DEPARTMENT OF ARCHITECTURE & PLANNING

SCHOOL OF ENGINEERING

Programme Objectives

Programme: B.Arch (5 Year programme)

The broad objective of the programme is to impart theoretical and practical knowledge to students to prepare them for a professional career in the field of architecture. The course at a broad level aspires to widen the horizon of students with exposure of related scenarios in the field of architecture to determine the directions of their further development. The theoretical knowledge gained by students in class rooms and research mode is integrated in applied mode in Studio exercises. The programme is designed by following guidelines of Council of Architecture for its B. Arch. degree. This forms the criteria for registration of students with COA as architect on completion of B. Arch. course of the school. The courses are divided into four main modes for imparting theoretical, practical and interest based education to students.

Core Courses

Core Courses represent the central learning of architectural education. Architecture is synthetic learning of various fields relating to humanities and scientific fields. Practical knowledge of the subjects is applied to projects which are resolved by students with faculty and these form the core of studios. Architectural Design, Building construction Arts and Drawing and communication along with other studio subjects are principally conducted in this way. Supplementary formal knowledge about technical aspects of building as well as abstract aspects of architectural thought draw upon other related disciplines of humanities are learned in a theoretical mode.

Elective Courses

Electives shall be offered by the institute to supplement additional coursework or to advance knowledge in architecture and allied fields beyond core subjects. The Elective courses also reflect diverse technical and cultural developments of current relevance. These provide valuable specialized expertise or knowledge with the faculty of the institution or in the city. The courses will be seminar or practical/studio courses.

Programme Objectives (PO)

- Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.
- Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to able to analyze the methods of investigation and illustrate the preparation of the brief for a design project.

- Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.
- Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures.

General objectives for Design Studios

- Architectural Design is to be seen as a central discipline of the B. Arch. programme. The focus of this programme is to develop skills of design while engaging with pragmatic and speculative propositions about the making of the built environment. The studio is an arena where knowledge gained in the technologies, humanities and professional streams of the programme is synthesized into built environment solutions through the act of design with the exercise of the creative imagination of the designer.
- The learning of Architectural Design is seen as a cumulative process with a spiral structure of development where it is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design exercises will therefore move progressively from exercises with a relatively limited scope and size of the individual component or small shelter toward the complexity and scale of city so that the student experiences the range of complexities that characterizes the Indian habitat.
- The studio design exercises are intended to develop a student's subjective abilities in the appreciation and creation of architectural form and the crafting of built objects, to consciously deploy processes and methodologies of design in response to varied design tasks and to develop a capability in deploying established and innovative design strategies.
- The iterative process of designing will also be used to develop verbal and graphic communication skills using a range of techniques and tools for representation such as hand drawn drawings, computer graphics and scale models, for presentation of design ideas and solutions.
- Design exercises shall be devised by the course faculty acknowledging and building upon the cultural and intellectual assets of the student, opportunities offered by local environments, theoretical and philosophical issues thought to be relevant, and the knowledge gained by previous and parallel courses.
- The design work will be supplemented by research, discussion and lectures arranged during studio hours to assimilate a rich reference store of the culture of design. There may be several short and discreet exercises within an overall semester programme.
- The design exercises and the studio programme for the semester, stating the learning outcomes and evaluation stages, shall be set well in advance in consultation with the course coordinator. The exercises may be designed in part requiring group work; however the intent shall be of developing and evaluating design capability for each individual student.
- All other courses, while maintaining their individuality, shall contribute to Design.

Programme Outcomes

PO1: Understand the real-life situation in architectural practice and recognize the dialectic relationship between people and the built environment (especially with reference to the Indian sub-continent) with
reference to their needs, values, behavioural norms, and social patterns.

PO2: Work collaboratively toward synthetic design resolution which integrates an understanding of the
requirements, contextual and environmental connections, technological systems and historical meaning
with responsible approach to environmental, historical and cultural conservation.

PO3: Apply visual and verbal communication skills at various stages of the design and delivery process.

PO4: Thrive in a rigorous intellectual climate which promotes inquiry through design research.

PO5: Produce professional quality graphic presentations and technical drawings/documents.

PO6: Critically analyse building designs and conduct post-occupancy evaluations.

PO7: Work in a manner that is consistent with the accepted professional standards and ethical responsibilities.

PO8: Work in collaboration with and as an integral member of multi-disciplinary/interdisciplinary design and execution teams in the building industry.

PO9: Conduct independent and directed research to gather information related to the problems in architecture and allied fields.

PO10: Students able to work effectively in a multi-disciplinary/inter-disciplinary team in the building industry, by providing 360o knowledge of architecture.

Program Specific Outcomes

PSO1: Demonstrate critical thinking through a self-reflective process of conceptualization and design thinking that is open to consideration of alternative perspectives by analyzing, evaluating, and synthesizing ideas and information gathered through applied research grounded in information literacy.
PSO2: Implement complex two and three-dimensional graphic representation techniques using a wide variety of traditional and digital media, to reflect on and explain the architectural design process to a wide range of stakeholders.
PSO3: The knowledge and ability to apply a design decision-making process through appropriate technical documentation in a manner that is client-centered, sustainable, aesthetic, cost effective, and socially responsible.
PSO4: Incorporate a wide range of technical skills and professional architectural knowledge during schematic design to demonstrate a comprehensive application of life safety, accessibility, and sustainability issues in making sound design decisions across varying scales and levels of complexity.

COURSE EDUCATIONAL OBJECTIVES AND COURSE OUTCOMES

Department of Architecture and Regional Planning

B.Arch(5 year programme)

First Semester

CEO 1: AR 1001 – Architectural Structures I

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

CEO 2: AR 1003- Humanities in Architecture

- To expose the students to the relationship between man and environment.
- To familiarize the students with basic concepts, theories and issues of Sociology and its relevance to architecture

CEO 3: AR 1005- Computer Communication

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 4: AR 1011- Architectural Design I

- Orientation of students to the profession of architecture.
- Introduction to basic design and the basic understanding of form and space in architecture.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 5: AR 1013- Building Construction I

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the usage of these traditional building materials in simple building works.
- To develop skills in understanding the complexities & constrains of brick masonry.
- To familiarize the student with the basic building construction practices on site.

CEO 6: AR 1015- Architectural Drawing I

- To familiarize with drawing tools and accessories.
- To give a basic knowledge of good drafting and lettering techniques.
- To develop comprehension and visualization of geometrical forms.
- To familiarize with the concept of enlarging and reducing scales.

CEO 7: AR 1017- Arts and Graphics I

- Introduction to art and appreciation of art and its philosophies.

- Familiarization with principles and theories of art
- Development of art and graphic skills.

CEO 8: 1019- Surveying and Levelling

- To develop knowledge and skills related to surveying and levelling principles and practice.

CO 1: AR 1001 – Architectural Structures I

- Theory of structures for architects. Technical names and functions of various structural components from foundation to roof. Fundamentals of mechanics.
- Types of Loads - Dead Load, Live Load, Impact Load, Earthquake Load, Wind Load and Snow Load. Mechanical properties of different materials such as tensile strength, fatigue strength and comprehensive strength.
- Definition, Cause, Effect, Units, Force as vector, Graphical representation. Resolution of forces by graphical and analytical methods. Types of forces – Co planar, Non-Co planar, Concurrent, Non-Concurrent, and parallel forces
- Elasticity, stress, strain, types of stresses, elastic limit, Hook's law, modulus of elasticity, stresses in composite bars, linear strain, Poison's ratio, shear stress, principal stresses and strains
- Definition, centre of gravity of plane figures, centre of parallel forces. Definition, important theorems, section modulus, calculation of moment of inertia by first principle and its application, moment of inertia of composite sections

CO 3: AR 1005- Computer Communication

- To Introduce students and initiate into theory and practice of Computer Applications in Architecture.
- To familiarize students with computers so as to understand complete management outlook of an architects' office besides architectural drawings.
- To teach graphic applications specially 2Dimensional for fast and attractive presentation of theme and ideas.
- To teach utilization of knowledge of 3D modeling and its application in design.

CO 4: AR 1011- Architectural Design I

- Know about the fundamentals of design and development of design vocabulary and to apply the same thought process in development of design.
- Implement the design through conceptualization and organization.
- Enhance the creative skills through creative exercises.
- Understand their surroundings and promoting it as a basic creative instinct

CO 5: AR 1013- Building Construction I

- Understanding of Binding materials, their classification, Manufacturing, properties and uses viz. soil, lime and cement.
- Knowledge of basic construction materials, their characteristics, occurrences or production, classification, properties and uses viz. stone, bricks and other clay products.

- Demonstrate fundamental knowledge of the systems and processes used to construct the building, including an understanding of industry terminology.
- Market surveying and case studies so a student acquainted with the latest construction technology & materials.
- Analyze, troubleshoot, and implement solutions in the field based on knowledge and experience.

CO 6: AR 1015- Architectural Drawing I

- Develop the requisite level of proficiency in drawing with primary communication tool in the practice of architecture just like language.
- Familiarize with a range of techniques of expression beginning with manual drawing.
- Familiarize with drafting tools and accessories along with learning drafting, lettering and rendering techniques.
- Know about the comprehension and visualization of geometrical forms.

CO 7: AR 1017- Arts and Graphics I

- Demonstrate an understanding of basic art form & develop perception, the ability to think graphically and utilize drawing as a language of communication.
- Learn the architectural rendering techniques for building exteriors and interiors by using pen & ink, color, values, tones, etc
- To develop a design idea into a coherent proposal and to communicate ideas and concepts through graphical representation.
- Articulate an understanding of visual impact of colors, lines, shapes and textures used in design & construct conceptual and presentation models as a design presentation tool for aesthetic exploration.

CO 8: 1019- Surveying and Levelling

- Explain importance and need of surveying in architecture, Types and classification of surveys, Plane and geodetic surveying.
- Equipment and methods of plane tabling. The prismatic compass and its use; whole circle bearing; quadrant bearing
- Different types of leveling instruments, temporary and permanent adjustments, Characteristics of contour lines, direct and indirect methods of contouring, interpolation of contours.
- Total Station and its application in surveying, Introduction to aerial survey, digital mapping, satellite Imaging, GPS and uses of GIS in plane surveying.
- On site lay outing of a small residential unit as per map and plan.

2nd Semester

CEO 1: AR 1002– Architectural Structures II

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

CEO 2: BS101- Human Values and Buddhist Ethics

CEO 3: ES101- Environment and Ecology

CEO 4: HU102- Humanities II

- Gain insight into the ways in which the environment influences our feelings and experiences
- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CEO 5: AR 1010- Architectural Design II

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 1012- Building Construction II

- To acquaint the students to usage of building materials such as Timber and Hardware, Damp Proofing Courses and Cement Concrete.
- To familiarize the students with construction techniques for use of the above materials in building works. and joinery in carpentry
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 1014- Architectural Drawing II

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To develop perception and presentation of simple architectural forms and buildings.
- To develop or upgrade an understanding about AutoCAD 2D, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 8: AR 1016- Arts and Graphics II

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition
- Development of art and graphic skills

CEO 9: AR 1018- Model Workshop

- This course is aimed at imparting basic workshop and material handling skills and techniques necessary for preparing architectural models and art project while in calculating value for good craftsmanship.

