		First Year Bachelor of Architecture CO - PO Manning												
		College of Architecture Karvenagar, Pune-411 052.	Ability to communicate design using various representation tools	Design Architectural form working from a conceptual argument that is well articulated and presented and uses the principles of form making.	Ability to prepare a design brief that is presented as a detailed analysis of all the functions and associated activities.	Ability to employ appropriate Structural system with an understanding of its components and with due architectural considerations	Ability to resolve various associated services in response to the challenges posed by building typology / scale / site.	Ability to design a building using a variety of passive climate control strategies including orientation, site planning, and building envelope design	Ability to design outdoor space with a program and achieving a good integration of the inside and the outside	Ability to theoretically position a project as an argument for an issue of urban, cultural or architectural relevance	Ability to extensively analyse context of a project and explore a set of possible ways of responding to the social and cultural context	Preparing design documentation that is adequate for various requirements such as estimation, construction and regulatory approvals.	Ability to undertake research activity in any area related to the built environment	Ability to execute a project in a competent manner including client communication and collaboration with the various consultants
S01_BD	CO / PO	Diagram the sensory experience of space	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
S01_BD S01_BD S01_BD	CO 2 CO 3 CO 4	Identify spatial roles played by elements of space making Explain a composition graphically using Gestalt vocabulary Correlate various creativity techniques with design processes of given buildings - Matrix of Ideas, Abstraction, Mental Associations, Transformation Analyse given entrances in terms of the sequential design moves involved												
S01_BD S01_BD	CO 6 CO 7 CO 8 CO 9	Design an entrance using a sequence of design moves Associate Built form with emotional experience by analysing memorials Explain life story of a chosen character through emotional highpoints Compose a set of spatial forms to communicate experiences												
S01_BD S01_BD	CO 10 CO 11	Understand schema as a way of organising architectural knowledge Apply basic architectural schema to buildings and present that as parti diagrams												
S01_BCM1 S01_BCM1 S01_BCM1 S01_BCM1 S01_BCM1	CO1 CO2 CO3	Understanding of building components to illustrate them in an a building with load transfer diagrams Recognize types and characteristics of various materials, Quality tests of material used for construction of load bearing elements. Application of principles of masonary unit and understand process of construction for load bearing structures (masonary unit, mortar types, pointing, DPC, coping, tools used). Describe and graphically depict components of a strip foundation and the roles that they perform in function of the footing w.r.t soil type and bearing capacity. Resolve junctions and apply various brick bonds and their usage in different geometrical conditions such as L T and + junctions and attached detached piers.	1 1 1 1			1 1 1								
S01_BCM1 S01_BCM1		Understand types of Arches, associated terminology and their geometrical setting out and transfer of load in arches. Give examples of structures using Bamboo as a construction material and alternate materials and earth as a building material.	1 1			1								
S01_TOS1 S01_TOS1 S01_TOS1 S01_TOS1 S01_TOS1 S01_TOS1 S01_TOS1 S01_TOS1	CO2 CO3 CO4 CO5 CO6 CO7 CO8 CO9 CO10	Discussing the concept of forces on applied mechanics and statics. Interpreting diffierent system of forces and their equilibrium. Discussing the various loads on the buildings. Explaining stresses and strains for various materials and its stress strain diagram. Discussing the transfer of loads and principles of earthquake resistance on the load bearing and framed structure. Explaining concept of CG and MI of plane lamina Calculations of CG and MI of different shapes Discussing different types of supports and loads calculations of reactions of different types of supports and loads acting on it Explaining concept of SFD and BMD of simply supported and cantilever beam Analyzing SFD BMD of five standard cases Understand method of setting up a sheet, using drafting tools and techniques of drafting.	1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1						1 1 1	1 1 1 1 1 1 1 1 1	
S01_AGD1 S01_AGD1 S01_AGD1 S01_AGD1	CO 2 CO 3 CO 4	Remember the skill of setting up a sheet and demonstrate it in the assigned task. Understand use of various lines in a drawing and draw them using drafting tools. Restate the standard conventions and annotations to communicate information on a drawing. Understand concept of scale in a drawing and demonstrate its need to communicate detailed information based on the intent of drawing.	2 1 1											2 2
S01_AGD1 S01_AGD1 S01_AGD1 S01_AGD1	CO 7 CO 8	Remember and redraw geometrical methods for construction of 2D complex shapes. Illustrate geometrical characteristics and formation of various 3 D solids. Demonstrate representation of 3D objects in drawing using various graphical systems. Apply the knowledge to draw plan, section, elevations and view of simple objects having straight edges, curvilinear surfaces and inclined surfaces.	2 2 2 2											2
S01_AGD1 S01_AGD1 S01_AGD1 S01_AGD1	CO 11 CO 12	Apply the knowledge to draft plan, section, elevations and view of tilted objects, composite objects and complex objects. Reproduce a complete set of drawings of a simple given building Illustrate application of scale and building details in the given drawing. Summarise the characteristics features of contribution by a particular civilisation.	2											2 2 2
S01_HAC1 S01_HAC2 S01_HAC3 S01_HAC4 S01_HAC5 S01_HAC6	CO 2 CO 3 CO 4 CO 5	Analyse which factors influence architecture and planning of ancient civilisations, thus Understand the term context Understand sense of individual, community and society. Identify factors governing the built expression at all levels as a result of needs and resources. Understand how ideas travel and influence rock cut architectural expression in India.												
