

## 23-24\_2.6.1\_Course Outcomes and Program Outcomes

Vivekanand Institute of Technology's

**Padmabhushan Dr. Vasantdada Patil College of Architecture,**

Address: 274/2, 275/2, 282, Aditya Nisarg, at post Pirangut, Tal. Mulshi, Dist. Pune-412115, Maharashtra.

### BACHELOR IN ARCHITECTURE (Academic Year 2023-24)

#### Program Outcomes

As defined by University :

- 1 **Knowledge** - Understanding about the role of various knowledge domains such as humanities, technology, and environment in design of built environment.
- 2 **Principles & Theory** - Knowledge of principles of architecture & theoretical knowledge and its application in design.
- 3 **Creativity** - Creative and design thinking ability.
- 4 **Practice** - Ability to understand the real life situation of Architectural Practice and to work with ethical and professional responsibilities.
- 5 **Collaborative Working** - Ability to communicate effectively and work in interdisciplinary groups.
- 6 **Inclusivity** -Sensitivity in design for inclusivity, equity, environment, diverse cultures, and heritage.
- 7 **Technological Knowhow** - Ability to review, comprehend and report technological developments in the profession of architecture and construction.
- 8 **Ability to choose Area of Specialisation or Practise** - Able to judge one's area of interest and accordingly choose the field of practice.

#### Course Outcomes

Sr. No	Subjects	Credits	CO Nos.	Course Outcomes
<b>First Year B. Arch. (2019 pattern)</b>				
1	Basic Design	10	CO 1	Understanding basic elements and principles of design in nature
			CO 2	To understand the strength of colour as a medium of expression and its relationship with human feelings
			CO 3	To analyse and decode the object wrt to the lifecycle of the object
			CO 4	To sensitize students to the multi-sensory aspect of space making through memory recall theory
			CO 5	To think outside the box and come up with creative solutions through lateral thinking
			CO 6	To understand space making through basic elements of design and principles of composition
2	Building Construction and Materials I	7	CO 1	Understanding Foundations for Load bearing Construction with plinth Formation
			CO 2	To understand elements of building construction with respect to sub-structure and super-structure
			CO 3	To develop understanding of techniques and methodology with specific reference to load bearing construction
			CO 4	To gain in depth knowledge and understanding of different building materials used for construction
			CO 5	Understanding Mud and Stone as a construction material with the help of Site Visit and hands-on experience on site
			CO 6	Understand and study Bamboo as a material of construction with its application.
3	Theory of Structures I	2	CO 1	To develop understanding of building/structure as a system of forces and transfer of forces/load from roof to foundation and soil.
			CO 2	To develop understanding of various loads acting on a structure
			CO 3	To develop understanding of behaviour of elements like walls, beams and columns subjected to tension, compression, shear and bending.
			CO 4	To develop understanding of Load transfer in Framed Structures.
4	Architectural Graphics and Drawing I	3	CO 1	To develop control over their hand and understand characteristics of each grade of graphite pencils while drawing lines.
			CO 2	To enable students visualize 3-dimensional objects and represent them in two dimensional drawing using Orthographic Projection technique
			CO 3	Understanding basic principles of free hand sketching and developing hand and eye coordination through live sketching exercises
			CO 4	Students should be able to communicate various ideas through Architectural Graphic representations including building plans and sections (drafting and sketching).
5	History of Architecture and Culture I	2	CO 1	An understanding of architecture, including settlements, landscapes and buildings as a cultural product shaped by various factors from ancient civilizations to Hindu architecture
			CO 2	An understanding of the formal, structural, and stylistic aspects of architectural development in the chosen period
			CO 3	Analysis of place, form, materials from socio-cultural and architectural perspective
			CO 4	Introduce students in the process of doing systematic research in documentation exercise of structures and to debate on the formation of those structures
6	Communication Skills	2	CO 1	The student should be able to communicate fluently in the English language and also use tools of communication such as written and graphical for effective communication.
			CO 2	Understanding importance and need for the Communication skill development
			CO 3	Understand various modes of communication such as written, verbal and graphical communication
			CO 4	Understanding technical writing and forms of writing in architectural discipline
7	Workshop I	2	CO 1	To understand relevance of model making both in the process of design and as a Product
			CO 2	Understanding different types of materials and its uses in model making
			CO 3	Understanding tools used for cutting, joining in the process of model making
			CO 4	Visualising and executing 2 dimensional to 3 dimensional shapes and forms