Course Objectives

CO 1: AR 1002– Architectural Structures II.

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.

- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: BS101- Human Values and Buddhist Ethics

CO 3: ES101- Environment and Ecology

CO 4: HU102- Humanities II

- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CO 5: AR 1010- Architectural Design II

- To explore the interrelationship between human behavior and space in a small unit environment, including, volume of space, shape, form, function and materials.
- Optimum space planning in the buildings
- Focus on studying patterns with circulation and layout in design of a building.

CO 6: AR 1012- Building Construction II

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects.

CO 7: AR 1014- Architectural Drawing II

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- To develop perception and presentation of simple architectural forms and buildings.

CO 8: AR 1016- Arts and Graphics II

- To Develop understanding for principles and theories and graphic and architectural composition.

CO 9: AR 1018- Model Workshop

- To work with carpentry tools and equipments to be able to cut, plane, join, and finish wooden members. Making simple joints used in buildings and furniture and its significance on site.
- Simple exercises to convert metal into desired shapes and forms.

- To understand the process of making building models with various materials such as cardboard, wood, plastics, plaster of Paris and metals, ability to make simple joints in timber, pipes and other materials, basic electrical circuits.
- To familiarize with making of actual scale model from card board, wood, sun pack and general metal etc.
- Ability to prepare course file for workshop activities

3rd Semester

CEO 1: AR 2001– Architectural Structures III

- To understand an informal choice regarding the most appropriate structural system for the building design due to different types of loading. Provide a basic understanding about the structural modelling and research techniques in the field of Architecture.

CEO 2: AR 2003- History of Architecture I

- To inform about the development of Indian architecture and its contextual and traditional aspects.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society,religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character invarious aspects of Hindu architecture.
- To comprehend and analyze spatial character, scale, and structure through historical and traditional built heritage.
- To comprehend and relate to the theoretical basis of historical and traditional Hindu architecture.

CEO 3: AR 2005- Building Services I

- To understand the basic principles of water supply and sanitation.
- To make them enable to draw the piping system (pipe above ground and underground) for different types of buildings.
- To familiarize the student with plumbing bye laws as per BIS

CEO 4: AR 2007- Climatology

- Acquainting the students with human thermal comfort as an essential function of a building, its analysis & use in Architecture.
- To familiarize students with the elements constituting climate and their role in creating responsive designs.
- Understanding the characteristics of varied tropical climates and expected responses of buildings in specific climate types
- To utilize existing traditional/vernacular/ historical structures in the city as case study to learn the various attributes of climate & the desirable responses.

CEO 5: AR 2011- Architectural Design III

- Introduction to human activity and spaces required for activities.

- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2013- Building Construction III

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8:AR 2017- Arts and Graphics III

- To develop greater perception of complex Architectural forms and buildings.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.
- To develop or upgrade an understanding about Autodesk Revit Architecture, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 9:AR 2019- DSE I

Course Outcome

CO 1: AR 2001– Architectural Structures III

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.
- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: AR 2003- History of Architecture I

- To understand the importance of historical, geographical, religious, social, building materials and construction techniques, climatic conditions in molding architecture spaces and structures.
- To understand the morphological development of Architecture in India from post Vedic period and confined till Hindu Architecture

CO 3: AR 2005- Building Services I (Water Supply and Sanitation)

- To know about the Sources of water supply, Quality and Quantity, Treatment, Conveyance, Distribution and Storage, size of overhead tank and underground tank based on the occupancy in different type of buildings as per NBC.
- To understand Pipes-types, sizes and materials along with their joining details & Domestic hot and cold water supply systems with market survey.
- To Understand Basic principles of sanitation, collection and conveyance of waste matter from buildings, Quantity and quality of refuse, working and installation of sewers and sewer appurtenances.
- To know Drainage systems, gradients used in laying drains and sewers, selfcleansing and non-scouring velocities for drain pipes, Rain water harvesting types and methods and its calculation.
- To know calculation of shaft size as per NBC norms and preparing design layout and details as per the NBC Standards.

CO 4: AR 2007- Climatology

- Theoretically understand design with climate as the basic parameter of design.
- Prepare design strategies for different climatic regions.
- Analyze, troubleshoot, and implement solutions with climate as the basic parameter of design.
- Utilize modern as well as traditional techniques to derive a climate responsive design,

CO 5: AR 2011- Architectural Design III

- To apply the learning of the previous semesters.
- To teach students to map gathered information of visited physical setting
- To transform the human behavioral needs into architectural program requirements.
- To compose the architectural spaces in a design project
- To develop sensitivity towards informal settings and elements of built space.

CO 6: AR 2013- Building Construction III

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects

CO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.

CO 8:AR 2017- Arts and Graphics III

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- Understanding the perspective of the buildings.
- Demonstrate an understanding of furniture, people and accessories in one and two point projected perspective drawing.
- Articulate an understanding of volumetric drawings used in interior design.

4th Semester

CEO 1: AR 2002- Architectural Structures IV

- To Understand the analysis of indeterminate structures and their use in field in greater depth.

CEO 2: AR 2004- History of Architecture II

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 2006- Building Services II

- To understand the basic principles of physics of electricity and light.
- To make them enable to draw the electrical layout with appropriate cross section of wires and illuminance
- calculations for residences.
- To know the characteristics and applications of the different types of modern lamps and luminaires.
- To familiarize the student with electrical bye laws as per NEC/BIS.

CEO 4: AR 2008- DSE II

CEO 5: AR 2010- Architectural Design IV

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2012- Building Construction IV

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.

- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2014- IT Design Tools II

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment.

CEO 9: AR 2016- Research I (Building Appraisal)

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

Course outcomes

CO 1: AR 2002- Architectural Structures IV

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.
- Role and design of beams, columns and joints in RC buildings. Planning for reducing earthquake effects on buildings.
- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 2004- History of Architecture II

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Islamic Era with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 2006- Building Services II

- Learn elementary building services of electrical services.
- Familiarize with a range of electrical accessories and its design consideration
- Learn illumination schemes.
- Familiarize with wiring systems and design consideration of lighting schemes.
- Implicate electrical services in Design.

CO 4: AR 2008- DSE II

CO 5: AR 2010- Architectural Design IV

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 2012- Building Construction IV

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 2014- IT Design Tools II

- To Introduce students into theory and practice of Computer Applications in Architecture.
- To familiarize Advanced learning of software available for architectural applications and familiarize the students with the concepts of 3D modeling.
- To enable them to experiment with forms, mapping, rendering and presentation techniques.
- To make students create integrated design documents by taking full advantage of the building model. Integration of practical exercises along with the design studio projects.

CO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment

CO 9: AR 2016- Research I (Building Appraisal)

- To understand the Philosophy of Indian Architects and their famous works.

5th Semester

CEO 1: AR 3001- Architectural Structures V

- To understand the analysis of intermediate structures and their use in field in greater depth.

CEO 2: AR 3003- History of Architecture III

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building "types" and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3005- Building Services III

- To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 4: AR 3007- Specifications & Costing,Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3011- Architectural Design

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 6: AR 3013- Building Construction V

- To introduce and familiarize the students with constituents, manufacturing process/ availability, properties/ characteristics, defects, classification, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of the above said building materials in simple building works.

CEO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect's his principles and Philosophy.

Course Outcomes

CO 1: AR 3001- Architectural Structures V

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.

CO 2: AR 3003- History of Architecture III

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Western Civilization with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3005- Building Services III

- Demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy.
- Understand the basic fundamentals of mechanical systems.
- Understanding the concept of Fire and methods used as fire-fighting.
- Understanding of working of Lift and escalator as a mechanical device
- Develop an understanding of local codes in reference to the topics of this course

CO 4: AR 3007- Specifications & Costing,Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3011- Architectural Design V

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.

- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3013- Building Construction V

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software like MS Office, MS Excel, MS Powerpoint
- Development of effective presentation techniques.

CO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect's his principles and Philosophy.

6th Semester

CEO 1: AR 3002- Architectural Structures VI

- To understand the basic of soil Mechanics and Foundation Engineering.
- To Understand the Design of Steel Structures.

CEO 2: AR 3004- Modern and Contemporary History IV

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3006- Building Services IV (Bye Laws,codes and Environmental Services)

- To study the master plan and development controls as applicable to building design.
- To acquaint the students to compulsory building bye-laws and permits.
- To understand design limitations due to authority guidelines.

CEO 4: AR 3007- Specifications & Costing,Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3010- Architectural Design VI

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 5: AR 3012- Building Construction VI

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

CEO 6: AR 3014- Working Drawing

- To understand design limitations due to authority guidelines and making drawing/ details necessary for final execution of a Project.

CEO 7: AR 3016- Arts and Graphics IV(Interior Design)

- To initiate students into theory and practice of Interior Design.
- To familiarize students with modern materials and techniques useful for furniture and interior design.
- To appreciate early interventions in design of furniture

CEO 8: AR 3018- Research III & Dissertation (II)

- Understanding basic principles of any research with special reference to architectural research and applications.
- To understand the basic methodology of writing a technical paper.
- To develop knowledge and skills.

Course Outcomes

CO 1: AR 3002- Architectural Structures VI

- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 3004- Modern and Contemporary History IV

- Know about the period in terms of contexts of technology and other parameters.

- Know the development in the modern period with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3006- Building Services IV (Bye Laws,codes and Environmental Services)

- To familiarize student with development of design according to Control Rules and Building Bye laws of Local Authority.
- To make students aware about the various codes of practices and different acts regarding the construction of building.
- To make students understand how to maintain the overall massing of the city in an urban context.
- To understand the plan approval process from the sanctioning authority.

CO 4: AR 3007- Specifications & Costing,Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3010- Architectural Design VI

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3012- Building Construction VI

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects

CO 7: AR 3014- Working Drawing

- Create and utilize construction documents.
- Decipher and communicate information through drawings and specifications

CO 8: AR 3016- Arts and Graphics IV(Interior Design)

- The course furnishes students with basic design of interiors.
- Perform various drawing standards and conventions used in interior design.
- Read and create construction documentation sets.
- Develop portfolio pieces that represent basic drawing skills and drafting conventions

CO 9: AR 3018- Research III & Dissertation (II)

- To develop knowledge and skills related to various typologies of Architecture.

7th Semester

CEO 1: AR 4001- Building Economics

- Understanding Architectural Projects as an Economic function and understanding their evaluation techniques.
- Basic principles of building economics at macro and micro levels

CEO 2: AR 4003- Discipline Specific Sub Elective I

CEO 3: AR 4005- Building Services V(Acoustics)

- To understand the basic principles of physics of sound.
- To make them enable to apply the knowledge in various buildings.
- To get familiarized with sound system equipments, available in market.
- To familiarize the student with laws as per National Building Code of India/BIS.