S01_HAC0 S01_HAC7 S01_HAC8 S01_HAC9 S01_HAC10 S01_HAC11 S01_HAC11	CO 7 CO 8 CO 9 CO 10 CO 11	Redraw and name architectural typology of chaitya, vihara and stupa. Analysis questions for History tour for Buddhist architecture Explain development of Hindu temples from single shrine to temple complex in Indian subcontinent. Understand and discuss regional expression of temples in North India wrt form and material. Group work for other typologies Discuss case of a temple town wrt urban factors. Understand and discuss regional expression of temples in South India wrt form and material.												
S01_HAC13 S01_HAC14	CO 13	Analyse temple for architecture language wrt sequence of spaces, light quality and volume. Discuss factors like climate and socio-cultural context influencing architectural expression. Use techniques of active reading and demonstrate the same by use of marginalia									1		1	
S01_CS S01_CS	CO2 CO3 CO4 CO5	Report self-participation in a discussion Demonstrate understanding through photographs and explanatory writeup Self-reflect on a learning event Compose a poster/ mindmap using graphical and written content	1									3	1 2 2	1
S01_CS S01_CS S01_CS S01_CS S01_CS	CO6 CO7 CO8 CO9 CO10	Compile examples of gestalt principles from published media Analyse a composition and identify organising principle Compose poster using graphical and written content Follow the given instructions for drawing lines and shapes and reproduce the same. Demonstrate understanding of perspective through hand sketches	1 2 2 1 1	2										
S01_CS S01_WS S01_WS	CO11 CO12 CO 1 CO 2	Apply basic image editing tools and prepare clean copies of 3 sketches Use transformation tools to colorise, fill, scale the images Adhere to the instructions and cut-fold cardsheet template to make a composition Recreate a model of the given building using model board	2											
S01_WS S01_WS	CO 3 CO 4	Demonstrate precise carving of foam concrete block and achieve the target volume model Construct a model of given building using mill board / Brown board by choosing appropriate combination of materials and suitable sequence of actions Construct a façade model of the given building based on the drawings and photographs												
S02_AD1 S02_AD2	CO 6 CO 1 CO 2 CO 3	Replicate the instructions and build a stool from corrugated board Understand and Analyze a given structure using the criteria of Structure, Environment, Culture, Form, and Function Illustrate and Document tribal house form through measured drawings and models Apply understanding of given house patterns from Christopher Alexander's Pattern Language and illustrate them using spatial and formal												
S02_AD4 S02_AD5 S02_AD6 S02_AD7	CO 3 CO 4 CO 5 CO 6 CO 7	Apply understanding of given house patterns from Christopher Alexander's Pattern Language and illustrate them using spatial and formal expressions from the settlement studied. Analyze the given building using the design principleXdesign approach matrix Create a set of design instances for the assignment using the matrix. Evaluate the instances and choose an approach for design development Illustrate functional analysis using bubble diagram that clearly shows relationship between identities using appropriate modifiers												
_	CO 10 CO 11	Design a built form in response to a reframed design problem Design a building incorporating at least two of the identified settlement patterns (Based on Pattern language) Evaluate your self design with reference to Climate, Culture and qualities of Form Build massing models and evaluate them based on functional feasibility Represent the design idea as a massing model and a detail model Develop figure ground compositions for the design assignment using the ArchiBlox												
S02_AD13 S02_AD14 S02_BCM2	CO 13	Prepare a set of drawings to communicate the design idea. Recognise reasons for failure of structures in earthquake prone zone and determine techniques to prevent failure due to seismic load.	1											