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8	Architectural Design I	10	CO 1	Understanding role of building elements and analyse there implicit influences in space making
			CO 2	To Analyse and discuss the relationship and co-existence of Built & Natural Environments, space syntex, circulation, light and ventilation, climate etc. through case studies
			CO 3	To design space with understanding of design process and the various stages of design.
			CO 4	Understand the role of art, socio-culture and geographical factors of the existing temples and wada
			CO 5	Understand implementation of architectural elements with respect to climatic conditions
			CO 6	To be able to use balsa wood in 3D model communicating ethos / spirit of the documented structures
9	Building Construction and Materials II	7	CO 1	To expand knowledge about earthquakes and earthquake resistant structures for load bearing structures
			CO 2	Understanding Timber construction and its jointing techniques
			CO 3	Understanding fundamentals of building elements such as roof, floor, staircase, doors and windows wrt timber construction
			CO 4	Understand the important aspects, parameters and scope of market survey in architecture.
			CO 5	To analyse and co-relate various timber components with construction technologies, using timber and timber derivatives
10	Theory of Structures II	2	CO 1	To develop understanding of effect of various forces in terms of various stresses and deflection for various structural members like beams and columns.
			CO 2	To develop understanding of truss as lattice construction and structural actions in its members.
			CO 3	To develop understanding of Load transfer in Load Bearing Structures.
			CO 4	To develop understanding of Load transfer in Framed Structures.
11	Architectural Graphics and Drawing II	3	CO 1	To comprehend and express composite solid geometry through sketches and drawings
			CO 2	To represent set of solids or building components effectively in 3D using the techniques of perspective drawing
			CO 3	Understanding principles of sciography and its application on solid objects / structures
			CO 4	To communicate various ideas through Architectural Graphic representations including building plans and sections (drafting and sketching).
12	History of Architecture and Culture II	2	CO 1	An understanding of architecture, including settlements, landscapes and buildings as a cultural product shaped by various factors with a focus on Islamic architecure and post Mughal architecture
			CO 2	An understanding of the formal, structural, and stylistic aspects of architectural development in the chosen period
			CO 3	Analysis of place, form, materials from socio-cultural and architectural perspective
			CO 4	Introduce students in the process of doing systematic research in documentation exercise of structures and to debate on the formation of those structures
13	Fundamentals of Architecture	2	CO 1	Introduce students to the profession of Architecture and its distinguishing characteristics with respect to other professions and disciplines
			CO 2	Equip students to understand fundamentals of architecture -function , culture and environment and their integration into the architectural form
			CO 3	Equip students to understand factors affecting architectural design- site, context , circulation, structural system, materials and aesthetics.
			CO 4	Understanding scope of architecture as a dicipline
14	Workshop II	2	CO 1	Getting hands on experience in handling material using balsa wood as model making
			CO 2	To be able demonstrate sufficient skills in making architectural models.
			CO 3	Understanding basic commands of 3D model making softwares in architecture
			CO 4	Exploring the 2D to 3D technique of form evolution using Sketchup as a tool

### Second Year B. Arch. (2019 pattern)

1	Architectural Design II	10	CO 1	To understand the aspects and complexity in the Design of a Dwelling and its effect on the lifestyle and people and understand what makes it personal for the users.
			CO 2	To document, analyse the site and derive hints for the formulation of a relevant design approach
			CO 3	To be able to decode the brief, programme and derive a relevant Design approach by studying the site, socio-cultural aspects and climatology
			CO 4	To study and understand anthropometry and proportions
			CO 5	To choose an appropriate construction technology and material and to be able to derive a character for the built mass.
			CO 6	To develop Communication skills via 2D Drawings, 3D models
			CO 1	Learning Soil Mechanics and types of foundation in various soil types.
			CO 2	Understanding concrete as a material alongwith all its properties and behaviour and also study of the ingredients of concrete