CEO 4: AR 4011- Architectural Design VII

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws

CEO 5: AR 4013- Advanced Construction I(Equipments)

- Development of construction technology and innovative techniques as tools to address demand to mass construction.
- Knowledge of modular coordination

CEO 6: AR 4015- Principles of Human Settlement

- Understanding Ancient Science of Town & components of Towns
- Understanding various theories of settlement and City planning.

CEO 7: AR 4017- Project and Construction Management I

- Understanding Construction Management and Construction industry,Project Planning and Scheduling.

CEO 8: AR 4019- Research IV (Professional Summer Training Evaluation)

- To do training at an Architects office in order to get practical exposure.

Course outcomes

CO 1: AR 4001- Building Economics

- Students will understand Basic economics.
- Students will grasp the fundamental economics of the Indian society.
- Students will understand and apply economic principles in building construction projects.

CO 2: AR 4003- Discipline Specific Sub Elective

CO 3: AR 4005- Building Services V(Acoustics)

- Understand standard measurement methods that are used in building acoustics and Analyze acoustic properties of typically used materials for design consideration. .
- Apply prediction methods to assess the transmission of noise in buildings, its mitigation and reverberation of sound.
- Select appropriate building constructions for the solution of practical noise problems and evaluate their performance
- Make basic room acoustic measurements and determine the various indicators used for auditorium acoustics
- Learn various ideologies and context of designs thereby developing their own theories and applying the same knowledge in their own design skills.

CO 4: AR 4011- Architectural Design VII

- Design buildings campuses for a specific purpose for a large group of users in a city.
- Understand other parameters of architectural design like socio economic demand, population density, user satisfaction, inclusive design etc.
- Come up with design process and design solution for large scale urban project

CO 5: AR 4013- Advanced Construction I(Equipments)

- Understanding construction technology and innovative techniques as tools to address demand to mass construction.
- Students will get Knowledge of modular coordination

CO 6: AR 4015- Principles of Human Settlement

- Distinct understanding of regulated urban development in cities.
- The course shall develop understanding about the emergence of human settlements on the basis of complex interaction of determinants, elements and principles over time.
- Understanding of neighbourhood concepts.

CO 7: AR 4017- Project and Construction Management I

- Learnt different management techniques suitable for planning and constructional projects.
- The course of a work from the start to the finish to analyses before the commencement of the project.
- Learnt how to manage different construction activity with their time ancalculation of time management.

CO 8: AR 4019- Research IV(Professional Summer Training Evaluation)

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.
- To acquaint students with their roles and responsibilities of dealing with various related agencies and the freedom/ limitations as a professional as well as their real status in the society.

8th Semester

CEO 1: AR 4002- Building Services IV

- To develop an understanding of the advanced building services and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 2: AR 4004- Professional Practice I

- To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice.
- To familiarize a student with requirements of Architectural Competitions and appointment of a contractor through tenders.
- To familiarize the students with Easement rights.

CEO 3: AR 4006- Discipline Specific Sub Elective IV
CEO 4: AR 4010-Architectural Design VIII

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development.
- Understanding relationship of buildings amongst themselves and with a given environment.

CEO 5: AR 4012- Advanced Construction II

- To understand advance techniques used in Building Construction.

CEO 6: AR 4014- Project and Construction Management II

- Understand the importance of project management for architects.
- Be in a better position while preparing for post-graduation in project management

CEO 7: AR 4016- Town Planning

- To develop an appreciation of the planning issues involved at the scale of a town or a city.
- To expose the students to the history and development of planning, its relevance & application to modern day principles of town planning.

CEO 8: AR 4018- Discipline Specific Sub Elective III

Course Outcomes

CO 1: AR 4002- Building Services IV

- Understanding of approach for effective energy management in building through automated systems and sensors.

CO 2: AR 4004- Professional Practice I

- Understand his role, responsibilities and code of conduct as an architect.
- Develop an understanding of the role of professional and statutory bodies.
- Learns how to setup and run office

CO 3: AR 4006- Discipline Specific Sub Elective IV

CO 4: AR 4010-Architectural Design VIII

- Design a large campus for a specific purpose for a large population of multiple groups of users.
- Produce a design process and a design solution to an urban design problem

CO 5: AR 4012- Advanced Construction II

- Modern construction systems and techniques used in large scale buildings and other architectural projects.
- Understand design and use of tensile structures, form active structures, vector active structures

CO 6: AR 4014- Project and Construction Management II

- Communicate with project management consultant.
- Prepare bar charts, CPM and PERT networks.
- Prepare cash flow statements and basic financial management calculations.
- Understand organization structure and human resource management

CO 7: AR 4016- Town Planning

- Have a basic understanding of urban processes involved in urban planning and development.
- Understand the various development plans and their preparation.
- Use his understanding of various, acts, regulations and schemes in his design exercises

CO 8: AR 4018- Discipline Specific Sub Elective III

9th Semester

CEO 1: AR5011- Professional Internship with Practicing Architect

- Introduced to fundamental processes of designing of real buildings on real sites.
- Develops confidence in interacting with various key players in building design and construction processes.
- Develop an understanding of contemporary issues and techniques of building construction.

CEO 2: AR5013- Seminar II (Tour Report)

Course Outcomes

CO 1: AR5011- Professional Internship with Practicing Architect

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.

CO 2: AR5013- Seminar II (Tour Report)

10th Semester

CEO 1: AR5002- Professional Practice

- To acquaint the students with most of the general aspects of valuation and arbitration.
- To familiarize the students with organization of an architect's office.
- To familiarize the student about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest

CEO 2: AR5004- Development Legislation

- To acquaint the students about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CEO 3: AR5010- Thesis Project

- Objective of the thesis project is to provide an opportunity to the students to do study and handle a project of his / her choice.

- It is a compilation and judgment of the knowledge gained by the student through various stages of study.
- It allows a student to learn intricacies of procuring a project, to be aware of probable clients, independent handling of the project and presentation of the same to a client to procure the project.
- The study must be design oriented with detailed investigation, logical analysis and thoughtful synthesis to enrich the knowledge.
- The work may include original or compilation and analysis of the information already available in the realm of architecture but should conclude with the related architectural design proposal.

CO 1: AR5002- Professional Practice

- To understand about valuation and arbitration.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

CO 2: AR5004- Development Legislation

- Students will have elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CO 3: AR5010- Thesis Project

- To use all the skills acquired in the duration of preceding academic courses.
- Methodically self-direct effort by choosing the project of choice, builds capacity to work independently and methodically in a variety of intellectually and professionally demanding contexts.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

SCHOOL OF ARCHITECTURE

Programme Objectives

Programme: B.Arch (5 Year programme)

The broad objective of the programme is to impart theoretical and practical knowledge to students to prepare them for a professional career in the field of architecture. The course at a broad level aspires to widen the horizon of students with exposure of related scenarios in the field of architecture to determine the directions of their further development. The theoretical knowledge gained by students in class rooms and research mode is integrated in applied mode in Studio exercises. The programme is designed by following guidelines of Council of Architecture for its B. Arch. degree. This forms the criteria for registration of students with COA as architect on completion of B. Arch. course of the school. The courses are divided into four main modes for imparting theoretical, practical and interest based education to students.

Core Courses

Core Courses represent the central learning of architectural education. Architecture is synthetic learning of various fields relating to humanities and scientific fields. Practical knowledge of the subjects is applied to projects which are resolved by students with faculty and these form the core of studios. Architectural Design, Building construction Arts and Drawing and communication along with other studio subjects are principally conducted in this way. Supplementary formal knowledge about technical aspects of building as well as abstract aspects of architectural thought draw upon other related disciplines of humanities are learned in a theoretical mode.

Elective Courses

Electives shall be offered by the institute to supplement additional coursework or to advance knowledge in architecture and allied fields beyond core subjects. The Elective courses also reflect diverse technical and cultural developments of current relevance. These provide valuable specialized expertise or knowledge with the faculty of the institution or in the city. The courses will be seminar or practical/studio courses.

Programme Objectives (PO)

- Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.
- Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to able to analyze the methods of investigation and illustrate the preparation of the brief for a design project.
- Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.
- Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures.

General objectives for Design Studios

- Architectural Design is to be seen as a central discipline of the B. Arch. programme. The focus of this programme is to develop skills of design while engaging with pragmatic and speculative propositions about the making of the built environment. The studio is an arena where knowledge gained in the technologies, humanities and professional streams of the programme is synthesized into built environment solutions through the act of design with the exercise of the creative imagination of the designer.
- The learning of Architectural Design is seen as a cumulative process with a spiral structure of development where it is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design exercises will therefore move progressively from exercises with a relatively limited scope and size of the individual component or small shelter toward the complexity and scale of city so that the student experiences the range of complexities that characterizes the Indian habitat.
- The studio design exercises are intended to develop a student's subjective abilities in the appreciation and creation of architectural form and the crafting of built objects, to consciously deploy processes and methodologies of design in response to varied design tasks and to develop a capability in deploying established and innovative design strategies.
- The iterative process of designing will also be used to develop verbal and graphic communication skills using a range of techniques and tools for representation such as hand drawn drawings, computer graphics and scale models, for presentation of design ideas and solutions.
- Design exercises shall be devised by the course faculty acknowledging and building upon the cultural and intellectual assets of the student, opportunities offered by local environments, theoretical and philosophical issues thought to be relevant, and the knowledge gained by previous and parallel courses.
- The design work will be supplemented by research, discussion and lectures arranged during studio hours to assimilate a rich reference store of the culture of design. There may be several short and discreet exercises within an overall semester programme.
- The design exercises and the studio programme for the semester, stating the learning outcomes and evaluation stages, shall be set well in advance in consultation with the course coordinator. The exercises may be designed in part requiring group work; however the intent shall be of developing and evaluating design capability for each individual student.
- All other courses, while maintaining their individuality, shall contribute to Design.

Programme Outcomes

PO1: Understand the real-life situation in architectural practice and recognize the dialectic relationship between people and the built environment (especially with reference to the Indian sub-continent) with reference to their needs, values, behavioural norms, and social patterns.

PO2: Work collaboratively toward synthetic design resolution which integrates an understanding of the requirements, contextual and environmental connections, technological systems and historical meaning with responsible approach to environmental, historical and cultural conservation.

PO3: Apply visual and verbal communication skills at various stages of the design and delivery process.

PO4: Thrive in a rigorous intellectual climate which promotes inquiry through design research.

PO5: Produce professional quality graphic presentations and technical drawings/documents.

PO6: Critically analyse building designs and conduct post-occupancy evaluations.

PO7: Work in a manner that is consistent with the accepted professional standards and ethical responsibilities.

PO8: Work in collaboration with and as an integral member of multi-disciplinary/interdisciplinary design and execution teams in the building industry.

PO9: Conduct independent and directed research to gather information related to the problems in architecture and allied fields.

PO10: Students able to work effectively in a multi-disciplinary/inter-disciplinary team in the building industry, by providing 360o knowledge of architecture.