S02_BCM2 S02_BCM2 S02_BCM2 S02_BCM2 S02_BCM2 S02_BCM2 S02_BCM2 S02_BCM2	CO3 CO4 CO5 CO6 CO7	Determine techniques to prevent failure due to seismic load. Recognize Characteristics, Quality tests of material used for construction, derivatives of timbers Recognize and Label various Tools, Equipment and their usage in construction process and cost of work. Explain terminology, loading, joinery and design details for the floor ad staircase Understand types of doors, detail sections, hardware needed and design details for timber doors Understand types of windows, detail sections, hardware needed and design details for timber windows. Understand span and types of roof, identify loading of the truss from structures.	1 1 1 1 1			2 1		1						
S02_BCM2 S02_BCM2 S02_BCM2 S02_TOS2	CO9 CO10	Understand span and types of roof, identify loading of the truss from structures. Demonstrate detail sections, joinery and design details for timber truss. Design and derive wooden partitions with necessary hardware, finishes and joinery. Analyzing Overhanging beam for Shear force and Bending moment	1 1			1		1				1	1	
S02_TOS2 S02_TOS2 S02_TOS2 S02_TOS2 S02_TOS2 S02_TOS2 S02_TOS2 S02_TOS2	CO2 CO3 CO4 CO5 CO6	Discuss lattice construction Analyze perfect truss Illustrate the effect of various types of loads, supports and cross sections on bending stresses in beams Illustrate the effect of various types of loads, supports and cross sections on shear stresses in beams Illustrate the effect of various types of loads, supports and cross sections on deflection in beams (only simply supported with symmetric loading and cantilever with udl and point load at tip) Demonstrate the effect of eccentricity in columns in terms of resulting stresses Predicting the load carrying capacity of long, intermediate and short columns with various end conditions	1 1 1 1 1	1		1 1 1 1 1			1			1 1 1 1 1	1 1 1 1 1	
S02_AGD2 S02_AGD2 S02_AGD2	CO1 CO2	Construct an orthographic representation of a given interpenetrating-built form Develop the surface of given solids Draw a perfect projection of true shape of a sectional plane	1 1											1 1
S02_AGD2 S02_AGD2		Draw a perfect projection of true shape of a sectional plane Build a One point perspective	1											1

S02_AGD2	CO5	Build a Two point perspective	1									1
S02_AGD2	CO6	Build a perspective using Perspective Grid	1									1
S02_AGD2	CO7	Build a Birds eye view. Build a Worms eye view	1									1
S02_AGD2	CO8	Build sciography of given solid objects in plans and elevation	1									1
S02_AGD2	CO9	Build sciography of given solid objects in isometric and perspective view	1									1
S02_HAC2	CO1	Summarise the characteristics features of contribution by a particular civilisation.										
S02_HAC2	CO2	Analyse which factors influence architecture and planning of ancient civilisations, thus express the term context										
S02_HAC2	CO3	Identify sense of individual, community and society.										
S02_HAC2	CO4	Identify factors governing the built expression at all levels as a result of needs and resources.										
S02_HAC2	CO5	Identify how ideas travel and influence rock cut architectural expression in India.										
S02_HAC2	CO6	Redraw and name architectural typology of chaitya, vihara and stupa.										
S02_HAC2	CO7	Analysis questions for History tour for Buddhist architecture										
S02_HAC2	CO8	Explain development of Hindu temples from single shrine to temple complex in Indian subcontinent.										
S02_HAC2	CO9	Discuss regional expression of temples in North India wrt form and material.										
S02_HAC2	CO10	Analyse temple for architecture language wrt sequence of spaces, light quality and volume.										
S02_HAC2	CO11	Discuss case of a temple town wrt urban factors.										
S02_HAC2	CO12	Understand and discuss regional expression of temples in South India wrt form and material.										