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2	Building Construction and Materials III	7	CO 3	To understand RCC frame structure for smaller spans generally applicable to residential structures, along with earthquake resistant features, reference of a RCC drawing R.C.C structural details up to plinth viz. footings, external and internal plinth beams, with plinth formation, with details for toilet block at plinth level.
			CO 4	To understand Construction of columns, beams for various types of end conditions R.C.C floor slab details, viz. one-way, two-way slabs with different end conditions, column beam-slabjunction with details for toilet block, also lintel & weather-shed
			CO 5	To Study of non-timber windows with materials like Steel-framed, aluminum, UPVC and their construction details
			CO 6	Learn and explore Different flooring & paving types and its applications
3	Theory of Structure III	2	CO 1	The understanding of the concepts of Fixity, Continuity and Torque
			CO 2	The Skills to Design small spanned Wooden Beams
			CO 3	The Skills to Design Small Spanned R.C.C Structure w.r.t Slabs, Beams and Columns and use it for his B.C.M and W.D. subjects
			CO 4	To understand wood and concrete as a material and as a structural material
4	Computer Aided Drawing and Graphics	2	CO 1	To be able to communicate using non-verbal forms of communication
			CO 2	To express and communicate the characteristics of a Space through sketching and color medium.
			CO 3	To communicate various ideas through architectural graphic representations (drafting and sketching).
			CO 4	To understand AutoCad as a 2D drafting computer aided tool to prepare, compose & plot Architectural drawings, graphics & information. Exploring the overall AutoCad interface & learning various commands required in making a 2D drawing.
5	History of Architecture and Culture III	2	CO 1	To understand the development of European architecture through the historical period till 17th century AD.
			CO 2	To understand the relationship of religion and society with architecture
			CO 3	To understand the drivers of change, revival, and evolution of architecture
			CO 4	To use drawing analysis as a tool for application of above learning and continuation of research process through documentation of structures - such as churches or any other relevant site
6	Building Services I	3	CO 1	To understand principles and techniques of water supply, requirement storage and distribution.
			CO 2	Understand the various types of taps, valves, faucets, Pipes and their networking system and their installation applications.
			CO 3	To understand Systems of hot water supply using conventional and non-conventional energy sources.
			CO 4	Study of drainage and sewage system and their working application.
7	Climatology	2	CO 1	To understand climate as a determinant of architectural design and to enable the students to evolve climate responsive design.
			CO 2	To understand the design of various building elements / spaces as a response to the climatic condition of the region / site.
			CO 3	To understand and apply passive design strategies at various scales using the various tools like sun path, bioclimatic chart, site analysis matrix etc that are used to study sun movement, wind and comfort in buildings.
			CO 4	Students should be able to make communicative drawings to explain the idea.
8	Architectural Design III	10	CO 1	To understand principles of Cluster or campus design for a project whose built up area is in the range of 1,000sq.m.
			CO 2	To prepare a site layout which provides good circulation, natural light and ventilation
			CO 3	To develop an appropriate response to climate and use derive a relevant massing scheme for the building
			CO 4	To understand inter-relationships between multi-functional building
			CO 5	To use appropriate building materials, technology to derive a relevant character for the built masses.
			CO 6	To be able to use 2D drawings and 3D model to communicate the ethos / spirit of the design
9	Building Construction and Materials IV	7	CO 1	To study types of special concretes, lightweight concrete, ready-mixed concrete, including ferrocement etc; study of its ingredients viz. along with storage of materials on site, understanding good quality material and field & lab tests involved
			CO 2	To understand causes of dampness and reasons for damp- & water-proofing, different methods or treatments of damp- & water-proofing
			CO 3	To understand R.C.C structural details for balcony slabs, canopies and construction of various types of precast and in-situ RCC stairs, along with earthquake resistant features, reference of a RCC drawing
			CO 4	Study of elevators, escalators, conveyors – types, size, capacity, speed and Mechanical safety methods, provisions in civil work for installation of elevators and escalators
			CO 5	Study of Various types of sliding and folding doors and Construction of Bay Window
			CO 6	Study Glass and Plastic as Building material, its types, uses and application in building industry. Study Different types of adhesives and sealants used in building construction
			CO 1	The understanding of supporting Balconies and Staircases

