.

Reading list:

1. Motivate series – BC Principles and practices- D Watten
2. Concrete technology: K.T. Krishna swamy, A Kanasundra Rao, A A Khandekar
3. Properties of concrete : A. M. Neville
4. Material for architects and builders: Arten R Lyens
5. Concrete construction Manual

Basics of Design – IV (B.O.D. – IV)

Course Code: 161001010403

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	3	6	-	-	6	100	100	---	---	---

Intent:

- To understand design as a process that integrates various aspects into integrated wholes
- To understand the influence of culture and lifestyle on design
- To gain hands-on experience of making/construction of designed artifact.

Content:

Culture and design:

Analysis and understanding of traditional and contemporary objects of everyday use. These objects/artifacts can be classified as Perennial – same through the time – in use and form, changing – evolved with time and Modified- present day version with adaptation.

Comparison across cultures. Functional aspect and sense of aesthetics.

Interpretation or Re-interpretation of elements/objects based on contextual and/or cultural aspects and way of living.

Design Project:

This is seen as the culmination of all four Basics of Design courses wherein design is understood as a synthesis based on a process that involves choice making. Design as an integrated whole that integrates function, material, form, texture, colour and lifestyle and aesthetics. Understanding issues related to construction and making. This will involve design and construction in full scale of furniture, objects of everyday use etc.

Theoretical input:

Lecture/presentation on principles of product design, influence of culture, materials, function and process of making on the final product/object/artifact

Process:

Analysis of objects/artifacts and representation through drawings and models. Actual construction of designed artifact using appropriate materials for a hands-on experience.

Reading list:

1. Universal Principles of Design, by William Lidwell, Kriatina Holden, Jill Butler, Rockfort Publications, Massachusetts, 2003.
2. The Design of Everyday Things, by Donald A. Norman, Doubleday, New York, 1988
3. Emotional Design, by Donald A. Norman, Basic Books, NY, 2005
4. Design in the Indian Context, by H. Kumar Vyas, NID, Ahmedabad, 2000
5. The Elements of Design, Ed. Noel Riley, Mitchell Beazley, London, 2003

Structure - IV (STR.-IV)

Course Code: 161001010404

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	2	2	2	-	-	100	50	50	---	2 Hrs

Emphasis: Structural Design-RCC

Intent:

- To understand structural design as a tool for efficient design of structural elements.
- To be able to apply an appropriate model of load analysis in a given situation
- To understand loads detailed in the codes
- To understand the difference between model of analysis and sizes of structural members and configuration of a system.

Content:

- Introduction to structural design ideologies –limit state, working stress & probabilistic design
- Mechanics of concrete and RCC
- Concepts & design of different types of slab
- Design of reinforcement in Beam, Column, Stair
- Design concepts & types of foundation
- RCC structures –design detailing, construction practices & practical limitations
- Structural failure of RCC buildings
- Introduction to Building Code

Process:

Case studies-study and analysis of existing structures; understanding concepts and structural behavior through models; basic calculation to understand application of concepts

Reading list:

1. Structures, by Daniel L. Schodek
2. Reinforce concrete design, by Junarker
3. Structural Design in Architecture, by Mario G. Salvadori and Matthys Levi
4. National Building Codes

History of Architecture- II (H.O.A.–II)

Course Code: 161001010405

Course Type : PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	3	3	3	-	-	100	50	50	---	2 Hrs

Intent:

- To equip students with the historical evolution of spanning and the styles in architecture across the globe.
- To establish a connection between religion and architecture and show how the concepts and beliefs have been manifested in a tangible form.

Content:

1. Architecture of the Indian sub-continent
Hindu Temple Architecture (Later Phase), Step-wells, Forts and Palaces - I,
Early Islamic Architecture
2. Architecture of the Western World
Early Christian, Byzantine, Romanesque, Gothic Architecture, Islamic
Architecture
3. Canonical Texts – Mayamatam, Manasara, Shilpa Shastra, The Ten books of
Architecture
4. Medieval Cities and its planning

Process:

Participatory and non-participatory sessions
Individual as well as group exercises

Reading list:

1. Indian Architecture: Buddhist and Hindu Period by Percy Brown
2. History of Indian and Eastern Architecture by James Fergusson
3. The History of Architecture in India – Christopher Tadgill
4. The Guide to the Architecture of the Indian Sub-Continent – Takeo Kamiya
5. The Hindu Temple – George Mitchell
6. Indo-Islamic Architecture –Z. A. Desai
7. The Muslim empires of the Ottomans, Safavids and Mughul – Dale Stephan F.

Environmental Science & Services – II (E.S.S.–II)

Course Code: 161001010406

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
4	3	3	3	-	-	100	50	50	---	2 Hrs

Intent:

- Understanding Water, its property and application in building design.
- Understanding of basic building services i.e. Plumbing & Drainage, fire fighting and electrification.
- Various governing standards, Acts and Codes
- Service system design and technical & architectural inputs.

Content:

Plumbing & Drainage

- Water supply systems, its type & categorization as per use
- Potable & usable water's supply-storage and sewage, soil & rainwater's collection & clearance system
- Various components, elements, fittings and fixtures of this system
- Water consumption for various activities & criteria for designing the plumbing system
- Installation and integration with structure and other systems.

Fire-fighting & Protection

- Need and design of Passive and Active Fire-fighting system, concerns of safety and protection, design consideration.
- Overview of Fire-load and fire-resistance of different building materials
- Various firefighting components, elements, fittings and fixtures
- Various governing standards, Acts and Codes
- Installation method and architectural concerns

Daylight & Natural lighting

- Sunlight, Radiation spectrum and visible spectrum
- Daylight, its source & component
- Daylight factor, its calculation for desired lighting
- Concept of Glare and its correction

Artificial Lighting & Electrification

- Basic electrical supply & distribution to building, alternate supply & Power connections
- Artificial Lighting – types of lighting: Accent, Task and General
- Various types of light fittings and fixtures
- Criteria of designing of various communicating service layouts
- Various governing standards, Acts and Codes
- Installation method and architectural concerns

Process:

Individual design/project/exercise to incorporate services mentioned in the content. The design project from design studio can be taken as a base to work out the requirements.