Program Specific Outcomes

PSO1: Demonstrate critical thinking through a self-reflective process of conceptualization and design thinking that is open to consideration of alternative perspectives by analyzing, evaluating, and synthesizing ideas and information gathered through applied research grounded in information literacy.
PSO2: Implement complex two and three-dimensional graphic representation techniques using a wide variety of traditional and digital media, to reflect on and explain the architectural design process to a wide range of stakeholders.
PSO3: The knowledge and ability to apply a design decision-making process through appropriate technical documentation in a manner that is client-centered, sustainable, aesthetic, cost effective, and socially responsible.
PSO4: Incorporate a wide range of technical skills and professional architectural knowledge during schematic design to demonstrate a comprehensive application of life safety, accessibility, and sustainability issues in making sound design decisions across varying scales and levels of complexity.

Course Educational Objectives and Course Outcomes

Department of Architecture and Regional Planning

B.Arch(5 year programme)

First Semester

CEO 1: AR 1001 – Architectural Structures I

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

CEO 2: AR 1003- Humanities in Architecture

- To expose the students to the relationship between man and environment.
- To familiarize the students with basic concepts, theories and issues of Sociology and its relevance to architecture

CEO 3: AR 1005- Computer Communication

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 4: AR 1011- Architectural Design I

- Orientation of students to the profession of architecture.
- Introduction to basic design and the basic understanding of form and space in architecture.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 5: AR 1013- Building Construction I

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the usage of these traditional building materials in simple building works.
- To develop skills in understanding the complexities & constrains of brick masonry.
- To familiarize the student with the basic building construction practices on site.

CEO 6: AR 1015- Architectural Drawing I

- To familiarize with drawing tools and accessories.
- To give a basic knowledge of good drafting and lettering techniques.
- To develop comprehension and visualization of geometrical forms.
- To familiarize with the concept of enlarging and reducing scales.

CEO 7: AR 1017- Arts and Graphics I

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories of art
- Development of art and graphic skills.

CEO 8: 1019- Surveying and Levelling

- To develop knowledge and skills related to surveying and levelling principles and practice.

CO 1: AR 1001 – Architectural Structures I

- Theory of structures for architects. Technical names and functions of various structural components from foundation to roof. Fundamentals of mechanics.
- Types of Loads - Dead Load, Live Load, Impact Load, Earthquake Load, Wind Load and Snow Load. Mechanical properties of different materials such as tensile strength, fatigue strength and comprehensive strength.
- Definition, Cause, Effect, Units, Force as vector, Graphical representation. Resolution of forces by graphical and analytical methods. Types of forces – Co planar, Non-Co planar, Concurrent, Non-Concurrent, and parallel forces
- Elasticity, stress, strain, types of stresses, elastic limit, Hook's law, modulus of elasticity, stresses in composite bars, linear strain, Poison's ratio, shear stress, principal stresses and strains

- Definition, centre of gravity of plane figures, centre of parallel forces. Definition, important theorems, section modulus, calculation of moment of inertia by first principle and its application, moment of inertia of composite sections

CO 3: AR 1005- Computer Communication

- To Introduce students and initiate into theory and practice of Computer Applications in Architecture.
- To familiarize students with computers so as to understand complete management outlook of an architects' office besides architectural drawings.
- To teach graphic applications specially 2Dimensional for fast and attractive presentation of theme and ideas.
- To teach utilization of knowledge of 3D modeling and its application in design.

CO 4: AR 1011- Architectural Design I

- Know about the fundamentals of design and development of design vocabulary and to apply the same thought process in development of design.
- Implement the design through conceptualization and organization.
- Enhance the creative skills through creative exercises.
- Understand their surroundings and promoting it as a basic creative instinct

CO 5: AR 1013- Building Construction I

- Understanding of Binding materials, their classification, Manufacturing, properties and uses viz. soil, lime and cement.
- Knowledge of basic construction materials, their characteristics, occurrences or production, classification, properties and uses viz. stone, bricks and other clay products.
- Demonstrate fundamental knowledge of the systems and processes used to construct the building, including an understanding of industry terminology.
- Market surveying and case studies so a student acquainted with the latest construction technology & materials.
- Analyze, troubleshoot, and implement solutions in the field based on knowledge and experience.

CO 6: AR 1015- Architectural Drawing I

- Develop the requisite level of proficiency in drawing with primary communication tool in the practice of architecture just like language.
- Familiarize with a range of techniques of expression beginning with manual drawing.
- Familiarize with drafting tools and accessories along with learning drafting, lettering and rendering techniques.
- Know about the comprehension and visualization of geometrical forms.

CO 7: AR 1017- Arts and Graphics I

- Demonstrate an understanding of basic art form & develop perception, the ability to think graphically and utilize drawing as a language of communication.
- Learn the architectural rendering techniques for building exteriors and interiors by using pen & ink, color, values, tones, etc
- To develop a design idea into a coherent proposal and to communicate ideas and concepts through graphical representation.
- Articulate an understanding of visual impact of colors, lines, shapes and textures used in design & construct conceptual and presentation models as a design presentation tool for aesthetic exploration.

CO 8: 1019- Surveying and Levelling

- Explain importance and need of surveying in architecture, Types and classification of surveys, Plane and geodetic surveying.

- Equipment and methods of plane tabling. The prismatic compass and its use; whole circle bearing; quadrant bearing
- Different types of leveling instruments, temporary and permanent adjustments, Characteristics of contour lines, direct and indirect methods of contouring, interpolation of contours.
- Total Station and its application in surveying, Introduction to aerial survey, digital mapping, satellite Imaging, GPS and uses of GIS in plane surveying.
- On site lay outing of a small residential unit as per map and plan.

2nd Semester

CEO 1: AR 1002– Architectural Structures II

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

CEO 2: BS101- Human Values and Buddhist Ethics

CEO 3: ES101- Environment and Ecology

CEO 4: HU102- Humanities II

- Gain insight into the ways in which the environment influences our feelings and experiences
- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CEO 5: AR 1010- Architectural Design II

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 1012- Building Construction II

- To acquaint the students to usage of building materials such as Timber and Hardware, Damp Proofing Courses and Cement Concrete.
- To familiarize the students with construction techniques for use of the above materials in building works. and joinery in carpentry
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 1014- Architectural Drawing II

- To familiarize the student with theoretical, practical and pictorial aspects of architectural drawing.
- To develop perception and presentation of simple architectural forms and buildings.
- To develop or upgrade an understanding about AutoCAD 2D, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 8: AR 1016- Arts and Graphics II

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition
- Development of art and graphic skills

CEO 9: AR 1018- Model Workshop

- This course is aimed at imparting basic workshop and material handling skills and techniques necessary for preparing architectural models and art project while in calculating value for good craftsmanship.

Course Objectives

CO 1: AR 1002– Architectural Structures II.

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.
- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: BS101- Human Values and Buddhist Ethics

CO 3: ES101- Environment and Ecology

CO 4: HU102- Humanities II

- Gain first-hand knowledge about key environment and behavior issues through hands on activities.

CO 5: AR 1010- Architectural Design II

- To explore the interrelationship between human behavior and space in a small unit environment, including, volume of space, shape, form, function and materials.
- Optimum space planning in the buildings
- Focus on studying patterns with circulation and layout in design of a building.

CO 6: AR 1012- Building Construction II

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects.

CO 7: AR 1014- Architectural Drawing II

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- To develop perception and presentation of simple architectural forms and buildings.

CO 8: AR 1016- Arts and Graphics II

- To Develop understanding for principles and theories and graphic and architectural composition.

CO 9: AR 1018- Model Workshop

- To work with carpentry tools and equipments to be able to cut, plane, join, and finish wooden members. Making simple joints used in buildings and furniture and its significance on site.
- Simple exercises to convert metal into desired shapes and forms.
- To understand the process of making building models with various materials such as cardboard, wood, plastics, plaster of Paris and metals, ability to make simple joints in timber, pipes and other materials, basic electrical circuits.
- To familiarize with making of actual scale model from card board, wood, sun pack and general metal etc.
- Ability to prepare course file for workshop activities

3rd Semester

CEO 1: AR 2001– Architectural Structures III

- To understand an informal choice regarding the most appropriate structural system for the building design due to different types of loading. Provide a basic understanding about the structural modelling and research techniques in the field of Architecture.

CEO 2: AR 2003- History of Architecture I

- To inform about the development of Indian architecture and its contextual and traditional aspects.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society,religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character invarious aspects of Hindu architecture.
- To comprehend and analyze spatial character, scale, and structure through historical and traditional built heritage.
- To comprehend and relate to the theoretical basis of historical and traditional Hindu architecture.

CEO 3: AR 2005- Building Services I

- To understand the basic principles of water supply and sanitation.
- To make them enable to draw the piping system (pipe above ground and underground) for different types of buildings.
- To familiarize the student with plumbing bye laws as per BIS

CEO 4: AR 2007- Climatology

- Acquainting the students with human thermal comfort as an essential function of a building, its analysis & use in Architecture.
- To familiarize students with the elements constituting climate and their role in creating responsive designs.
- Understanding the characteristics of varied tropical climates and expected responses of buildings in specific climate types
- To utilize existing traditional/vernacular/ historical structures in the city as case study to learn the various attributes of climate & the desirable responses.

CEO 5: AR 2011- Architectural Design III

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2013- Building Construction III

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8:AR 2017- Arts and Graphics III

- To develop greater perception of complex Architectural forms and buildings.
- To develop the skill of making perspectives of complex buildings and Rendering them in different media.
- To develop the skills free hand sketching.
- To develop or upgrade an understanding about Autodesk Revit Architecture, as an important tool for drafting, designing, analyzing and representation of the drawings in a desired manner.

CEO 9:AR 2019- DSE I

Course Outcome

CO 1: AR 2001– Architectural Structures III

- Three-moment theorem. Slope deflection method: introduction; analysis; yielding of supports.
- Study of Geo-tech. engineering and Soil Mechanics.
- Overview of construction materials: cement; aggregate; water; reinforcement. Grades of concrete; workability and durability, design and nominal mix. Design philosophies.

CO 2: AR 2003- History of Architecture I

- To understand the importance of historical, geographical, religious, social, building materials and construction techniques, climatic conditions in molding architecture spaces and structures.
- To understand the morphological development of Architecture in India from post Vedic period and confined till Hindu Architecture

CO 3: AR 2005- Building Services I (Water Supply and Sanitation)

- To know about the Sources of water supply, Quality and Quantity, Treatment, Conveyance, Distribution and Storage, size of overhead tank and underground tank based on the occupancy in different type of buildings as per NBC.
- To understand Pipes-types, sizes and materials along with their joining details & Domestic hot and cold water supply systems with market survey.
- To Understand Basic principles of sanitation, collection and conveyance of waste matter from buildings, Quantity and quality of refuse, working and installation of sewers and sewer appurtenances.
- To know Drainage systems, gradients used in laying drains and sewers, selfcleansing and non-scouring velocities for drain pipes, Rain water harvesting types and methods and its calculation.
- To know calculation of shaft size as per NBC norms and preparing design layout and details as per the NBC Standards.