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10	Theory of Structures IV	2	CO 2	The Understanding of Dividing Larger Rooms in Smaller One Way or Two Way Slab Units
			CO 3	The Understanding of Steel as a Material and Various Steel Sections and their use.
			CO 4	The understanding of using Steel Girders and Stanchions
11	Environmental Science	2	CO 1	To enable students to grasp the concerns pertaining to natural resources , its exploitation & depletion & implications of the same while bringing into discussion aspects related to construction industry & daily life of human beings
			CO 2	To understand interconnectedness within the environemnt, significance of studying environmental science & its interdisciplinary application to enable students to think sensitively as a conscious individual, as well as take informed planning & design decisions as architect.
			CO 3	To expose students to diverse landscapes that exists around, various ecosystems, value & significance of Biodiversity and need for biodiversity conservation to reinforce role of an architect to take conscious planning & design decisions while dealing with varried context.
			CO 4	To create environmental awareness wrt environment & health, human rights & value education & expose students to legislative provisions pertaining to Environment.
			CO 5	To introduce current practices wrt - Environmental clearnce for construction project & building Rating systems
12	History of Architecture and Culture IV	2	CO 1	An understanding of architecture as a product shaped by various factors like technological developments, colonization, globalization, economy, and urbanization.
			CO 2	To develop students' ability to take visual notes objectively of key lecture and talks
			CO 3	An understanding of different Movements in Architecture
			CO 4	Develop reading and reviewing critical literature in Modern Architecture
13	Building Services II	3	CO 1	To understand basic principles of daylight and artificial lighting and develop an ability to design a lighting plan for a space.
			CO 2	To be able to calculate the energy requirement of building electrical systems.
			CO 3	Students should be able to identify space requirements and integration of these systems in architectural design.
			CO 4	To introduce students to Building Services in low, medium and high rise buildings and inculcate in them the understanding of integration of services in architectural design.
14	Site Survey and Analysis	2	CO 1	To be able to comprehend the site characteristics, reading and interpreting survey drawings, understanding equipment and methods of surveying leveling.
			CO 2	To help students prepare and interpret survey drawings.
			CO 3	To acquaint the students to various site surveying instruments and methods which enables them to coprehend the given design site.
			CO 4	To empower the students with the different tools for site analysis like topography, hydrology, vegetation and visual aspects to be able to derive appropriate and conscious design decision.

### Third Year B. Arch. (2019 pattern)

1	Architectural Design IV	10	CO 1	Students should gain an appreciation for the importance of designing spaces that prioritize the needs and preferences of the users, including passengers, drivers, and station staff.
			CO 2	Students should learn how to conduct site analysis, considering factors like location, climate, cultural context, and community needs to inform their design decisions.
			CO 3	Students should be able to Integrate functions, structure and services in a building with relevant structural system.
			CO 4	Students should gain knowledge about materials, construction techniques, and structural considerations relevant to bus station design.
			CO 5	Students should be able to negotiate various scales in drawings and models.
			CO 6	Students to be equipped with ability to make communicative architectural drawings
2	Building Construction and Material V	6	CO 1	Students should understand the principle, methods, advantages and disadvantages of concrete floor construction systems and single basement construction.
			CO 2	Students should get to know the proprietary construction techniques for partition ceilings with the latest available materials.
			CO 3	Students should get acquainted with the different techniques used in Interior finishing work
			CO 4	Students should get acquainted with the different materials used in Interior work
			CO 5	Students should get acquainted with the different techniques like retaining wall , waterproofing etc & material used for basement construction
			CO 6	Students should get acquainted with the different joineries and tools, equipments used in work with timber derivatives
3	Theory of Structures V	2	CO 1	Students should Understand the basics thumb rules and criterias considered in structural design
			CO 2	Students should Understand understanding of larger space spanning both in R.C.C and Steel
			CO 3	Students should Understand understanding of carrying of vertical loads by R.C.C. Columns and Stanchions
			CO 4	Students should understand understanding Lateral pressure and structural principles for overcoming it.
			CO 1	Establish the relevance of Studying Landscape Architecture discipline and various scopes & scales of planning & design with specific emphasis on Site planning principles