Reading list:

1. National building code of India [bureau of Indian standards]
2. Handbook on Water Supply and Drainage - [bureau of Indian standards]
3. Textbook of sanitation [R. S. Deshpande]
4. 2008 Uniform Plumbing Code – India, An illustrated Manual, I.P.A.
5. Building Service Equipment – Subhangini Bhide
6. Handbook of Drainage and Installation of Services in Building Complex – V.K. Jain
7. Handbook of Lighting Design Ruediger Ganslandt, Harald Hofmann
8. Mechanical and electrical systems in architecture, engineering, and construction (5th Ed)
Joseph b. Wujek and Frank R. Dagostino
9. Handbook on Functional Requirements of Buildings (other than industrial buildings)
10. IS: 3646 (part 1) – 1966 – Code of practice for interior illumination, Principle of good lighting and aspect of design.

Design Studio-V (STU-V)

Course Code: 161001010501

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	18	12	-	12	-	100	50	---	50	2 Day

Emphasis: Society and its Institutions

Intent:

- To discuss the idea of an institution and its types and the need in a given context.
- To develop a building program from clients or user's requirements and other social, economic and climatic contexts.
- To understand the influence of culture, material and technology on the character of the building
- To integrate spatial system with function, structure, material, construction system and services.
- To understand part-whole relationship

Content:

- Articulating and modifying programmed needs,
- Abstracting, and developing thematic character,
- Integration of spatial systems with constructional and structural system.
- Understanding proportioning systems, understanding details as part of character within the idea of the whole.
- Basic introduction to site analysis and landscape elements

Theoretical input:

Nature and importance of institutions in society and different institutions in different cultures across time, influence of culture, land and technology in the expression of institutions, introduction to elements of landscape design.

Studio Project:

Design of a medium sized institutional project in an urban setting. This would involve site of around 5,000 sq. (depending on the context and the targeted students' abilities) and built program of around 1,500 -1,800 sq. m. It should include the designing of building/buildings with diverse spatial organization for accommodating diverse functions. One may choose to constrain exploration in terms of material and construction system. Program is expected to detail out outdoor spaces and address the issues of environmental concern, parking and accessibility for the differently abled.

Reading list:

1. Architecture in India since 1990 by Rahul Mehrotra
2. Thematic Space in Indian Architecture by K B Jain
3. After the Masters by Vikram Bhatt and Peter Scriver
4. Concepts of Space in Traditional Indian Architecture by Yatin Pandya
5. Anant Raje Architect – Selected Works 1971-2009

Building Materials & Construction –V (BMC–V)

Course Code: 161001010502

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- To understand various finishing materials, their properties, methods and techniques used in interiors and exteriors
- To understand the functional as well as design aspects of the materials used in finishing of surfaces, elements

Content:

Unit- 1

Ferrous and Nonferrous Metals: Their properties and applications as building component

Glass: As Building material and use, manufacturing and types, properties and characteristics, Applications, advanced technology and Innovative uses.

Ceramic: As building material and its application

Fabric: man-made and natural production, blending, characteristics and use, identification.

Gypsum, POP, GFRP, Their properties and applications

Lather, Foam, Wax: Their properties and applications

Plastic and synthetic material: Their properties and applications

Surface finishes: Wallpaper, painting, rendering, flat roof finishes

It is important to understand Specifications and I.S. Code

Construction studio:

The student will work on various building construction elements and/or practices using advanced materials. The nature of construction studio focuses on fabrication of building component using advance materials and their assembly systems.

Note: In this semester, because it is unrealistic to build entirely with the materials under review, steel or any other suitable framework can be considered, and the use of the materials under review can be stressed upon to the maximum limit possible

Methods:

Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

Reading list:

1. Motivate series – BC Principles and practices- D Watten
2. Concrete technology: K.T. Krishna swamy, A Kanasundra Rao, A A Khandekar
3. Glass Construction Manual by Birkhauser
4. Summarie of Indian Standards For Building Materials

Structure – V (STR–V)

Course Code: 161001010503

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	2	2	2	-	-	100	50	50	---	2 Hrs.

Emphasis: Structural Design-Steel and wood

Intent:

- To understand structural design as a tool for efficient design of structural elements.
- To be able to apply an appropriate model of load analysis in a given situation
- To understand loads detailed in the codes
- To understand the difference between model of analysis and sizes of structural members and configuration of a system.

Content:

- Introduction to steel structures
- Steel connections & structural behavior
- Design of steel beam, column and frame (portal)
- Design of wooden structural elements –post & lintel, joints, rafter, joist, trusses
- Lateral forces & building performance –Earthquake & wind
- Introduction to design of Shell & folded plate structure

Process:

Case studies-study and analysis of existing structures; understanding concepts and structural behavior through models; basic calculation to understand application of concepts

Reading list:

1. Structures, by Daniel L. Schodek
2. Structural Design in Architecture, by Mario G. Salvadori and Matthys Levi
3. National Building Codes

History of Architecture – III (H.O.A. – III)

Course Code: 161001010504

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- To understand architecture as an amalgamation of arts and crafts (explorations in form and sculptures/iconography) under the patronage of rulers through examples of classical buildings.