S02_HAC2	CO13	Represent various types of Indian traditional architecture										
S02_FOA	CO1	Understand the duties and responsibilities of an Architect; Summarize the role of architecture in relation to various other disciplines.									1	1
S02_FOA	CO2	Analyze fundamental environmental parameters and concepts to evaluate building comfort using floor plans and settlement studies.		1				2			1	
											_	
_	CO3	Decompose a given activity into functional identities and communicate their interrelationship using a bubble diagram.		1	2						1	
	CO4	Explain forward and backward infrastructural linkages for a building and their implications.					1			1	1	
	CO5	Apply principles of structural literacy by experiencing forces through human formations and designing a stable bridge.				2					1	
_	CO6	Explain architectural schema and its role in the design process.	1	2							1	
	CO7	Evaluate a building holistically based on environmental, functional, infrastructural, structural, and formal literacies.	1	1	1	1	1	1			2	
S02_FOA	CO8	Demonstrate understanding of course content through guided tutorials.									2	
	CO 1	Replicate the instructions in the video and make a model using skewer sticks										
_	CO 2	Use the given drawing and build a contour model using corrugated board										
	CO 3	Develop a volumetric model of the given building using soap carving										
	CO 4	Build a model of a shell form using gypsona strips										
	CO 5	Build a model of structural members of a given building										
	CO 6	Construct a model of a selected building using appropriate material and technique										
S02_WS8	CO 7	Generate volumetric explorations using Rhino modelling software										

		Second Year Bachelor of Architecture CO - PO Mapping	P.0.1	Dog.	Pos				D. 5		DO 0	2010		D012
		College of Architecture Karvenagar, Pune-411 052.	Ability to communicate design using various representation tools	Design Architectural form working from a conceptual argument that i articulated and presented and uses the principles of form making.	Ability to prepare a design brief that is presented as a detailed analysis the functions and associated activities.	Ability to employ appropriate Structural system with an understanding components and with due architectural considerations	Ability to resolve various associated services in response to the challenge posed by building typology / scale / site.	Ability to design a building using a variety of passive climate control strategies including orientation, site planning, and building envelope of passive climate control strategies including orientation, site planning, and building envelope of passive climate control passive climate climate climate control passive climate cl	Ability to design outdoor space with a program and achieving a good integration of the inside and the outside	Ability to theoretically position a project as an argument for an issue cultural or architectural relevance	Ability to extensively analyse context of a project and explore a set of a ways of responding to the social and cultural context	Preparing design documentation that is adequate for various requirem as estimation, construction and regulatory approvals.	Ability to undertake research activity in any area related to the built environment	Ability to execute a project in a competent manner including client communication and collaboration with the various consultants
AD 2	CO1 CO2 CO3 CO4 CO5 CO6 CO7 CO8 CO9 CO10 CO11 CO12 CO13 CO14 CO15 CO16 CO17 CO18 CO19 CO20 CO21 CO22 CO23 CO24 CO25	To analyze the case studies in terms of their design principles, spatial organizational patterns, materiality, and contextual relevance Documenting and Analysing works of Designers as Precedent Studies & Presenting the Analysis Learn to analyze the case studies in terms of their design principles, spatial organizational patterns, materiality, and contextual relevance, Analysing spatial experiences of selected case studies and presenting them in graphical and verbal format Analysing the takeaway from precedent Studies & the Study on site and evolving the Program Statement with justification for space allocations At the end of the session student would be able to categorize given bungalow plans, based on their characteristics into archetypes of residential design Presenting with 2D Drawings the Space Configuration through Archetype Evolution At the end of the session student would be able to categorize given bungalow plans, based on their characteristics into archetypes of residential design Develop alternatives based on 2 or 3 archetypes and evaluating each based on the criteria defined in the studio brief To analyse activities and identify their subsets, grouping and separation of activities, develop adjacency diagrams Justfying the layouts with circulation study, activity adjacency and satisfying function Learn to develop a thorough understanding of the functional requirements of architectural design, including spatial needs, circulation patterns, and user interactions. Analyse activities and identify their subsets, grouping and separation of activities, develop adjacency diagrams Develop 2-3 massing options based on the selected archetypes and evaluate them based on proportions, mass-void connections, scale, context etc. (specific to the design brief) Study of Volumes & Form through 3D Explorations To learn and explore various options for vertical connections and volumetric compositions through hands on exercises of sketching, making physical models etc. To understand response to climate throug		s well	s of all	g of its	nges	design		of urban,	possible	ents such		
BCM 3	CO 1	Understanding the different types of soil and their characteristics, role of soil in site investigation.												