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4	Landscape Architecture	3	CO 2	To acquaint the students with changing relationship of man and nature through various periods of History. Students should be able to discern how it reflects as various principles & approaches in man's response to his surroundings, while laying emphasis on design of built components as effective response to the setting.
			CO 3	To introduce students to a systematic process of Site analysis & Synthesis leading towards Site Planning. Students should be able to discern various aspects of given context in terms of topography, hydrology, vegetation and visual analysis and understand the rationale for siting & site planning. hydrology, vegetation and visual analysis and understand the rationale for siting & site planning.
			CO 4	To introduce students with various ways in which Plants & landform modifications can be used as effective tools for creating outdoor spaces & imparting characters & values.
			CO 5	Lay emphasis on Integrated design approach in design of built & open spaces.
5	Elective I (Contemporary Architecture)	2	CO 1	Inculcate in students an analytical thinking about architecture, introduce various theoretical positions.
			CO 2	Help students develop individual view points and construct arguments to put it across.
			CO 3	Skill of presenting a topic of choice, and generating a discussion.
			CO 4	Equip students to write a college level essay by following the formalities of writing in terms of references and acknowledgements.
6	Building Services III	3	CO 1	To equip students with the Understanding of Natural and Mechanical Ventilation system in building and build a healthy environment
			CO 2	Students should be able to derive low energy consumption techniques through the understanding of Passive heating and cooling system
			CO 3	Students should understand the functioning of Air Conditioning system on different scale and the spacial requirements of same w.r.t. different equipment, ducts and tonnage.
			CO 4	To understand the complexities of Building services (Mechanical Ventilation , Passive techniques, HVAC ) and demonstrate in the Design Project
7	Working Drawing I	2	CO 1	to develop the ability to rationalize & revise the student's own design & presentation drawings, for appropriate & buildable dimensions as well as to incorporate the principles of the load-bearing structural system like room span, foundation, size of openings, cantilever provision, treatment of junctions, etc.
			CO 2	to learn to generate building drawings with corresponding schedules (opening, framing, finishes etc.) that are technically correct & well communicative for construction purposes, like a setting-out plan, a center line plan, all level floor plans, sections & elevations
			CO 3	to develop the ability to generate the construction details (opening details, kitchen platform details, railing fixing details & building envelop + skin section) for the building with correct technical specifications and cross-referencing system for the detail to relate back to the main building drawings. In the process develop an understanding of the mandatory requirement for the building-specific details in terms of dimensions, specifications, method of assembly & fixing, etc. responding to anthropometry, climate & weather as well as the availability of materials in the market.
			CO 4	to generate the final consolidated drawing portfolio, from site-level drawings to building detail drawings with appropriate cross-references, sequence of the drawings, construction notes & proforma. And to develop the skill to check the working drawing with given checklist.
8	Architectural Design V	10	CO 1	To study an aspect of community living in urban context in a different socio-geographic setting, and document the study with emphasis on aspects like Chronology, Climate, Culture, Commerce, Context, Cluster, Cell, Character & Craft of Construction which are important to sensitize students
			CO 2	Students should be able to understand progressively complex spaces and buildings in terms of area, a specific community, typology, function etc, with emphasis on scale.
			CO 3	Students should understand concerns of sites in urban context there by necessitating multi-storied buildings.
			CO 4	Students should be able to design and layer different activities with different spatial requirements
			CO 5	Students should be able to Integrate functions, structure and services in a building with relevant structural system.
			CO 6	Students should be able to negotiate various scales in making communicative drawings and models.
9	Building Construction and Material VI	6	CO 1	Students should develop an understanding of possibilities of steel as an important building construction material.
			CO 2	Students should develop understanding of properties of ferrous and non ferrous metals as materials for buildings will enable students to use Steel innovatively in building projects.
			CO 3	Students should know about the advanced techniques used to improve earthquake resistance in construction
			CO 4	Students should get exposure to different types of roofing systems & connections in steel structure
			CO 5	Students should get acquainted with the Industrialised building construction system along with Precast construction systems
			CO 6	Students should know about the application & execution process for steel & precast construction
			CO 1	Students should develop the understanding of Effects of Lateral Pressure of Soil and Water