Content:

- Architecture of the Indian sub-continent
Forts and Palaces - II, Mughal Architecture,
- Architecture of the Far East i.e. China, Japan, Indonesia & Sri Lanka
- Architecture of the Western World
Renaissance, Mannerism, Baroque, Rococo and Gothic Revival Architecture, Ottoman and Safavid Architecture.
- Canonical Texts – The Ten books of Architecture
- Urban Planning during Renaissance

Process:

Participatory and non-participatory sessions
Individual as well as group exercises

Reading list:

1. A Global History of Architecture – Francis D.K. Ching
2. Forts and Palaces of India by Amita Baig
3. architectural principles in the age of Humanism –Wittkower
4. Building across time –Moffett, Fazio, Wodehouse
5. history of the Italian Renaissance –Frederick Hartt
6. Complexity and Contradictions –Robert Venturi

Environment Science & Services – III (E.S.S.-III)

Course Code: 161001010505

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- Understanding Landscape as Man and Nature relationship

Content:

Landscape Architecture

- Understanding Landscape as Man and Nature relationship.
- Land Ecology and Climate – types & relation with architecture.
- Components and elements of Landscape
- Various concepts, appropriateness, alternatives and selection.
- Landscape design and integration with other systems.

Process:

Individual design/project/exercise to incorporate aspects of landscape design. The design project from design studio can be taken as a base to work out the requirements. This will integrate ESS with design studio for holistic learning.

Reading List:

1. Design with Nature – Ian Mcharg
2. Building in The Garden : The Architecture of Joseph Allen Stein
3. Ecology, Community & Delight I Thompson
4. Elements of Visual Design in the landscape Simon Bell
5. 100 Years of Landscape Architecture Melanie SIMO
6. Landscape Graphics G W Reid
7. Landscape Architecture Moorhead, S

Elective – I (ELE-I)

Course Code: 161001010506

Course Type: OE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	1	2	-	-	2	100	50	50	---	2 Hrs.

Teacher or student initiated and college approved skill based/focused workshops / subjects such as:

- photography
- print-making
- paper making,
- pottery
- architectural graphics
- model making,
- public speaking
- sculpture
- stage design
- Painting
- Textile-printing/weaving
- Furniture design
- Advanced computer software for architecture
- Theater/drama
- Film making
- Meditation/Yoga

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Elective – II (ELE-II)

Course Code: 161001010507

Course Type: OE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
5	1	2	-	-	2	100	50	50	---	2 Hrs.

Teacher or student initiated and college approved knowledge based/focused workshops / subjects such as:

- Heritage and Conservation
- Sustainable Design
- Green building grading systems such as IGBC, GRIHA, LEED
- Philosophy
- Gender and design
- Appreciation of Music
- Appreciation of Dance
- Appreciation of Dance
- Creative writing
- Construction management
- Advanced structural systems
- Product design
- Economics
- Philosophy
- Sociology
- Anthropology
- Mathematics

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Design Studio-VI (STU–VI)

Course Code: 161001010601

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	18	12	-	12	-	100	50	---	50	2 Day.

Emphasis: Design Development and Execution Drawings

Intent:

- To understand the significance and importance of execution/working/construction/shop drawings in the making of buildings.
- To understand the correlation of function, structure, material, construction techniques and procedure, services and infrastructural systems; as these having their own inherent logic but also as parts of an integrated whole.
- To understand the relevance of essential components of working drawings, i.e. notations, drawing standards, information and instructions for effective implementation of design intentions.
- To detail out various types of drawings and methods of transmittals and record keeping

Content:

- Working drawings with a view to understanding structures and services and the implications of specifications on the quality and cost of the final architectural product.
- Exposure to various systems of transferring design intent to technical drawings & specifications and various coding systems of Construction documents.
- Preparing a complete set of execution drawings, from basic drawings to detail drawings, including all features of the design.

Theoretical input:

Lectures and presentations on all aspects of working drawings from basic set to details drawings including relevant information, dimensioning, numbering etc. Appropriate input at every stage. Aspects of Organization and coordination in working drawing sets.

Project:

Based on the design of earlier semester, a portion or a whole may be taken for design resolution.

Reading list:

1. Working Drawings Handbook by Keith Styles and Andrew Bichard
2. The Working Drawing-The Architects' Tool, edited by Annette Spiro and David Ganzoni
3. Architectural Working Drawings by Ralph W. Liebing
4. Working Drawing Manual by Fred A. Stitt
5. The Professional Practice of Architectural Working Drawings by Osamu A. Wakita and Richard M. Linde

Building Material & Construction -VI (BMC–VI)

Course Code: 161001010602

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

Overview of all construction elements and building material in detail to understand integration of systems.

Content:

Unit- 1

This semester focus on previous building materials construction knowledge to integration of building materials and building systems. This integration is done with a set of one or more perspectives from the following:-

- a. Difficult soil conditions
- b. Seismic, Tsunami, Cyclone , Flood effect & forces
- c. Natural and artificial temperature control systems
- d. Project management and costing
- e. Ecological and environmental parameters
- f. Scales and type of building not conventionally dealt with (e.g. Tall structure, large span building, Large scale building projects, etc.)

Unit -2 Construction Studio

The nature of studio focuses on integration of various building materials and systems. The nature of project also focuses on to understand contextual appropriation of systems.

Methods:

Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

Reading list:

1. Wood Handbook : Wood as an engineering materials
2. Concrete construction Manual
3. Glass Construction Manual by Birkhauser
4. Steel construction Manual
5. Brick Construction Manual

Professional Practice – I (PP-I)

Course Code: 161001010603

Course Type: PAECC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	2	2	2	-	-	100	50	50	---	2 Hrs.

Intent:

- To equip the students with practical aspects of profession with emphasis on 'Legal Documents' involved in professional practice.
- To understand 'Tender', its components and importance

Content:

Overview of 'Professional Practice' subject

Unit-1: Introduction to 'Tender'

- What is Tender? Importance of Tender in professional practice.
- Components of Tender
- Estimation and Costing, BOQ (Bill Of Quantities), SOR (Schedule of Rates), Abstract of work, Specification, and Working Drawings

Unit-2: General Development Control Regulation

- What is General Development Control Regulation?
- Importance of GDCR in professional practice.
- Other Codes and Acts i.e. NBCI, Fire Act.