BCM 3 BCM 3 BCM 3	CO 2 CO 3 CO 4	Learning about the concept of soil bearing capacity. Exploring the concept of the pressure bulb under various conditions Understanding the design principles and applications in construction of Shallow foundation/footing, and be able to select appropriate foundation types based on site												
BCM 3	CO 5 CO 6 CO 7 CO 8 CO 9 CO 10 CO 11 CO 12 CO 13 CO 14 CO 15 CO 16 CO 17	conditions and structural requirements To Understand the construction details of plinths, differentiate between ground beams and plinth beams, and apply beam design principles for areas with sunk slabs, such as toilets. Remembering the difference between primary and secondary beams and understand their respective roles in structural systems. Creating drawing that shows 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. To Understand Composition of cement, properties, grades of cement & various types of cement and their uses. To remember its ingredients viz. binding material, fine aggregate, coarse aggregate and water cement ratio, storage of materials on site, understanding good quality material; field & lab tests involved To Understand the concept of Steel, grades of steel and steel-mesh reinforcement; along with role of reinforcement in RCC To Understand of precast concrete, including its definition, types, Design, manufacturing processes, and advantages over traditional cast-in-place concrete methods. To understand and remember the principle of column position, line-out on site, position of columns, centerline details, reinforcement details and resolving junctions To prepare the drawing that provide the details mentioned above To understand and draft sheet with column beam junction details that reflect, Earthquake resistant measures for RCC Construction Understanding and creating details that indicates, R.C.C floor slab details, viz. one-way, two-way slabs with different end conditions, column beam-slab junction with details for toilet block, also lintel & weather-shed To Understand the concept, performance, manufacturing process, design, advantages, disadvantages and installation process of Non timber Windows To collect the market survey for types of Non-Timber windows												
TOS 3	CO 18 CO 1 CO 2 CO 3 CO 4 CO 5 CO 6 CO 7 CO 8 CO 9 CO 10 CO 11 CO 12 CO 13 CO 14 CO 15 CO 16 CO 17	To understand the concepts of flooring including various types, installation process, market forms of flooring and paving materials with sample collection and market survey Discussing the concept of bending moment of fixed beams. Determining the bending moment on given fixed beams. Evaluating the concept of continuity over supports for continous beams. Explaining torsion and its applications Discussing the various loadings acting on the structures. Describing the working stress method and its applications in detail. Summarizing wood as structural material. Formulation of primary wooden flexural member depending upon the supports. Discussing the theory of concrete material with respect of its properties and various tests of concrete as per standard given. Describing steel used in RCC elements with respect to its properties. Describing theroy of limit state method Identifying of various slabs Calculating for various types of slabs for given architectural layout Discussion on small slabs and inverted beams. Calculation of loads on simply supported RCC beam for one way slab. Discussion on beams supporting cantilever porch. Explaining RCC columns with various IS provisions												
CADG CADG CADG CADG CADG	CO 18 CO 1 CO 2 CO 3 CO 4 CO 5	Calcualtion of loads on short RCC column. Implementing different techniques for rendering Adhering to any one rendering technique and demostrating it using architectural drawings Copying and following the commands to produce the drawing with the help of computers. Adhering to any one rendering technique and demostrating it for 3D views Copying and following the commands to produce the drawing with the help of computers Understand concept of scale in a drawing and demonstrate its need to communicate detailed information based on the intent of drawing.												