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10	Theory of Structures VI	2	CO 2	Students should develop the sense to frame R.C.C and Steel Buildings
			CO 3	Students should develop the understanding of different Structural Systems for Larger Spans and Tall Buildings with an understanding of Wind Load
			CO 4	To develop in students, the feel for structural principles and their relation to building design.
11	Research in Architecture I	2	CO 1	To introduce students to Research in Architecture and develop inquiries to research topics
			CO 2	Enable students to develop research questions through literature review
			CO 3	To introduce students to methods of research in architecture - Qualitative and Quantitative methods like use of interview, surveys, observations, experiments, secondary sources etc.
			CO 4	To enable the students to prepare a research proposal
12	Elective II	3	CO 1	Students should be able to analyze local knowledge, resources, culture and traditions, climate-responsive building techniques etc.
			CO 2	To familiarize students with vernacular and urban design vocabulary through book reviews and discussions
			CO 3	To understand urban morphology and its generators through comparative studies
			CO 4	Identifying elements of a city and to be able to communicate the relationship between them through analytical drawings.
13	Building Services IV	3	CO 1	To understand need of firefighting system in various building typologies and guidelines given for the same by governing bodies
			CO 2	To understand and apply Acoustical considerations in site planning and design of indoor spaces
			CO 3	To understand properties of various acoustical and fire fighting products available in the market and its suitability under different conditions.
			CO 4	To be able to prepare Evacuation map for their own designs considering emergency scenario adhering to prevailing guidelines.
14	Working Drawing II	2	CO 1	To develop the ability to rationalize & revise the student's own design & presentation drawings having minimum 2 storeys, for appropriate & buildable dimensions as well as to incorporate the principles of the selected structural system like room span, foundation, size of openings, cantilever provision, treatment of junctions, etc.
			CO 2	To learn to generate building drawings with corresponding schedules (opening, framing, finishes, etc.) that are technically correct & well-communicative for construction purposes, like a setting-out plan, a center line plan, all level floor plans, framing plans, sections & elevations. To generate the appropriate internal layout drawings, taking into consideration the room sizes, position of openings, partitions etc., that are technically correct & well-communicative for execution purposes, room plan, section, reflected ceiling plan.
			CO 3	to develop the ability to generate the construction details (staircase, toilets & building envelop + skin section) for the building + interior details (furniture, partition & false ceiling) with correct technical specifications and cross-referencing system for the detail to relate back to the main building drawings. In the process develop an understanding of the mandatory requirement for the building-specific details in terms of dimensions, specifications, method of assembly & fixing, etc. responding to anthropometry, climate & weather as well as the availability of materials in the market.
			CO 4	to generate the final consolidated drawing portfolio, from site-level drawings to building detail drawings with appropriate cross-references, sequence of the drawings, construction notes & proforma. And to develop the skill to check the working drawing with given checklist.

### Fourth Year B. Arch. (2019 pattern)

1	Architectural Design VI	11	CO 1	Through precedent study of Evolved typologies, contemporary explorations and current emerging trends of housing, develop an understanding of physical, social, environmental & economic determinants that define the built form for habitat
			CO 2	Ability to comprehend and understand the larger context through documentation & aspect based studies of selected study area.
			CO 3	Develop group wise thematic approaches for selected study area and formulate design program for Multifamily Residential Development along with understanding of requirements of the user group identified
			CO 4	Formulate design narrative & approach - Sustainability, affordability, low-cost construction, incrementality, site & services, explorations in construction technology & structural system etc.
			CO 5	Conceptualise and develop a Multifamily Residential Typology (builtform & functional) with interrelated scales - Neighbourhood, Site, Cluster & Unit; in response to physical determinants like, Density, Unit mix, Site & Built-Up calculations based on applicable building byelaws through application of concepts like Ground coverage, FSI, etc. and resolve Habitable & Service grids
			CO 6	Design resolution and production of a well resolved Multifamily Residential project
Advance Building Construction and			CO 1	Develop understanding of swimming pool typology & its systemic, technical, & functional requirements through reference studies and standards.
			CO 2	Learn techniques to document context drawings and develop a pay-and-park facility based on stakeholder needs
			CO 3	Develop the ability to decode and analyze the parking layout, building services and structural grid + construction details of existing buildings like retaining wall, foundation etc.