CO 4: AR 2007- Climatology

- Theoretically understand design with climate as the basic parameter of design.
- Prepare design strategies for different climatic regions.
- Analyze, troubleshoot, and implement solutions with climate as the basic parameter of design.
- Utilize modern as well as traditional techniques to derive a climate responsive design,

CO 5: AR 2011- Architectural Design III

- To apply the learning of the previous semesters.
- To teach students to map gathered information of visited physical setting
- To transform the human behavioral needs into architectural program requirements.
- To compose the architectural spaces in a design project
- To develop sensitivity towards informal settings and elements of built space.

CO 6: AR 2013- Building Construction III

- To equip the students with the knowledge of various materials and techniques used for opening in a building and also about the temporary structures that aid the construction process.
- To grasp the relation between construction materials and their applicability to different types of structures (based on function, form and use).
- Develop a fundamental understanding of material in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of construction techniques through drawing and different rendering medium; develop details and specifications for the design projects

CO 7: AR 2013- IT Design Tools I

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.

CO 8:AR 2017- Arts and Graphics III

- Understanding the proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language?
- Understanding the perspective of the buildings.
- Demonstrate an understanding of furniture, people and accessories in one and two point projected perspective drawing.
- Articulate an understanding of volumetric drawings used in interior design.

4th Semester

CEO 1: AR 2002- Architectural Structures IV

- To Understand the analysis of indeterminate structures and their use in field in greater depth.

CEO 2: AR 2004- History of Architecture II

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building 'types' and the development of architectural form and character based on the developments in construction and technology exemplified through specific building examples that identify the works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 2006- Building Services II

- To understand the basic principles of physics of electricity and light.
- To make them enable to draw the electrical layout with appropriate cross section of wires and illuminance
- calculations for residences.
- To know the characteristics and applications of the different types of modern lamps and luminaires.
- To familiarize the student with electrical bye laws as per NEC/BIS.

CEO 4: AR 2008- DSE II

CEO 5: AR 2010- Architectural Design IV

- Introduction to human activity and spaces required for activities.
- Introduction to basic building components and their dimensions.
- To appreciate the elements in architectural design of single unit built-up structures.
- Field trips to relevant sites shall be compulsory for all assignments.

CEO 6: AR 2012- Building Construction IV

- To acquaint the students to building materials such as Timber products, Surface finishing, Adhesives, Painting and
- Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works.
- To familiarize the student with the basic building construction practices on site/yard.

CEO 7: AR 2014- IT Design Tools II

- To develop an understanding of the design based software like Autocad, Coral Draw and Adobe Photoshop.
- Learning the application of the above said software in design exercises so as to make use of maximum commands.

CEO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment.

CEO 9: AR 2016- Research I (Building Appraisal)

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

Course outcomes

CO 1: AR 2002- Architectural Structures IV

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.
- Role and design of beams, columns and joints in RC buildings. Planning for reducing earthquake effects on buildings.
- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 2004- History of Architecture II

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Islamic Era with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 2006- Building Services II

- Learn elementary building services of electrical services.
- Familiarize with a range of electrical accessories and its design consideration
- Learn illumination schemes.
- Familiarize with wiring systems and design consideration of lighting schemes.
- Implicate electrical services in Design.

CO 4: AR 2008- DSE II

CO 5: AR 2010- Architectural Design IV

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.

- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 2012- Building Construction IV

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 2014- IT Design Tools II

- To Introduce students into theory and practice of Computer Applications in Architecture.
- To familiarize Advanced learning of software available for architectural applications and familiarize the students with the concepts of 3D modeling.
- To enable them to experiment with forms, mapping, rendering and presentation techniques.
- To make students create integrated design documents by taking full advantage of the building model. Integration of practical exercises along with the design studio projects.

CO 8: AR 2016- Arts and Graphics IV

- To understand the analysis of indeterminate structures and their use in field in greater depth.
- To make artifacts which influence and create visual effect in built environment

CO 9: AR 2016- Research I (Building Appraisal)

- To understand the Philosophy of Indian Architects and their famous works.

5th Semester

CEO 1: AR 3001- Architectural Structures V

- To understand the analysis of intermediate structures and their use in field in greater depth.

CEO 2: AR 3003- History of Architecture III

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the building “types” and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.
- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3005- Building Services III

- To develop an understanding of the advanced building services such as Air conditioning and lifts and their application in the design proposals of buildings of slight complex nature such as multistoried.

- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 4: AR 3007- Specifications & Costing,Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3011- Architectural Design

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 6: AR 3013- Building Construction V

- To introduce and familiarize the students with constituents, manufacturing process/ availability, properties/ characteristics, defects, classification, treatments, preservation and uses of traditional building materials used in construction.
- To understand the use of the above said building materials in simple building works.

CEO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software associated with text formatting, spread-sheets and presentation.
- Development of effective presentation techniques.

CEO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect's his principles and Philosophy.

Course Outcomes

CO 1: AR 3001- Architectural Structures V

- Pre- Stressed Concrete principles and systems, loss of pre-stress, analysis and design of pre-stress beams.

CO 2: AR 3003- History of Architecture III

- Know about the period in terms of contexts of technology and other parameters.
- Know the development in the Western Civilization with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3005- Building Services III

- Demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy.
- Understand the basic fundamentals of mechanical systems.
- Understanding the concept of Fire and methods used as fire-fighting.
- Understanding of working of Lift and escalator as a mechanical device
- Develop an understanding of local codes in reference to the topics of this course

CO 4: AR 3007- Specifications & Costing,Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3011- Architectural Design V

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3013- Building Construction V

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects.

CO 7: AR 3015- IT Design Tools II

- Introduction to basic knowledge of computers - operating system, software and hardware.
- To familiarize with software like MS Office, MS Excel, MS Powerpoint
- Development of effective presentation techniques.

CO 8: AR 3015- Research II& Dissertation(Architects)

- To develop knowledge and skills related of International Architect’s his principles and Philosophy.

6th Semester

CEO 1: AR 3002- Architectural Structures VI

- To understand the basic of soil Mechanics and Foundation Engineering.
- To Understand the Design of Steel Structures.

CEO 2: AR 3004- Modern and Contemporary History IV

- Understanding of the period in terms of its location, climate as well as the socio-cultural, historical, economic and political influences of the time.
- Study of the different building and the development of architectural form and character based on the developments in construction and technology exemplified through building specific building examples that identify to works of the period.

- Understanding the intentions of the period and architects as a solution to the need or demands of the period.

CEO 3: AR 3006- Building Services IV (Bye Laws,codes and Environmental Services)

- To study the master plan and development controls as applicable to building design.
- To acquaint the students to compulsory building bye-laws and permits.
- To understand design limitations due to authority guidelines.

CEO 4: AR 3007- Specifications & Costing,Contracts

- To initiate the students into theory and practice of estimation and quantity surveying.
- To develop the understanding of specification writing.

CEO 5: AR 3010- Architectural Design VI

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws.

CEO 5: AR 3012- Building Construction VI

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

CEO 6: AR 3014- Working Drawing

- To understand design limitations due to authority guidelines and making drawing/ details necessary for final execution of a Project.

CEO 7: AR 3016- Arts and Graphics IV(Interior Design)

- To initiate students into theory and practice of Interior Design.
- To familiarize students with modern materials and techniques useful for furniture and interior design.
- To appreciate early interventions in design of furniture

CEO 8: AR 3018- Research III & Dissertation (II)

- Understanding basic principles of any research with special reference to architectural research and applications.
- To understand the basic methodology of writing a technical paper.
- To develop knowledge and skills.

Course Outcomes

CO 1: AR 3002- Architectural Structures VI

- Design of riveted and welded connections (simple cases only), tension and compression members, beam and plate girder, introduction to grillage foundation and trusses.

CO 2: AR 3004- Modern and Contemporary History IV

- Know about the period in terms of contexts of technology and other parameters.

- Know the development in the modern period with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations.
- Understand the building type and its architectural style.

CO 3: AR 3006- Building Services IV (Bye Laws,codes and Environmental Services)

- To familiarize student with development of design according to Control Rules and Building Bye laws of Local Authority.
- To make students aware about the various codes of practices and different acts regarding the construction of building.
- To make students understand how to maintain the overall massing of the city in an urban context.
- To understand the plan approval process from the sanctioning authority.

CO 4: AR 3007- Specifications & Costing,Contracts

- Aim and object, Scope and importance of subject, types of estimates etc.
- Principles of analysis of rates, rates of labour and materials, exercises in rate analysis of different building works.
- Correct form of specification writing – avoiding ambiguity and conflicting statements. Form and sequence of clauses, study and use of standard specification.
- Detailed specification writing of various building materials, e.g. bricks, sand, lime, glass, paints, metals, timber and its products.
- Superstructure and sub structure works.

CO 5: AR 3010- Architectural Design VI

- Learn the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach.
- Understanding site planning: organization, scale, hierarchy, orientation and climate.
- Understand complex services in multi-storied buildings; understanding the architectural content of services in buildings.
- Implicate knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.
- Develop appropriate graphic skills and presentation techniques (models, rendering) to explain the contents of a design.

CO 6: AR 3012- Building Construction VI

- To equip the students with the knowledge of various materials and techniques used temporary construction work.
- To grasp the relation between construction materials and their applicability to different types of structures.
- Develop a fundamental understanding of materiality in construction systems and techniques, dimensions and intrinsic qualities that influence the design process.
- Sound Graphical representation of concepts and ideas using drawing techniques and rendering medium and format; develop details and specifications for their design studio projects

CO 7: AR 3014- Working Drawing

- Create and utilize construction documents.
- Decipher and communicate information through drawings and specifications

CO 8: AR 3016- Arts and Graphics IV(Interior Design)

- The course furnishes students with basic design of interiors.
- Perform various drawing standards and conventions used in interior design.

- Read and create construction documentation sets.
- Develop portfolio pieces that represent basic drawing skills and drafting conventions

CO 9: AR 3018- Research III & Dissertation (II)

- To develop knowledge and skills related to various typologies of Architecture.

7th Semester

CEO 1: AR 4001- Building Economics

- Understanding Architectural Projects as an Economic function and understanding their evaluation techniques.
- Basic principles of building economics at macro and micro levels

CEO 2: AR 4003- Discipline Specific Sub Elective I

CEO 3: AR 4005- Building Services V(Acoustics)

- To understand the basic principles of physics of sound.
- To make them enable to apply the knowledge in various buildings.
- To get familiarized with sound system equipments, available in market.
- To familiarize the student with laws as per National Building Code of India/BIS.

CEO 4: AR 4011- Architectural Design VII

- Understanding design as a function of specific agenda such as site conditions, orientation, climate, circulation and essential services with design limited to design of Low-rise buildings.
- Design for the requirements of Individuals, Groups or Community with limited land size and other parameters.
- Designing for simple and multi-use, single and multiple floors with parameters of building byelaws

CEO 5: AR 4013- Advanced Construction I(Equipments)

- Development of construction technology and innovative techniques as tools to address demand to mass construction.
- Knowledge of modular coordination

CEO 6: AR 4015- Principles of Human Settlement

- Understanding various theories of settlement and City planning.