CADG CADG CADG	CO 6 CO 7	Copying and following the commands to produce the drawing with the help of computers Copying and following the commands to produce the drawing with the help of computers												
CADG CADG	CO 8 CO 9 CO 10	Copying and following the commands to produce the drawing with the help of computers Recreate architectural drawing using CAD Software Recreate architectural drawing using CAD												
CADG	CO 11	Software Ability to plot and produce legible and complete drawings											-	
HAC 3	CO 1 CO 2 CO 3 CO 4 CO 5 CO 6 CO 7 CO 8 CO 9 CO 10 CO 11 CO 12 CO 13 CO 14 CO 15 CO 16 CO 17 CO 18 CO 19	Illustrate Four Typologies of Greek Architecture with names of buildings Illustrate Architecture of the Parthenon in Greek Architecture Describe Orders of Greek Architecture Compare the orders of construction with Greek orders Illustrate the Pantheon W.R.T. its massing, structure, materials and quality of light Illustrate the Pantheon W.R.T. its massing, structure, materiality Illustrate the Colosseum with respect to its Structure, materiality Illustrate the Roman Aqueduct with respect to its Isoad transfer and stability Define and list the Typical Early Church terminology Report the Architecture of the old St.Peter's Basilica in Rome Explain the concept of Pendentives and how they work Simplify the structure of Hagia Sophia Illustrate the Romanesque Style through the example of Pisa Cathedral Complex in Italy - Pisa Complex Plan (1), Leaning Tower of Pisa (1), Pisa Cathedral (1) and Pisa Baptistry (1) Illustrate Gothic Elements such as Pointed arch, flying buttress, ribbed vault, pinnacles, spires Interpret Gothic Load Transfer System Illustrate any one Gothic Cathedral - Reims/Notre Dame/Cologne/ete Interpret the works of Palladio, Micheal Angelo and Brunelleschi - Illustrate St. Peter's Basilica and Florence Cathedral												
BS1	CO 20 CO 21 CO 1 CO 2 CO 3 CO 4 CO 5 CO 6 CO 7 CO 8 CO 9 CO 10 CO 11	Illustrate Facade of Baroque Buildings Illustrate Elements of Rococo Architecture Describing the process of water purification, Describe the method of Ferrule connection Calculate the UG and OH water tank as per requirement, Diagraming the plan and section of RCC UG and OH water tank, Paraphrazing the types of pump based on their use and capacity, Summarize the materials and forms of pipes Summarize the materials and forms of pipes Paraphrazing the types of valves based on their use Summarizing the various market forms of plumbing fixtures with their available companies Give original examples of the plumbing fixtures from residence Describing the installation techniques of various fixtures / fittings, Describing the toilet layout - residence, Discussing the type of trap as per their application in layout, Determining the vertical drainage installation with all components, joinery and materials with their sizes, Determining the special fittings in high rise buildings Calculating the invert level and gradient along with location of access points Summarizing the rain water harvesting methods like ground recharge, recharge well, etc. Summarizes Septic tank and other decantralised waste water treatments wrt. the components, sizes (for collection), working principle along with maintenance Explaining hot water systems, the components and equipments.												

Climatology	y CO 1	To recall the movement pattern of the earth w.r.t Sun and the occurrence of weather phenomena
Climatology	y CO 2	To be able to represent the available climate data from different sources in graphical format.
Climatology Climatology		To analyse the represented graphical climate data for identification of climate issues To illustrate sunpath as a tool for climate analysis
Climatology		To analyse climate type using climate based tools To analyse climate type using climate based tools
Climatology Climatology		To explain passive design strategies through case studies for precedent study To demonstrate the passive strategies by using experimental method and tools
Climatology	y CO 8	To explain application of various architectural design strategies and decision tool
AD 2	CO1	
AD 3 AD 3	CO1 CO2	Discuss key concepts from planning theories that are relevant to campus design Summarize ideas that are used in planning theories applicable for campus design
AD 3 AD 3	CO3	Analysis of existing campus for functional requirements, design parameters and climate response Construct and formulate area program and describe it in two page writeup. (based on precedent studies, associated theories, and case studies)
AD 3	CO5	To Develop a space programme for built spaces based on the brief
AD 3 AD 3	CO6	Develop a space programme for built and open spaces based on the precedent study Analyse proposed site wrt context and describe its opportunities, challenges, strengths and threats. Outline context specific climate responsive strategies. Make a
AD 2	CO9	schematic, graphical presentation of analysis of proposed site on A1 tracing paper/sheet.
AD 3 AD 3	CO8 CO9	To analyse a site with respect to buildability, vantage Points. To analyze the larger context of the site surroundings and draw the zoning diagram.