Process:

Presentations, case studies and lectures by experts and experienced professional from the field.

Reading list:

1. Professional Practice with elements of: Estimation, Valuation, Contract and Arbitration by Roshan Namavati
2. Professional Practice by K.G. Krishnamurthy and S.V.Ravindra
3. Architectural Practice and Procedure by Ar. V S Apte
4. Professional Practice of Architecture by Prof. S C Garg & Dr. Yogesh Garg
5. Arbitration for Architects & Project Managers by Prof. Madhav Deobhakta

History of Architecture - IV (HOA-IV)

Course Code: 161001010604

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

To understand the terms modern, modernity, modernization and trace its meaning and manifestation in architecture

Content:

1. Architecture of the Indian sub-continent
Indian Colonial Architecture (Palaces and Institutions), Colonial architecture, Art-Deco style, Concept of Modernity in India (Gandhian and Nehruvian model of the country and its development) - Indian schools of design (Shantiniketan, J.J. School, MSU, NID, CEPT), Works of Modern Masters in Indian sub-continent – I
2. Architecture of the Western World (till WWII)
Arts & Crafts, Art Nouveau, Concept of Modernity in the West (Generators) - Schools of design (Ecole Beaux, Bauhaus), Works of Modern masters
3. Canonical Texts
Towards a New Architecture, Modular, Programs and Manifestos of 20th century master architects
4. Modern Urban Planning – concepts and ideas
Garden city by Ebenezer Howard, Radiant city by Le Corbusier, Patrick Geddes

Process:

Participatory and non-participatory sessions, individual as well as group exercises

Reading list:

1. Theory and design in the first machine age - Banham Reyner
2. Modern movements in architecture - Jencks Charles
3. Pioneers of modern design : From William Morris to Walter Gropius – Pevsner Nikolaus
4. Modern Architecture and Design : An Alternative History - Risebero Bill
5. The Historiography of Modern Architecture - Tournikiotis Panayotis
6. Changing Ideals in Modern Architecture - Collins Peter
7. Modern Architecture Since 1900 - Curtis William J. R.
8. Studies in Tectonic culture : The poetics of construction in nineteenth and twentieth century Architecture - Frampton Kenneth, (ed. John Cava)
9. Principles of Modern Architecture - Norberg-Schulz Christian
10. Meaning in Western Architecture - Norberg-Schulz Christian
11. Modern Architecture: A Critical History - Frampton Kenneth
12. Design – The Indian Context - Vyas H. K.
13. Architecture & Independence - Lang Jon, Desai Miki and Desai Madhavi
14. Design the International Movement: With Indian Parallel – H Kumar Vyas

Environmental science & Service - IV (ESS –IV)

Course Code: 161001010605

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- Understanding need of Active/Mechanical Human Thermal Control, criteria of human comfort and levels
- Various mech. Circulation systems, alternatives and selection.
- Understanding Sound, its property and application in building design.
- Various governing standards, Acts and Codes

Content:

Heating, Ventilating, Air-conditioning & Cooling - HVAC

- Active / Mechanical Human Thermal Control, criteria of human comfort and level.
- Various systems, alternatives and selection.
- Installation and integration with structure and other systems.
- Various components, elements, fittings and fixtures, as per need.
- Various governing standards, Acts and Codes
- Service system design and technical & architectural inputs.

Mechanical Circulation

- Mechanical Circulation, parameters of comfort and discomfort, design consideration.
- Various mechanical circulation systems i.e. Vertical, Horizontal, Incline, Combine, etc. as per demand and distance
- Various types i.e. Lift, Escalator, Conveyor belt, Sidewalks, etc., various governing standards, Acts and Codes.
- Service system design and technical & architectural inputs.
- Installation and integration with structure and other systems.

Sound & Acoustics

- Sound waves, its nature, power, transmission & spread pattern.
- Intensity of sound-output level of various activities & hearing mechanics-ear's sensitivity.
- Sound properties, its types, noise control & protection methods.
- Acoustic methods & material, designing for desired hearing
- Installation and integration with structure and other systems.

Process:

Individual design/project/exercise to incorporate services mentioned in the content. The design project from design studio can be taken as a base to work out the requirements.

Reading List:

1. Concepts in Architectural Acoustics – David M Egan
2. Mechanical and electrical systems in architecture, engineering, and construction (5th Ed) Joseph b. Wujek and Frank R. Dagostino
3. Fundamentals of HVAC systems – McDowall Robert

Elective - III (ELE–III)

Course Code: 161001010606

Course Type: OE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved skill based/focused workshops / subjects such as:

- photography
- print-making
- paper making,
- pottery
- architectural graphics
- model making,
- public speaking
- sculpture
- stage design
- Painting
- Textile-printing/weaving
- Furniture design
- Advanced computer software for architecture
- Theater/drama
- Film making
- Meditation/Yoga

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Elective - IV (ELE-IV)

Course Code: 161001010607

Course Type: OE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
6	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved knowledge based/focused workshops / subjects such as:

- Heritage and Conservation
- Sustainable Design
- Green building grading systems such as IGBC, GRIHA, LEED
- Philosophy
- Gender and design
- Appreciation of Music
- Appreciation of Dance
- Appreciation of Dance
- Creative writing
- Construction management
- Advanced structural systems
- Product design
- Economics
- Philosophy
- Sociology
- Anthropology
- Mathematics

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Internship

Course Code: 161001010701

Course Type: PAECC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
7	12	16	-	--	--	100	50	---	50	2 Days

Theme: Internship

Intent:

- To equip students with a practical approach to implement building projects in real situations
- To gain basic knowledge about construction industry, project management techniques needed for managing and coordinating building projects in a professional manner
- To expose the students to practical aspects of managing and running a professional practice

Content:

The students are expected to work under the supervision of an architect registered with Council of Architecture and having experience of at least 5 years in the professional field. As a part of training, the student is expected to gain exposure on:

- Understanding office organization and office systems
- Coordination and communication with client and various consultants
- Legal/contractual agreements and financial aspects
- Work on brief formulation, site analysis, processes of design development, working drawings etc.
- Understand various kinds of costs of building design through estimation and project management and process of writing specification and tendering
- Conduct site supervision and understand construction practices

Project:

At the end of the practical training, the students are required to present the following:

- Selected works in form of drawings, which are best representative of the training.
- The students are also required to submit a report describing various concepts learnt during training experiences of site visit.
- Training attendance log sheets shall be part of the report.