CEO 7: AR 4017- Project and Construction Management I

- Understanding Construction Management and Construction industry,Project Planning and Scheduling.

CEO 8: AR 4019- Research IV(Professional Summer Training Evaluation)

- To do training at an Architects office in order to get practical exposure.

Course outcomes

CO 1: AR 4001- Building Economics

- Students will understand Basic economics.
- Students will grasp the fundamental economics of the Indian society.

- Students will understand and apply economic principles in building construction projects.

CO 2: AR 4003- Discipline Specific Sub Elective

CO 3: AR 4005- Building Services V(Acoustics)

- Understand standard measurement methods that are used in building acoustics and Analyze acoustic properties of typically used materials for design consideration. .
- Apply prediction methods to assess the transmission of noise in buildings, its mitigation and reverberation of sound.
- Select appropriate building constructions for the solution of practical noise problems and evaluate their performance
- Make basic room acoustic measurements and determine the various indicators used for auditorium acoustics
- Learn various ideologies and context of designs thereby developing their own theories and applying the same knowledge in their own design skills.

CO 4: AR 4011- Architectural Design VII

- Design buildings campuses for a specific purpose for a large group of users in a city.
- Understand other parameters of architectural design like socio economic demand, population density, user satisfaction, inclusive design etc.
- Come up with design process and design solution for large scale urban project

CO 5: AR 4013- Advanced Construction I(Equipments)

- Understanding construction technology and innovative techniques as tools to address demand to mass construction.
- Students will get Knowledge of modular coordination

CO 6: AR 4015- Principles of Human Settlement

- Distinct understanding of regulated urban development in cities.
- The course shall develop understanding about the emergence of human settlements on the basis of complex interaction of determinants, elements and principles over time.
- Understanding of neighbourhood concepts.

CO 7: AR 4017- Project and Construction Management I

- Learnt different management techniques suitable for planning and constructional projects.
- The course of a work from the start to the finish to analyses before the commencement of the project.
- Learnt how to manage different construction activity with their time ancalculation of time management.

CO 8: AR 4019- Research IV(Professional Summer Training Evaluation)

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.
- To acquaint students with their roles and responsibilities of dealing with various related agencies and the freedom/ limitations as a professional as well as their real status in the society.

8th Semester

CEO 1: AR 4002- Building Services IV

- To develop an understanding of the advanced building services and their application in the design proposals of buildings of slight complex nature such as multistoried.
- The thrust shall be on understanding the use and application of the services and not the calculation or numerical part.

CEO 2: AR 4004- Professional Practice I

- To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice.
- To familiarize a student with requirements of Architectural Competitions and appointment of a contractor through tenders.
- To familiarize the students with Easement rights.

CEO 3: AR 4006- Discipline Specific Sub Elective IV
CEO 4: AR 4010-Architectural Design VIII

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development.
- Understanding relationship of buildings amongst themselves and with a given environment.

CEO 5: AR 4012- Advanced Construction II

- To understand advance techniques used in Building Construction.

CEO 6: AR 4014- Project and Construction Management II

- Understand the importance of project management for architects.
- Be in a better position while preparing for post-graduation in project management

CEO 7: AR 4016- Town Planning

- To develop an appreciation of the planning issues involved at the scale of a town or a city.
- To expose the students to the history and development of planning, its relevance & application to modern day principles of town planning.

CEO 8: AR 4018- Discipline Specific Sub Elective III

Course Outcomes

CO 1: AR 4002- Building Services IV

- Understanding of approach for effective energy management in building through automated systems and sensors.

CO 2: AR 4004- Professional Practice I

- Understand his role, responsibilities and code of conduct as an architect.
- Develop an understanding of the role of professional and statutory bodies.
- Learns how to setup and run office

CO 3: AR 4006- Discipline Specific Sub Elective IV
CO 4: AR 4010-Architectural Design VIII

- Design a large campus for a specific purpose for a large population of multiple groups of users.
- Produce a design process and a design solution to an urban design problem

CO 5: AR 4012- Advanced Construction II

- Modern construction systems and techniques used in large scale buildings and other architectural projects.
- Understand design and use of tensile structures, form active structures, vector active structures

CO 6: AR 4014- Project and Construction Management II

- Communicate with project management consultant.
- Prepare bar charts, CPM and PERT networks.
- Prepare cash flow statements and basic financial management calculations.
- Understand organization structure and human resource management

CO 7: AR 4016- Town Planning

- Have a basic understanding of urban processes involved in urban planning and development.
- Understand the various development plans and their preparation.
- Use his understanding of various, acts, regulations and schemes in his design exercises

CO 8: AR 4018- Discipline Specific Sub Elective III

9th Semester

CEO 1: AR5011- Professional Internship with Practicing Architect

- Introduced to fundamental processes of designing of real buildings on real sites.
- Develops confidence in interacting with various key players in building design and construction processes.
- Develop an understanding of contemporary issues and techniques of building construction.

CEO 2: AR5013- Seminar II (Tour Report)

Course Outcomes

CO 1: AR5011- Professional Internship with Practicing Architect

- The student gets a real-time exposure of how architectural projects are carried out.
- Office management and team-work to enhance the employability of the student.

CO 2: AR5013- Seminar II (Tour Report)

10th Semester

CEO 1: AR5002- Professional Practice

- To acquaint the students with most of the general aspects of valuation and arbitration.
- To familiarize the students with organization of an architect's office.
- To familiarize the student about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest

CEO 2: AR5004- Development Legislation

- To acquaint the students about an elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CEO 3: AR5010- Thesis Project

- Objective of the thesis project is to provide an opportunity to the students to do study and handle a project of his / her choice.

- It is a compilation and judgment of the knowledge gained by the student through various stages of study.
- It allows a student to learn intricacies of procuring a project, to be aware of probable clients, independent handling of the project and presentation of the same to a client to procure the project.
- The study must be design oriented with detailed investigation, logical analysis and thoughtful synthesis to enrich the knowledge.
- The work may include original or compilation and analysis of the information already available in the realm of architecture but should conclude with the related architectural design proposal.

CO 1: AR5002- Professional Practice

- To understand about valuation and arbitration.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

CO 2: AR5004- Development Legislation

- Students will have elementary knowledge of various instruments of law and legislation to safeguard the professional interest.

CO 3: AR5010- Thesis Project

- To use all the skills acquired in the duration of preceding academic courses.
- Methodically self-direct effort by choosing the project of choice, builds capacity to work independently and methodically in a variety of intellectually and professionally demanding contexts.
- Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.

Introduction

M. Arch is a two-year professional postgraduate programme meant for providing a disciplined approach to the fundamentals of architecture for students to develop their individual talents and skills.

The Master's degree programme focuses on design as exposition exploration as a manifesto or a product. The programme aims to explore design as a critique beyond the limitations of production as in the contemporary fusion of low-end design and kitsch. The goal is to achieve the ability to rethink the scope of architecture.

The emphasis is on new digital tools in design exploration as well as new paradigms and on the conviction that design can initiate radical social change or reflect its design can either follow or lead. Students also critically engage with historical critiques and arguments especially that of modernism architectural manifestos social and technological utopias as well as contemporary practices and paradigms. Graduates become accountable actors in shaping the built environment and/or critically engage it.

Course Outcomes

The aim is to develop skills, knowledge and understanding related to environmental sustainability, construction and building technology, adopting the principles and practices of sustainable building design, while responding to environmental challenges such as Climate change, environmental degradation etc.

The course offers a contextualized and deep understanding of sustainability in architecture. Study moves from the broad aspects of Man and Environment, energy and climate zones, through alternative materials and technologies for sustainability, urban sustainability issues, to the specifics of energy and environmental assessment. Waste management, Intelligent buildings, Eco cities, Passive & active solar strategies for energy conservation will be explored along the way. Throughout the course students are encouraged to challenge existing orthodoxies and to explore potential, cultural and technical responses to a changing world, whilst respecting the limits posed by our ecosystem.

Core Courses

Core Courses of master's represent the central learning of research in architectural education. Architecture is synthetic learning of various fields relating to humanities and environmental fields. Practical knowledge of the subjects is applied to researches which are resolved by students during the projects with expertise faculties and this form the core of studios. Supplementary formal knowledge about technical aspects of the project as well as abstract aspects of architectural thought various researches upon other related disciplines of humanities.

Elective Courses

Electives shall be offered by the institute to supplement additional coursework or to advance knowledge in architecture and allied fields beyond core subjects. The Elective courses also reflect diverse technical and cultural developments of current relevance. These provide

valuable specialized expertise or knowledge with the faculty of the institution or in the city. The courses will be seminar or practical/studio courses.

Programme Objectives (PO)

- Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.
- Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to able to analyse the methods of investigation and illustrate the preparation of the brief for a design project.
- Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.
- Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures.

General objectives for Design Studios

1. Demonstrate an understanding of environmental, economic, societal, and cultural aspects of sustainable development of the human settlement.

2. Appreciate the contribution of the rich heritage of India and other ancient civilizations and apply the knowledge of passive design strategies, building materials and construction technologies to create sustainable architecture

3. Effectively blend the Vernacular and traditional wisdom with modern technologies to plan and design a wide range of building typologies, large campuses, and townships in different climatic zones of India with reverence to natural resources, building materials, and the environment.

4. Use simulation tools for improving overall building performance during the architectural design process.

5. Appraise architectural designs and assist in the preparation of documents for green certifications and environmental clearances

6. Exhibit intellectual autonomy with humility and openness to information and ideas from different disciplines.

7. Assimilate complex ideas and communicate them effectively in professional and academic forums.

8. Work independently and collaboratively in multidisciplinary teams to manage resources, design processes, and implementation of sustainable architectural projects.

Programme Outcomes

- **PO – 1**: **Architectural knowledge**: Apply the knowledge of design, science, engineering fundamentals, and architectural specialisations to the solution of complex architectural problems.

- **PO – 2: Problem analysis**: Identify, formulate, review research literature, and analyze complex architectural problems reaching substantiated conclusions using principles of design and architecture
- **PO – 3**: **Design/development of solutions**: Design solutions for complex architectural problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO – 4**: **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO – 5**: **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern architecture and IT tools including prediction and modelling to complex architectural activities with an understanding of the limitations.
- **PO – 6**: **The architect and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional architectural practice.
- **PO – 7**: **Environment and sustainability**: Understand the impact of the professional architectural solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO – 8: Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the architectural practice.
- **PO – 9**: **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
- **PO – 10**: **Communication**: Communicate effectively on complex architectural activities with the architecture community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO – 11**: **Project management and finance**: Demonstrate knowledge and understanding of the architecture and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO- 12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

- **PSO1** Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.

- **PSO2** Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to able to analyse the methods of investigation and illustrate the preparation of the brief for a design project.
- **PSO3** Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.
- **PSO4** Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures

COURSE EDUCATION OBJECTIVE AND COURSE OUTCOMES

DEPARTMENT OF ARCHITECTURE AND PLANNING

M. ARCH (2 YEAR programme)

First semester

CEO1: SA101 -: Fundamentals of Sustainable Architecture
This course objective is to provide a holistic overview of various aspects related to making the built environment sustainable. Sustainability implementation on the building and its surrounding in compliance of any green code.