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2	Advance Building Construction and Services I	4	CO 4	Learn the method of identifying the suitable industrial processes for the neighborhood + prepare the master plan, process flowchart, and design guidelines for the selected industry from the reference studies.
			CO 5	Demonstrate the ability to resolve & produce technically correct drawings of the Material recovery facility with required services, structural system, machine & activity layout, etc.
			CO 6	Demonstrate the ability to prepare good for construction drawings for complex structures. Gather appropriate data and prepare research file for the required topics
3	Professional Practice	3	CO1	Ability of student to understand role of Architect in society and implications of Architects Act 1972 on the profession including rights and duties as defined by same.
			CO2	Develop knowledge of working of an Architect's office , understanding aspect of professional fees and mode and nature of professional Practice .
			CO3	Understand role of various professional organizations in architectural practice including benefits and processes to join them
			CO4	Understanding role, importance, types and processes of Architectural competitions
4	Urban Studies I	3	CO 1	Understanding and assimilating the urban planning and urban design theories learning in Architecture profession.
			CO 2	Fostering knowledge about the aspects of urban land, importance of layout planning, MRTTP Act, DCR and bye-laws.
			CO 3	Exploring housing typology and its analysing its physical determinants.
			CO 4	Create sub-division layouts for Residential plotting and understand optimization of available land for a specific use.
5	Research in Architecture II	2	CO 1	Data collection of various case studies undertaken for topic exploration.
			CO 2	Analysis of data using various techniques such as verbal, visual, graphical, numerical etc.
			CO 3	Findings of research conducted and conclusion of research questions.
			CO 4	Writing of research paper in prescribed format.
6	Quantity Surveying and Specification Writing I	3	CO 1	To develop knowledge about basics of quantity surveying and method of estimating
			CO 2	To get acquainted with calculating quantities for load bearing structure ( G+1) and RCC ( G+1) structure
			CO 3	To develop knowledge about basics of specification writing and method of specification writing
			CO 4	To give exposure to IS 1200 mode of measurement for building entities in construction
7	Elective III ( GIS & BIM)	3	CO 1	Students should be able to analyze local knowledge, resources, culture and traditions, climate-responsive building techniques etc.
			CO 2	To familiarize students with vernacular and urban design vocabulary through book reviews and discussions
			CO 3	To understand urban morphology and its generators through comparative studies
			CO 4	Identifying elements of a city and to be able to communicate the relationship between them through analytical drawings.
8	Architectural Design VII	11	CO 1	Ability to comprehend and analyse the larger context through documentation & aspect based studies of selected study area, where aspects like Culture, Environment, Movement mobility, Infrastructure, Social Infrastructure, Economic networks etc that are specific to the urban area studied
			CO 2	Evolve structure plan and design guidelines for thematic approaches in groups.
			CO 3	Formulation of program for need based non-residential Development & requirements defined by various needs of identified stakeholders along with those evolved on study of similar examples of project precedents
			CO 4	Formulate design narrative & approach - public realm, multipurpose use, sustainability, low-cost construction, explorations in construction technology & structural system etc.
			CO 5	Conceptualise and develop an urban insert typology - amenities & facilities with interrelated scales - Neighbourhood, Block & Site; in response to physical determinants like, Site & Built-Up calculations, Ground coverage, FSI, etc. and resolve function & service grid.
			CO 6	Design resolution and production of well resolved Urban Insert Project responding to its urban context
9	Advance Building Construction and Services II	4	CO 1	Identification and decoding of design program, structural system & services requirements for the selected highrise typology on the basis of supporting data and information from the parallel references.
			CO 2	Synthesis in terms of well resolved structural system & services required in high-rise for the selected context & concern, responding to local & global issues + environment, community, culture of the region
			CO 3	Develop ability to generate idea and Design program based on understanding of function, structure & services + acoustical & visual environment + construction & ventilation systems using parallel references and standards for group of auditoriums
			CO 4	Synthesis of an auditorium in response to the existing physical and programmatic context of the institute. with proper seating configuration, geometry, structure and building services
			CO 5	understanding of systems in built environment
			CO 6	Technical analysis of construction techniques, specification & quantity estimation used in the execution of the detail

## 23-24\_2.6.1\_Course Outcomes and Program Outcomes

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10	Project Management	3	CO1	Understand various modes of construction management like direct work, site visit report Tenders, its types, documents & processes
			CO2	Ability to understand role of architect in contractual management including contents of contract document
			CO3	Understand importance of National Building Code
			CO4	Ability to understand the Role and Legal duties of Architects in Arbitration and Valuation.
11	Urban Studies II	3	CO 1	Ability to comprehend and identify issues related to various aspects such as image, environment, culture, traffic and transportation etc through primary surveys.
			CO 2	Examining and interpreting the inter-dependencies of various networks, systems, function and activities in a selected neighbourhood.
			CO 3	Analysing the urban fabric of a neighbourhood in terms of its morphology through the layout and pattern of sub-division of streets, plots and buildings.
			CO 4	Fostering knowledge about the process of planning & survey, conservation and Urban design guidelines, planning legislation and Urban economics.
12	Elective IV (Ecology & GBRs)	2	CO 1	Develop knowledge about the fundamentals of ecology and the recent developments in sustainable design related to architecture
			CO 2	Learning Basic Principles of the subject offered
			CO 3	Develop the capacity to incorporate sustainable strategies into architectural designs.
			CO 4	Application of the skills learnt
13	Elective V	2	CO 1	To help students generate an enquiry, study, investigation, and research into any one or more areas of concern/interest, which the student is given the liberty to choose to study based on his/her potential, passion and/ or interest
			CO 2	To help students get clarity, before embarking for practical training.
			CO 3	To help students strengthen their area of concern/interest through reading current articles from newspapers, refereed journals, books, watching films, scripted interviews, etc. to further inform their project
			CO 4	To help students get a head start to engage in their project in their tenth semester.
14	Quantity Surveying and Specification Writing II	3	CO 1	students should get acquainted with rate analysis and Indent of materials for every entity in construction
			CO 2	students should get acquainted with quantity working for steel structures - industrial truss, water supply and sanitation systems
			CO 3	To acquaint students with methodology of writing specifications with reference to service installations of different items of work in construction.
			CO 4	To enable students in different building trades & content, checklist.