Design Studio – VIII (DS-VIII)

Course Code: 161001010801

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	21	14	-	14	-	100	50	---	50	2 Days

Emphasis: Mass/Group Housing

Intent:

- To understand housing as a basic need in terms of personal as well as socio-cultural space.
- Understand the basic notions of identity, sense of belonging and sense of place in the context of mass housing
- To identify and understand socio economic determinants, legal constraints, technological alternatives, ecological & environmental sustainability considerations and urban planning issues affecting character of large scale housing.
- To identify and understand different typologies of mass housing
- To explore contemporary housing theories and see their relevance in the present context; global, Indian and regional
- To demonstrate through design, attitudes to land as a resource and landscape at a larger scale.
- To understand mass users, their aspirations and desired functional and spatial needs
- To discuss issues related to space, gender, lifestyle and different age groups

Content:

- Dwelling, neighbourhood and community concept (Concept of Living together)
- Detailed Site analysis including documenting physical features, vegetation, land form, soil characteristics, slope analysis, land grading, natural drainage pattern and conservation of ecologically sensitive features.
- Hierarchy and networking of open space in group housing
- Integration of services, structure and circulation system – vehicular and pedestrian
- Passive design solution and various construction material and techniques
- Site planning to integrate buildings, open spaces, landscape design, movement, site level services and parking

Theoretical input:

- History of housing and typological variations, both global and Indian
- Development Controls - FSI/FAR, Density, Land use, by-laws and Ground coverage
- Concept of incrementality, flexibility, efficiency of space usage and identity
- Site planning principles and infrastructural systems
- Housing survey and analysis

Project:

An exercise of density based group housing/township/income based housing/rehabilitation or up-gradation of slums. This would involve around 25,000 sq. mts. of site (depending on the context and the targeted students' abilities). This would include the designing of a large number of habitation units and their ancillary requirements. It is suggested that the project

deal with no less than 400 units, and include different socio economic categories to enable an understanding of inter realities and inter relations in habitations.

Reading list:

1. Supports by Habraken
2. Housing in the 20th and 21st Centuries by Wolfgang Forster
3. Modern Housing Prototypes by Charles Jencks
4. FORM & DATA. Collective Housing Projects - An Anatomical Review by A+T review
5. Housing Design – A Manual by Bernerd Leupen
6. Housing & Urbanisation by Charles Correa

Building Material & Construction – VII (BMC-VII)

Course Code: 161001010802

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	8	6	2	4	-	100	50	50	---	2 Hrs.

- To introduce the student to advanced concepts in structural behaviour and detailing.
- To introduce the student to the different types of advanced structural systems like space frames, geodesics and tensile structures.
- To apply learning from previous subjects of BMC as well as those in this module to a given design project which requires the use of complex structural and construction systems
- To design in the context of structural, material, technical and environmental issues.

Content:

Unit- 1

- To introduce arches, their qualitative analysis, and understand how they react in large span structure.
- Introduction to shells, their various types. Construction details of various types of membranes and shells
- Introduction to different joineries in steel structures, with their relative merits.
- Introduction of systems like pre-stressing and post tensioning to improve the structural behaviour of materials.
- Overview of space frames, tensile and geodesic structures.
- Illustrate the integration of structures, material choices, environmental issues and technology with examples of built structures

Construction studio:

The nature of project focuses on to understand large span structure.

Methods:

Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

Reading list:

1. Theory of structures by S. Timoshenko
2. Prestressed concrete by Krishna Raju
3. Tensile structures Vol. 1 and Vol. 2 by Frei Otto
4. Synergetics by R. Buckminster Fuller
5. candela the shell builder
6. Plates and Shells by S. Timoshenko and Woinowsky Krieger.

Environmental Science & Services – V (ESS-V)

Course Code: 161001010803

Course Type: BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	8	6	2	4	-	100	50	50	---	2 Hrs.

Intent:

- Synthesis of various inputs, acquired up till now, to achieve seamless integration of different building sciences and services, related to built environment.
- To understand environmental issues, climate responsive practices and sustainable approaches.
- To understand the role, impact, influence and symbiotic relation of various service systems applicable at a larger scale i.e. at campus, neighbourhood, sector, or city.
- To apply learning from study and research in Design.

Content:

- Different types of Wastes and Recycling Methods for building purpose
- Harnessing Technique of Natural Source of Energy for building and cities
- Climate responsive practices and sustainable approaches
- Concept of Sustainability and Various approaches of Sustainable Architecture through case studies and research
- Various systems of rainwater harvesting

Process:

Synthesizing and integrating various services, climate responsive design practices, sustainable approaches, natural sources of energy, waste water recycling and rainwater harvesting systems into design of building/s. The application can be done with the design project of design studio.