CEO2: SA103 -: Climate Responsive Architecture in Tropics
The course objective is to study scientific aspects of daylight and environmental lighting.

CEO3: SA107 - Green Building Rating

The course objective is to study passive design of built form in tropical and sub-tropical climatic contexts for thermal comfort.

CEO4: SA111- Design Studio-I
To understand and analyze, climate and its elements at both micro and macro level and design projects of varied scales with passive strategies.

Design studio exercise based on vernacular architecture, and passive techniques exploring local materials and construction
Design Studio that explores strategies for sustainable practices, design, theoretical and/or technological issues that focus for proper scientific architectural thought and practice to lead to energy efficient and environmentally friendly solutions. Our built environment has a substantial impact on energy and material resources as well as being a critical determinant of health, comfort, and productivity for occupants. In response, there are numerous local, national, and international entities adopting green, sustainable criteria for new construction and renovations. This studio design approaches sustainable development for buildings by examining physiology required for human function (comfort, ergonomics, and respiratory

requirements, as well as sensory perception) and then by considering how building components and systems affect human performance and wellbeing. Sustainable development starts with site planning and evaluation, and proceeds through construction, commissioning, and occupancy phases. The strategies explored during the course shall culminate into design application.

The studio will focus on institutional built form such as University, college, school and specialized institutional campuses. There will be a project design related to the resources and limitations posed by local site conditions, indoor and outdoor climate; to analyze local site and climate and their consequences for built form, along with an in-depth study of building physics and human comfort requirements. Different building shapes, functional programs, site types are addressed, with focus on indoor as well as outdoor areas. Importance of daylight, solar access, shading, ventilation, heating and cooling strategies, wind and precipitation in the given climatic zone

CEO5: SA113- Landscape & Urbanism

This subject explores the relationships between landscape, ecology, and urbanism, and the theories, tactics, and workings of the field of Landscape Urbanism. Rather than solely qualifying it as a practice-based discipline, it conceives of Landscape Urbanism as an intellectual re-alignment of landscape's role in urbanization processes

CEO6: SA121-Educational Tour I

Second semester

CEO1: SA102: Environmental Science and Planning
To impart knowledge on sustainable policies and regulations.

CEO2: SA104- Design Simulation I

- Describe various energy Efficiency compliance approaches for the building as per relevant Code/ standards
- Identify various input parameters for software used for building energy performance calculations.
- Select and use appropriate software for whole building performance simulation and daylight simulation for showing compliance of parameters given by ECBC /other relevant codes in the Indian context.
- Identify and recommend various Energy Efficiency Measures (EEMs) for achieving the energy efficient design of buildings.

CEO3: SA106- Environmental Services -II: HVAC and Indoor Air Quality

The course objective is to familiarize students with the concepts and techniques of HVAC and Indoor air quality.

CEO4: SA108- Environmental Codes and Building Regulations
The course objective is to explore government programmed, legislation, industry regulations and codes as on date.

CEO5: SA110- Design Studio –II

The design studio is focused on the study and analysis of energy efficient principles, environmental regulations and use of innovative materials with performance appraisal.

The studio will be based on energy intensive non-residential buildings Industrial buildings, Commercial buildings, Transport terminals.
There will be a project design with focus on integrated energy design and interdisciplinary cooperation between building professionals. Emphasis shall be building systems and services and their integration in architecture to provide good interior climate in a resource efficient manner. Interdisciplinary procedure necessary to ensure a successful functioning of these systems in architecture.
Assessment will be based on breadth and depth of sustainability targets set in terms of LEED/GRIHA/BEE ratings and the degree to which these are met. Learning outcomes include the questioning of the traditional design process, the management of conflicts and trade-offs, and the potential synergy between passive design principles, electro-mechanical systems and Green technologies.
Note: Detailed teaching programmed to be made and circulated to the students at the commencement of the semester.
This exercise needs to be supported by frequent site visits & detailed case studies.
There should be regular presentations of various internal stages.

CEO6: SA112: Sustainable Building Material and Techniques
Broad Objectives and Outline Sustainable building materials and technologies are being introduced in the building industry every day. It is important to understand the materials used in architecture, their physical and chemical properties, characteristics, durability, usability and performance specifications of the building systems through live case studies, workshops, lab experiments, guest lectures, hands-on exercises.

CEO7: SA120: Educational Tour II
This subject intends to give more exposure to the students in order to make them understand practically.

Semester III

CEO1: SA201: Alternate Energy Fundamentals
This course objective is to talk in detail about all the alternative environment friendly fundamentals.

CEO2: SA203:Sustainable Urbanism (Elective I, DSE I)
The course objective is to build awareness about issues, challenges and opportunities of sustainability in urban context both traditional and contemporary

CEO3: SA205- Sustainable Neighborhood Planning and Urban Design (Elective II, DSE II)

The subject intends to explain sensitive design in different climatic Zones of India along with the

Traditional design strategies of human habitats in India and other parts of the world

With a special focus on resource management and built forms in response to harsh Climatic conditions.

CEO4: SA211- Sustainable Design Studio III (Urban Design)

There will be one minor studio exercises that shall essentially include field studies to consolidate the learning of the theory subject –Sustainable Neighborhood Planning and Urban Design taught during the semester. Exercises may be done individually or in small groups of 3-4 students as may be decided by the faculty coordinating design studio.

One major design exercise will involve a Sustainable Urban Design Project of large scale that reflects a clear understanding of campus planning, sustainable settlement planning, landscape design and the statutory framework related to waste management, environmental protection, and sustainability.

CEO5: SA213- Dissertation/Summer Internship

Students will do summer internship of 4 week in summer break of III semester

CEO6: SA213- Dissertation (Thesis Proposal)

Dissertation is best expressed as 'Design in text'. It offers an opportunity to look at the research component in architecture in various thrust areas such as history, theory, design and other value based aspects through texts. Students are encouraged to choose any topic of their interest. This may range from analyzing and a critique of the works of an architect, ideologies and philosophies of architects that get transformed spatially, history, typological architecture, sustainability issues and so on. The dissertation must comprise of an aim, the objectives, the scope and limitations of their dissertation, hypothesis (if any), methodology followed by extensive review of literature through references and documentation. The analysis of the work must be substantiated either empirically or through extensive arguments.

A dissertation could also be a Thesis preparation course and gives the student scope for independent study and opportunity to explore specific area of interest which will form the basis of his/ her design thesis project in the next semester. The topic will have to be approved at the start of the semester and reviewed periodically to a jury at the end of the semester

CEO7: SA221 Educational Tour III

This subject intends to give more exposure to the students in order to make them understand practically.

Semester IV

CEO1: SA202 -Professional Practice

To expose the students to the present trends of architectural practice, valuation and arbitration.

CEO2: SA204 – Project Finance & Management

To provide exposure to the trends in construction project management.

CEO3: SA210 – Thesis

The students will synthesize the areas of knowledge, skills and techniques acquired in the various courses of the previous semesters through a thesis project of their choice. This thesis project would be a design project/research project. The project would desirably extend the critical position developed within the theory and studio projects as well as dissertation. The scale of the project could extend from individual site to settlement levels. The initial process shall be rigorous, incorporating background research on the topic, case studies, documentation of project issues, context, site and building information, programming. The process would culminate in design interventions at scales appropriate to the topic. The project shall desirably have the potential to serve as a starting point for practice and/ or further research.

Students will submit a detailed proposal on their topic of interest(s). The Proposal shall be approved by the thesis review committee. The thesis project will be reviewed periodically by the review committee. At the end of the semester, the final thesis will be submitted and presented through a viva voce examination before a jury.

DEPARTMENT OF ARCHITECTURE & PLANNING
SCHOOL OF ENGINEERING

Programme Objectives

Programme: MURP (2 Year programme)

Programme Objectives (PO)

- The key objective of the course is to equip the students with adequate skills required to comprehend urban and regional issues and to analyse physical, socio-economic, cultural, political and ecological dimensions of the human settlements. The course is designed to provide necessary exposure to various planning processes, emerging trends and oilier related advanced technical knowhow. It intends to contribute towards the creation of professionals in the field and hence to cater to the specific needs of the industry and academics. During the course, the students will be provided with ample opportunities to interact with the subject experts, relevant organisations, etc. The course enables the students to gain real time experience through their involvement in the ongoing or live projects.

- MURP is a two-year course consisting of four semesters. The course structure and syllabus is designed in coherence with the Model Curriculum for' M.Plan , All India Council for Technical Education, 2011. The course structure is a combination of various subjects, which includes studios, labs, theory, and field visits. The broad course structure is as follows:

- The first semester is an integrated semester common to all master courses of planning offered by the school. The studio focuses on area planning. Subjects offered are introduction to information systems, evolution of human settlements and planning, planning techniques and quantitative methods, habitat and environmental planning, infrastructure planning, arid socio economic dimensions in planning.

- The second semester focuses on urban planning and consists of the related subjects, such as applications oY geo-informatics, city and metropolitan planning, land economics and management, advanced infrastructure planning, and urban and regional governance.

- The third semester focuses on regional planning. Subjects offered in this semester are advanced research methods, planning legislation and professional practice, rural planning and development, project planning and management, and disaster preparedness and management.

- In the fourth semester, students would be required to undertake thesis. In addition,Other theory subjects are offered. These include development finance, and Planning and politics.

Core Courses

- Core Courses represent the central learning of architectural education. Architecture is synthetic learning of various fields relating to humanities and scientific fields. Practical knowledge of the subjects is applied to projects which are resolved by students with faculty and these form the core of studios. Architectural Design, Building construction Arts and Drawing and communication along with other studio subjects are principally conducted in this way. Supplementary formal knowledge about technical aspects of building as well as abstract aspects of architectural thought draw upon other related disciplines of humanities are learned in a theoretical mode.

Elective Courses

- Electives shall be offered by the institute to supplement additional coursework or to advance knowledge in architecture and allied fields beyond core subjects. The Elective courses also reflect diverse technical and cultural developments of current relevance. These provide valuable specialized expertise or knowledge with the faculty of the institution or in the city. The courses will be seminar or practical/studio courses.
- The syllabus is designed so as to develop strong communication, interpersonal, advocacy and analytical skills of the student. The subject faculty members are encouraged to assess the students in a progressive manner throughout the semester through seminars, debates, video documentation group/individual presentations, term papers, written exams (open or closed book), take home exams, report submissions, viva voce, etc.

- Course Educational Objectives and Course Outcomes

Department of Architecture and Planning
MURP (2 year programme)

First Semester

CEO 1: UP 101– Evolution of Settlement and Planning Processes

- To equip the students with the required knowledge of conventional and contemporaly planning thought, pluralistic nature of values in the profession, planning approaches and models.
- Focus would be on integrating procedural and substantive elements of planning theory, to current and future planning practices.