### Fifth Year B. Arch. (2019 pattern)

1	Practical Training	14	CO 1	Develop the ability to work outside his / her comfort zone through joining offices which are outside the state of Maharashtra or the homestate of student to give an exposure which is outside the students cultural zone of working and living
			CO 2	Develop the ability and tenacity in student to work for a period of continuous 6 months in a single office
			CO 3	Develop exposure to real life situations through active participation in working on ongoing projects in the office & Understand the complexity in the working on the process of a project from client brief to execution of the project w.r.t. design, services, structure, management, working drawing, construction details.
			CO 4	Develop the ability in student to work with confidence and full commitment in a professional office as part of a larger professional team. Thus also develop the ability to follow instructions and understand the process of teamwork while working.
			CO 5	Develop ability of student to document the training process by responding to various formats like day to day work diary, log book & prepare a portfolio of work done in office which could be stored in college library for reference of future generation of students
			CO 6	Develop the ability to develop a 'Real time' attitude towards work and reflect the same in Architectural Project or Thesis in the last semester in the five year course of B.Arch
2	Architectural Design Project	18	CO 1	Aims at encouraging exploration of Ideas, addressing Social-Environmental-Historical issues and Building Types that together make architecture and built environment.
			CO 2	To realize that the philosophical - social - political - economic - cultural - historical - environmental - scientific - technological - engineering issues need to be seen together as a whole phenomenal reality that creates a ground and consciousness for architecture and allied disciplines.
			CO 3	Aims at approaching Architectural Design Project as an enquiry, study, investigation, and research methodically pursued by the students
			CO 4	Aims at providing an opportunity to the students to apply the knowledge and skills gained in earlier years
			CO 5	Giving the students an opportunity to articulate idea/enquiry and adding a new perspective to it and arriving at a rational conclusion with a design demonstration.



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			CO 6	Organizing EXIT Exhibition to generate a window where students interact with citizens, professionals from the construction industry and allied fields thereby increasing the reach of students' projects and potential and encouraging employment opportunities to recent graduates.
3	Entrepreneurship Development	3	CO 1	Developing the mind-set of being an entrepreneur
			CO 2	Developing the Basic knowledge of Entrepreneurship, business management, finance and Law
			CO 3	Developing the basic Entrepreneurial skills - Lateral thinking, problem-solving, Oratory, Human Resource Management, Time management, Finance management, Office Administration and essential Software skills
			CO 4	Ideation of New vistas of Architectural entrepreneurship in the 21st-century environment to generate innovative business models
4	Elective VI	2	CO 1	Promote Sustainable and Inclusive Street Design : The students will rethink the role of city streets by prioritizing access, safety, and mobility for all users. The Students will learn how streets that could enhance environmental quality, social well-being, and add to economic benefits, aligning with sustainable urban development goals.
			CO 2	Develop Strategies for Public Streets/ Spaces Optimization The course will equip students with principles and strategies to design streets that maximize the utility of public spaces. The focus will be on transforming streets into spaces that support healthy lifestyles, economic vitality, and vibrant social interactions, while reducing reliance on automobiles.
			CO 3	Empower Future Leaders with Practical Design Tools The course will introduce the students with real-life case studies, policy lessons, and hands-on workshops. This course will empower students to use innovative design methods, metrics collection, and project evaluations to transform urban spaces effectively.
			CO 4	Develop an Understanding of Global Street Design Principals The students will be provided with the knowledge to integrate global best practices in street design, leveraging resources like the Global Street Design Guide by GDCI.