Reading List:

1. Solar Power, The evolution of sustainable architecture – Sophia & Behling, Stefan
2. Green Architecture – A Guide to Sustainable Design – Michael J. Crosbie
3. The Green Skyscraper – Ken Yeang
4. Sustainable Development: Issues & Perceptive - R.N. Pati, Schwarz Herionodile
5. Waste Management System: An Infrastructural Impression – B. V. Doshi
6. Environmental Design: An introduction for Architects & Engineers - Thomas Randall
7. Energy Conservation Building Code: User guide – Bureau of energy efficiency 2009
8. Mahatma Gandhi an Apostle of Applied Human Ecology – Kheshoo T. N.
9. Dying Wisdom – Anil Agrawal
10. Dying Wisdom: Rise, Fall & Potential of India's Traditional water Harvesting - Anil Agrawal
11. Magazines – Down to Earth, Green Files

History of Architecture - V (HOA-V)

Course Code: 161001010804

Course Type : PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- To understand the concept of postmodernism and study its pluralistic approaches in architecture through the works of influential architects.
- To recognize and critically evaluate the contemporary practices in architecture across the world.

Content:

1. Architecture of the Indian sub-continent
Works of Modern Masters - II, Contemporary directions to architecture (Regional, Vernacular, Energy Efficiency, Community Participation)
2. Architecture of the Western World (post WWII)
Plural Directions in Post-Modern Architecture - Architecture after WW-II (Advent of Post Modern, Hi-Tech, Architecture for the Senses, Specific Design Response, Structuralism, Deconstructivism, Parametricism)
3. Canonical Texts
Writings that focus on Interdisciplinary perspective to architecture – brief introduction of different discipline (structuralism, semiotics, phenomenology & deconstruction)
4. Theories of Urban Design.

Process:

Participatory and non-participatory sessions
Individual as well as group exercises

Reading list:

1. Language of Post Modern Architecture by Charles Jencks
2. Theories and Manifestoes of Contemporary Architecture – Charles Jencks and Karl Kropf
3. Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965 – 1995 by Kate Nesbitt
4. Architecture in India Since 1990 by Rahul Mehrotra
5. Intentions in Architecture – Christian Norberg Schulz
6. Complexity and Contradiction in Architecture – Robert Venturi
7. Genius Loci: Towards a Phenomenology of Architecture – Christian Norberg Schulz
8. The City Shaped: Urban Patterns and Meanings Through History by Spiro Kostof
9. The City Assembled: the elements of urban form through history by Spiro Kostof
10. The Image of the City by Kevin A. Lynch
11. Classic Readings in Architecture - Kent F. Spreckelmeyer, Jay M. Stein (Author, Editor)
12. Built to Meet Needs: Cultural Issues in Vernacular Architecture by Paul Oliver
13. House, Form and Culture by Amos Rapoport

Subject Name: Elective – V (ELE-V)

Course Code: 161001010805

Course Type: PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved skill based/focused workshops / subjects such as:

- photography
- print-making
- paper making,
- pottery
- architectural graphics
- model making,
- public speaking
- sculpture
- stage design
- Painting
- Textile-printing/weaving
- Furniture design
- Advanced computer software for architecture
- Theater/drama
- Film making
- Meditation/Yoga

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

The methodology and evaluation criteria will depend on the subject and the person conducting the workshop/teaching the subject

Elective - VI (ELE-VI)

Course Code: 161001010806

Course Type: PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
8	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved knowledge based/focused workshops / subjects such as:

- Heritage and Conservation
- Sustainable Design
- Green building grading systems such as IGBC, GRIHA, LEED
- Philosophy
- Gender and design
- Appreciation of Music
- Appreciation of Dance
- Appreciation of Dance
- Creative writing
- Construction management
- Advanced structural systems
- Product design
- Economics
- Philosophy
- Sociology
- Anthropology
- Mathematics

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

The methodology and evaluation criteria will depend on the subject and the person conducting the workshop/teaching the subject

Design Studio – IX (DS-IX)

Course Code: 161001010901

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
9	21	14	-	14	-	100	50	---	50	2 Days

Theme: Intervention in an urban context

Intent:

- To engage with complexities and design issues of large scale urban intervention with multiple stakeholders and its contextual and seamless integration with city
- To understand the interface between public and private domain
- To understand socio cultural issues at urban level
- To understand the notion of identity, sense of place and sustainability at the larger urban scale

Objectives:

- To learn to formulate program from present need of the client, users and city
- To investigate relevance of the building type and typology in the present context
- To evolve a relationship between the building/s, open spaces and the existing urban context
- To evolve contextually relevant architectural expression
- To integrate infrastructure services, structure and technological alternatives
- To derive an appropriate solution from environment, ecology and technology point of view

Theoretical Inputs:

- Nature of urban context, its role and co-relation to urban structure
- Urban morphology
- Attitudes to urban development/redevelopment, both globally and in the Indian context.
- Issues of conservation and reuse of existing buildings
- Nature of 'public places'
- Issues of land use, edge conditions, zoning, vehicular and pedestrian movement
- Development regulations and building by-laws

Content:

The studio would expose the complexities of large-scale projects, often involving a group of buildings in a campus, public domain and having multiple stakeholders.

The study should involve documentation of context/location that includes built and open, physical features, movement pattern, activities cycle, environment and socio-culture dimension, heritage issue, needs of the users and city.

The Proposal would involve understanding and expanding a requirement brief into a valid and detailed building/s program and developing one's own conceptual stand and design there from. It should address the interface between public and private realm.

The studio entails carrying out of site analysis and preparing a site/master plan based on the program indicating movement and open space networks, suggestive built-form, infrastructure network and development controls.

The main issues will be strength of the program, clarity of conception, development of the character of institution along with the architectural feature like forms, volumes, transitional spaces, elements and building detailing.

Studio Project:

Design of a large scale urban intervention in the form of institution, urban level public places, infrastructure/amenities project either from an actual/live that one has come across or by proposing a new project that is both required and viable, campus involving group of buildings in a urban/semi-urban context. The proposal will be no less than 2500 sq. mts. of built space and no more than 5000 sq. mts., depending upon the nature of the project and its location.