CEO 2: UP 103-Numerical and Statistical Analysis

- To acquire proficiency in statistical techniques and able to conduct empirical studies employing statistical software

CEO 3: UP 105- Planning Theories

- To critically understand economic, political, cultural, social and other forces shaping built environments in history.
- To examine the significance of histories as they inform the present planning of settlements.

CEO 4: CE 503- Remote Sensing,GIS and SDI

- The first objective of this course is to introduce and promote the idea of urban information systems.
- To unravel the relevance of urban information systems to city planning.
- To teach students about spatialization of data and information through GIS and remote sensing.

CEO 5: UP 107- Planning Techniques

- This course intends to impart knowledge about preparation of maps and undertake data collection and analysis for plan preparation.

CEO 6: UP 109- Demography and Economics

- To learn the nature of sociological and economic forces, and how they shape human settlements.

CEO 7: CE 509- Remote Sensing and GIS Lab

- The first objective of this course is to introduce and promote the idea of urban information systems.
- To unravel the relevance of urban information systems to city planning.
- To teach students about spatialization of data and information through GIS and remote sensing.

CEO 8: UP 111- Planning Studio

- Area planning studio intends to develop an ability in students to apply the concepts learnt in theory subjects to day to day planning practice.
- Through field visit, the students would understand comprehensive, interrelatedness and long-term nature of planning in a settlement.

Course Outcomes

CO 1: UP 101– Evolution of Settlement and Planning Processes

- To equip the students with the required knowledge of conventional and contemporaly planning thought, pluralistic nature of values in the profession, planning approaches and models.
- Focus would be on integrating procedural and substantive elements of planning theory, to current and future planning practices.

CO 2: UP 103-Numerical and Statistical Analysis

- To analyse the types of data required for planning and methods of data collection.
- To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement.

CO 3: UP 105- Planning Theories

- To demonstrate appreciation and knowledge of histories of planning.
- To explain and analyse abstract theoretical formulations.

CO 4: CE 503- Remote Sensing,GIS and SDI

- To show understanding of urban information systems in planning and relevant government initiatives.
- To produce maps and generate analysis of planning issues with the use of GIS and remote sensing.

CO 5: UP 107- Planning Technique

- To create base maps and present planning information on maps.
- To analyse the types of data required for planning and methods of data collection.
- To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement.

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CO 6: UP 109- Demography and Economics

- To express basic understanding of sociological processes generally as they relate to urban and regional planning.
- To develop basic understanding of some of the key economic concepts and their application in planning.
- To analyse the working real estate markets and evaluate the nature of these markets.

CO 7: CE 509- Remote Sensing and GIS Lab

- To show understanding of urban information systems in planning and relevant government initiatives.
- To produce maps and generate analysis of planning issues with the use of GIS and remote sensing.

CO 8: UP 111- Planning Studio

- To develop data collection and analytical skills through field surveys and analysis for the purposes of plan preparation.
- To apply theoretical concepts to the real world situations.
- To develop sensitivity to group dynamics and working in teams.

2nd Semester

CEO 1: UP 102– Settlement Planning

- To understand types of settlement, hierarchy and growth of settlements.
- To impart knowledge of Guidelines and concept of Urban development.

CEO 2: UP 104-Infrastrcuture Planning and Management

- To provide basic knowledge about physical and social infrastructure and requirements of various infrastructure for a settlement.
- To study planning and policy issues for urban and regional infrastructure.
- To familiarize the students with concepts, processes and current issues related to management. The emphasis would be placed on issues and challenges related to spatial planning sectors.

CEO 3: UP 106- Transportation Planning

- To familiarize students with different transport systems, and also principles, practices and policies of transportation planning.
- To learn the basic concepts of planning and designing transport facilities and traffic management tools for human settlements

CEO 4: UP 108- Environment Planning

- The course would focus on the significance of physical environment and its various parameters as they relate of plan preparation and implementation processes.

CEO 5: UP 110- Housing and Community Planning

- This course provides an understanding about the nature of housing problems, and various programmes and policies initiated to deal with these problems in Indian cities and villages.

CEO 6: UP 112- Planning Studio II

- To understand contents, substance and characteristics of various types of development plans for predominantly urban settlements.
- To comprehend processes of plan preparation and analyses techniques for the identification of issues and potentials for an urban settlement.
- To evolve development policies, development control rules and regulations, land use plan and devise implementation mechanisms for a selected urban area.

CEO7: UP 114- Seminar (Case Study) Course Outcomes

CO 1: UP 102– Settlement Planning

- To understand types of settlement, hierarchy and growth of settlements.
- To impart knowledge of Guidelines and concept of Urban development. To understand types of settlement, hierarchy and growth of settlements.

To impart knowledge of Guidelines and concept of Urban development.

CO 2: UP 104-Infrastructure Planning and Management

- To identify the problems and issues related to infrastructure provision in a settlement.
- To appraise planning guidelines to tackle these problems, and extent of infrastructure required for the future planning of settlements.
- To design and make recommendations for meeting the future needs infrastructure for a human settlement.
- To express knowledge about the basics concepts of general management.

CO 3: UP 106- Transportation Planning

- To plan for the conduct of field survey, examine and analyse data and information collected through various field surveys, perform analysis.
- To make presentations of traffic and transportation data in relation to human settlements and to identify the issues related to traffic and transportation planning.

CO 4: UP 108- Environment Planning

- To analyse the eco-system and resources and their importance for planning.
- To appraise the environment parameters for consideration while planning.

CO 5: UP 110- Housing and Community Planning

- To investigate and analyse the nature of housing problem in India.
- To examine the housing policy and programmes in India.

CO 6: UP 112- Planning Studio II

- To analyse the existing policy and planning literature on urban development plans,and to examine field survey data and information.
- To plan and design different future scenarios, priorities of development, action areas, phasing and monitoring, and to propose governance structures

for the implementation of the plan.

- To produce spatial policies, and to make planning proposals along with a land use plan for a selected urban settlement.

CO 7: UP 114- Seminar (Case Study)

To develop empirical case studies of innovative approaches and success examples of policy intervention at urban & rural level

To understand upcoming inter disciplinary areas and scope of research in planning issues.

3rd Semester

CEO 1: UP 201– Decentralization and District Planning

- To understand concept of rural development & balance development through grass root interventions & schemes of Government.
- To understand Rural Urban Transformation & bridge gap of rural urban divide.
- To understand concept of rural development & balance development through grass root interventions & schemes of Government.
- To understand Rural Urban Transformation & bridge gap of rural urban divide.

CEO 2: UP 203-Land Markets and Management

- To understand the structure of urbanization and their overall impact.
- To understand the various reasons for land values and the types of land tenure.
- To understand the peculiarities of Indian land and its market.
- To understand the various land policies brought out by the government of India.
- To understand the various types of land management techniques and acts in India.

CEO 3: UP 205- Project Planning and Management

- To make them understand the concepts of Project Management for planning to execution of projects.
- To make them understand the feasibility analysis in Project Management and network analysis tools for cost and time estimation.
- To enable them to comprehend the fundamentals of Contract Administration, Costing and Budgeting.
- Make them capable to analyze, apply and appreciate contemporary project management tools and methodologies in Indian context.

CEO 4: UP 207- DSE I

CEO 5: UP 207- DSE II

CEO 6: UP 211- Planning Studio

- To train the students in Geo-Informatics software towards the preparation of Regional Plans.
- To assess the status of the Case Study City, to prepare Management Plans, to identify and formulate Projects, to prepare DPR covering Physical, Environmental aspects, sequence of tasks, Cost Estimates, Project Benefits, and Institutional Framework for Project Implementation.

CEO 6: UP 213- Research Methods

- To develop a research culture among the students and study, use and understand appropriate methods in formulating problems and conduct surveys, analyze data and prepare a research report.

COURSE OUTCOMES

CO 1: UP 201– Decentralization and District Planning

- To understand concept of rural development & balance development through grass root interventions & schemes of Government.
- To understand Rural Urban Transformation & bridge gap of rural urban divide.

CO 2: UP 203-Land Markets and Management

- To understand the structure of urbanization and their overall impact.
- To understand the various reasons for land values and the types of land tenure.
- To understand the peculiarities of Indian land and its market.
- To understand the various land policies brought out by the government of India.
- To understand the various types of land management techniques and acts in India.

CO 3: UP 205- Project Planning and Management

- Understand project characteristics and various stages of a project.
- Understand the conceptual clarity about project organization and feasibility analyses – Market, Technical, Financial and Economic.
- Analyze the learning and understand techniques for Project planning, scheduling and Execution Control.
- Apply the risk management plan and analyse the role of stakeholders.
- Understand the contract management, Project Procurement, Service level Agreements and productivity.
- Understand the How Subcontract Administration and Control are practiced in the Industry.

CO 4: UP 207- DSE I Disaster Resilience

- Understanding causes & consequence of environmental degradation
- Understanding the concept of building resilience at Urban Level
- Understanding rles & responsibilities of Community & Institutions

CO 5: UP 207- DSE II

CO 6: UP 211- Planning Studio

- To train the students in Geo-Informatics software towards the preparation of Regional Plans.
- To assess the status of the Case Study City, to prepare Management Plans, to identify and formulate Projects, to prepare DPR covering Physical, Environmental aspects, sequence of tasks, Cost Estimates, Project Benefits, and Institutional Framework for Project Implementation.

CO 7: UP 213- Research Methods

- Learn various methods and techniques on how to study and understand the problems of the urban and rural society in relation with environment.
- Development skills to manage field work, data analysis and report working.
- 4th Semester

CEO 1: UP 202– Planning Thesis

- To train the students in doing a research topic pertaining to his interest in the field of planning and in the preparation of systematic report, which may be useful when he undertakes the same area of research for his Thesis.
- To develop a basic understanding of the area chosen for study (by carrying out a detailed Literature review).
- To undertake detailed exploration of the topic (by way of surveys and studies).
- To identify issues and concerns those emerge out of the study and suggest recommendations.

CEO 2: UP 204-Planning Legislations

- To understand the fundamentals of law and its relevance with planning.
- To understand the various planning acts and policies legislated by the government from time to time andtheir need.
- To understand the various planning legislations and their relevance in current urban development.
- To understand the various legal tools available for the structured development of a space.
- To understand the various professional obligations as a urban planner for a successful practice.

Course Outcomes

CEO 1: UP 202– Planning Thesis

- To train the students in doing a research topic pertaining to his interest in the field of planning and in the preparation of systematic report, which may be useful when he undertakes the same area of research for his Thesis.
- To develop a basic understanding of the area chosen for study (by carrying out a detailed Literature review).
- To undertake detailed exploration of the topic (by way of surveys and studies).
- To identify issues and concerns those emerge out of the study and suggest recommendations.

CEO 2: UP 204-Planning Legislation

- To understand the fundamentals of law and its relevance with planning.
- To understand the various planning acts and policies legislated by the government from time to time and their need.
- To understand the various planning legislation and their relevance in current urban development.
- To understand the various legal tools available for the structured development of a space.
- To understand the various professional obligations as a urban planner for a successful practice.