Reading list:

1. Responsive Environments-A Manual for Designers by Bentley, Alcock, Murrain, Smith
2. The Image of the City by Kevin Lynch
3. What time is this place by Kevin Lynch
4. The Social Life of Small Urban Spaces by William Whyte
5. The Architecture of the City by Aldo Rossi
6. Life Between Buildings Using Public Space by Jan Gehl

Building Material & Construction – VIII (BMC-VIII)

Course Code: 161001010902

Course Type : BS & AE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
9	8	6	2	4	---	100	50	50	---	2 Hrs.

Intent:

Overview of all construction elements and building material in detail to understand integration of advance systems.

Content:

Unit- 1

This semester focus on previous advance building materials construction knowledge to integration of building materials and building systems. This integration is done with a set of one or more perspectives from the following:-

- a. Scales and type of building not conventionally dealt with (e.g. Tall structure, large span building, large scale building projects such as Hospital, stadium, auditorium, railway station, airport etc.)

Construction studio:

The nature of studio focuses on integration of various building materials and advance systems. The nature of project also focuses on to understand complexity of large span structure.

Methods:

Lecture, case study, sketching, drafting, field trip (Material study and construction study), market survey, measure drawing, technical drafting and projects

Reading list:

1. Roark's Formulae for Stress and Strain
2. Concrete Technology by Neville
3. Advanced Strength of materials by Seely and Smith.
4. Theory of structures by S. Timoshenko
5. Prestressed concrete by Krishna Raju
6. Tensile structures Vol. 1 and Vol. 2 by Frei Otto
7. Synergetics by R. Buckminster Fuller
8. candela the shell builder
9. Plates and Shells by S. Timoshenko and Woinowsky Krieger.

Research Methodology (RM)

Course Code: 161001010903

Course Type: PAECC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
9	3	3	3	-	-	100	50	50	---	2 Hrs.

Intent:

- To introduce the concepts and methods of research in architecture and built environment.

Content:

- Research and Architectural Research: type, purpose, focus
- Relationship between Design and Research
- Research as a process
- Formulating Research Questions/Goals
- Research Design and Methods (Data Collection and Data Organization)
- Techniques in Research: Observation, Interviews, Questionnaires, Literature Review
- Ethics in Research
- Research Writing – Proposal, Review of Literature, Dissertation, Referencing Methods

Process:

Presentations, conducting small research projects, writing short papers, etc.

Reading list:

1. Inquiry by Design: Environment/ Behavior/ Neuroscience in Architecture, Interiors, Landscape and Planning – John Zeisel
2. Architectural Research Methods – Linda Groat and David Wang
3. The Dissertation – Ian Borden
4. Understanding the Research Process – Paul Oliver
5. A Practical Guide to Graduate Research – Molly Stock
6. Practical Research: Planning and Design – Paul D. Leedy
7. Qualitative Research and Evaluation Methods – Michael Quinn Paton
8. Writing your Thesis – Paul Oliver
9. How to Write a Thesis – Umberto Eco

Elective - VII (ELE-VII)

Course Code: 161001010904

Course Type: PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
9	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved skill based/focused workshops / subjects such as:

- photography
- print-making
- paper making,
- pottery
- architectural graphics
- model making,
- public speaking
- sculpture
- stage design
- Painting
- Textile-printing/weaving
- Furniture design
- Advanced computer software for architecture
- Theater/drama
- Film making
- Meditation/Yoga

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

The methodology and evaluation criteria will depend on the subject and the person conducting the workshop/teaching the subject

Elective – VIII (ELE-VIII)

Course Code : 161001010905

Course Type : PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
9	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved knowledge based/focused workshops / subjects such as:

- Heritage and Conservation
- Sustainable Design
- Green building grading systems such as IGBC, GRIHA, LEED
- Philosophy
- Gender and design
- Appreciation of Music
- Appreciation of Dance
- Appreciation of Dance
- Creative writing
- Construction management
- Advanced structural systems
- Product design
- Economics
- Philosophy
- Sociology
- Anthropology
- Mathematics

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Design Studio – X (DS-X)

Course Code: 161001011001

Course Type: PC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
10	24	16	-	16	-	100	50	---	50	---

Intent:

The tenth semester being culmination of the undergraduate curriculum, studio intends:

- To synthesis knowledge of various disciplines/subjects gained during the entire course into a design project/research work.
- To develop a critical thinking attitude based on valid inquiry and logical structure.
- To enable a student to present a project of his choice/document that exemplifies his critical abilities and structured thought by engaging in an inquiry through design/in-depth investigation (research) of an area of architecture.

Objectives:

- To enable the student to develop his/her own area of interest related to architecture in a structured manner
- To define and exemplify the concerns and priorities in the area of interest
- To formulate the proposal/ project proposal reflecting these larger concerns and issues
- To demonstrate through design resolution/document wherein the analytical outcome reflects these concerns and issues studied in the context/premise defined.

Content:

The approach to seek an answer/s to the major question should be enquired through logical, scientific and meaningful approach that would add value/contribute to our existing knowledge of architecture. It should have potential to demonstrate adequate work of 22 weeks. The scale and size of the project should be adequate to demonstrate requisite strength and address design complexities. It should deal with current issues of built environment and building construction at local and global level.

Process:

Theoretical Inputs:

- Research methods, project formulation and proposal writing /design brief
- Case study analysis
- Interactive workshops
- site analysis, organizing relevant data, analyzing data, building methods

Operational Guidelines:

- This will be a GUIDED STUDIO with no special inputs, only opinions and tips from guide to help the particular student self-achieve. There are no specified input times, but it is suggested that there should be interaction with the guide every fortnight, so that progress is charted.

- There will be a muster for the students to complete their requisite attendance as per the rules – which can be filled in by students themselves, keeping in mind their subject-specific requirements of external resources, case studies or site constraints.
- The student is required to submit a topic proposal. This topic emerges from a personal area of interest. Presently, this is not constrained by architectural issues per se, and may stem either from within his/her own work over the years or from other external interests. However, it will be necessary to tie the engagement with Architecture at the end.
- For any topic, a certain amount of background research will be considered requisite. In the case of any architectural topic there will be an emphasis on being able to anchor the research, at the end, in the form of specific issues or parameters. These can be either in terms of design lessons, guidelines or a short demonstrative proposal based on the research. Any design-based proposal will be preceded by research and followed by conclusions or explanations / proofs.
- It is proposed that there will be a common resource person for all student interfaces. But the topic proposal must be approved by the Studio X committee, to be formed from among the Senior Experts & Core Faculties.
- The student is also assigned a guide by the committee agreement - one who is knowledgeable & interested in the area of inquiry from within the institution. Students are free to consult resource persons from outside IPISA, but this will be honorary and with prior intimation and acceptance of the committee.
- The Studio Committee and the Guide will between them ensure that the topic can be engaged upon sufficiently and later be tied back to the architecture curriculum.
- The main issues will be the relevance of topic (to architecture and its extension), efficacy of framework developed to engage with the topic, depth of research, sufficient external references, and quality of work requisite to the engagement.

External Examination

At the end, the student will submit **a soft copy** and **three unbound typed identical Copies** of an A4 document (one each for the guide/ School and two external jury members). Any drawings required for illustration can be in the form of A3 size foldouts. In general, font size should not be less than 2 mm normal text (equivalent of 12 point Times New Roman). There should be a clear binding margin of 25 mm on the left side, with all pages duly numbered.

The Studio Committee in conjunction with the Guide will decide the exact contents & requirements of the submission.

Evaluation:

Evaluation will be done stage wise as follows:

Stage	Assessed by	Time allocated Max.	
Marks		In weeks	
Proposal (Revised Proposal)	(by Studio committee)	04	10
Data Collection and organization/ Conceptual Design	(by Studio committee)	06	20
Rough Draft/Design Development	(by Studio committee)	06	20
External Exam- Viva/Jury	(by Studio committee & external)	06	50

Total 100

This studio will be conducted under the overall coordinating of the Studio Coordinator. In addition, one faculty will associate the coordinator throughout the duration of the studio. Each Revised Syllabus of Bachelor of Architecture, Saurashtra University, Rajkot, from AY 2019 -20

student will be assigned a Thesis Guide who will supervise the progress of the student's work on a regular basis.

Approval of the thesis project will be done by the Principal, the Studio-Coordinator and the concerned Thesis Guide.

All stages of internal work will be evaluated jointly by the Studio Committee team (Thesis Coordinator, associated faculty, invited core/visiting faculties and concerned Thesis Guide).

Marks awarded at each stage will be based on as under:

In the internal periodic reviews – equal weightage to guide, studio-coordinator and committee team members

In external jury/viva – equal weightage to two external examiners, Studio Coordinator and guide.

Reading list:

To be decided by the student with the advice of the Guide depending on the subject matter.

Professional Practice –II (PP-II)

Course Code: 161001011002

Course Type: PAECC

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
10	2	2	3	-	-	100	50	50	---	2 Hrs.

Intent:

- To equip the student with practical aspects of the profession
- To understand the importance of tenders, types, components, process
- To understand architect's role and responsibility towards profession and society.

Content:

Introduction of subject

- Quick understanding of difference between terms such as an estimate, a quotation, a tender, a contract and a contractor's Bill.

Tender formulation

- Tender for construction
- Types of tenders
- Methods of calling tenders
- Components of a tender
- Papers included in Tender Document
- Procedures after calling tenders – scrutiny report, letter of intent, work order, acceptance letter.

Profession and Architect's professional responsibility

- Role of an architect
- Liability of an architect – Professional, Legal, Moral, Social, Criminal, etc.
- Precautions to control liability

Professional Practice & Setup

- Types of services and Spectrum of services
- Scale of fees
- Types of office, setup and infrastructure
- Future prospects of profession

Article of Agreement

- Importance of Article of Agreement.
- Study of clauses of general conditions of contract.

Introduction to Valuation

Process:

Presentations, case studies and lectures by experts and experienced professional from the field.

Reading list:

1. Professional Practice with elements of: Estimation, Valuation, Contract and Arbitration
by Roshan Namavati
2. Professional Practice by K.G. Krishnamurthy and S.V.Ravindra
3. Architectural Practice and Procedure by Ar. V S Apte
4. Professional Practice of Architecture by Prof. S C Garg & Dr. Yogesh Garg
5. Arbitration for Architects & Project Managers by Prof. Madhav Deobhakta

Elective – IX (ELE- IX)

Course Code: 161001011003

Course Type: PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
10	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved skill based/focused workshops / subjects such as:

- photography
- print-making
- paper making,
- pottery
- architectural graphics
- model making,
- public speaking
- sculpture
- stage design
- Painting
- Textile-printing/weaving
- Furniture design
- Advanced computer software for architecture
- Theater/drama
- Film making
- Meditation/Yoga

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.

Elective – X (ELE-X)

Course Code: 161001011004

Course Type: PE

Semester	Credit	Total Hrs. per/ week	Theory Hrs.	Studio Hrs.	Workshop Hrs.	Total Mark	Internal Marks	External Marks	Practical / viva Exam Marks	External Exam Time Durations
10	1	2	-	-	2	---	---	---	---	---

Teacher or student initiated and college approved knowledge based/focused workshops / subjects such as:

- Heritage and Conservation
- Sustainable Design
- Green building grading systems such as IGBC, GRIHA, LEED
- Philosophy
- Gender and design
- Appreciation of Music
- Appreciation of Dance
- Appreciation of Dance
- Creative writing
- Construction management
- Advanced structural systems
- Product design
- Economics
- Philosophy
- Sociology
- Anthropology
- Mathematics

The above topics are suggestive. The final topic will be decided according to the subject being offered during the particular academic year.