AD 3	CO10	Site Analysis-Context, Topography and Climate
AD 3 AD 3	CO11 CO12	Analyse the context of site to understand the existing opportunities, or problems in a site Illustrate and explore building envelop design based on climate, architectural character and language (material/fenestrations, etc)
AD 3 AD 3	CO13 CO14	Apply strategies for climate responsive (Fenestration Wall and roof assemblies, Weather shades/Shading Devices, Natural Ventilation strategies) design. Outline climate responsive strategies for given climate type
AD 3	CO14	Illustrate with graphical representation the Campus planning principles that are applied and climate related strategies at site and building level
AD 3 AD 3	CO16 CO17	To choose and apply structural systems of building as a composite of Roofing, Spanning, Opening and Support Systems. Discuss, Identify and illustrate appropriate structural systems and services.
BCM 4 BCM 4	CO 1	Understanding Ferrocrete Construction methodology, ingredients, storage of material on site, quality, field and lab test involved Understanding artificial material and their application in construction of building elements (RMC, LWC, Ferrocrete)
BCM 4	CO 3	Understanding the Damp and Water Proofing, Different methods or treatments of damp- & water-proofing brick on edge, rough Shahabad stone, bitumen sheets,
		plastic sheets, epoxy resins and metallic water proofing materials and other proprietary materials application of the above in construction for terraces, Chhajja, toilet slabs
BCM 4	CO 4	Understanding of construction details of RCC balcony under various structural conditions
BCM 4 BCM 4	CO 5	Demonstrating a drawing shows, reinforcement details of bar placement under various conditions for RCC Balcony Understanding of construction details of canopy under various structural conditions
BCM 4	CO 7	Demonstrating a drawing shows, reinforcement details of bar placement under various conditions for RCC Balcony
BCM 4 BCM 4	CO 8 CO 9	Understanding of construction details of RCC staircase under various structural conditions Demonstrating a drawing shows, reinforcement details of bar placement under various conditions for RCC Staircase
BCM 4	CO 10	Describing and discussing Lifts, Escalators and Conveyors to understand the design and structural requirements for installation of these services
BCM 4 BCM 4	CO 11 CO 12	Demonstrating vertical transportation system through drawing Explaining concept of Sliding and Folding door and its application and Evaluation of the hardware used for Sliding and Folding
BCM 4 BCM 4	CO 13	Explaining concept of Bay Window and its application
		Understanding and remembering glass and plastic as a building material, its application in building construction and various market forms available
TOS 4 TOS 4	CO 1 CO 2	Discussing the concept of different supports for cantilever slabs calculations of cantilever slabs as an overhanging slabs
TOS 4	CO 3	calculations of cantilever beams.
TOS 4 TOS 4	CO 4 CO 5	Discussing the various beams sections Categorizing given beams with its strain diagram
TOS 4	CO 6	Categorizing given beams with its strain diagram. Evaluating load bearing structures for given architectural layout.
TOS 4 TOS 4	CO 7 CO 8	Discussing different types of staircases calculations of dog legged staircase with different beam positions
TOS 4	CO 9	Describing various elements of steel structures for multiple floors.
TOS 4 TOS 4	CO 10 CO 11	Identifying of Standard Lay Out of Factory or Trussed Buildings in Plan and Section Discussing Steel as a Material and its different sections and reading of steel tables.
TOS 4	CO 12	Discussing theory of plastic design in steel and connections of girders and stanchions.
Env Sc	CO 1	Summarize the textbook content on natural resources- Land, water, forest, energy and food
Env Sc	CO 2	Write short notes explaining Concept of Eco Systems & various cycles
Env Sc Env Sc	CO 3 CO 4	Classify and analyze various types of ecosystems Identify, recognize and label the trees in the campus
Env Sc Env Sc	CO 5	Identify the NGOs and record their contribution in the field Summarize the textbook content of Causes, effects and control measures of pollution
Env Sc	CO 7	Interprete & illustrate the issues of pollution
Env Sc Env Sc	CO 8 CO 9	Describe the scope, role and importance of laws and acts Discuss the role of NGOs and associate themselves as a responsible individual
Env Sc Env Sc	CO 10 CO 11	Determine the important aspects of environmental clearance Analyse an architectural project for green rating systems
HAC 4	CO 1	Discuss Traditional 19th Century Styles prevalent in Europe, Changes brought about in material and technology and new possibilities in design. Firsts- use of new material, new techniques, skyscrapers
HAC 4	CO 2	Discuss Moving away from traditional styles and creating a new vocabulary
HAC 4	CO 3	Illustrate Colonial, Indo Saracenic Architecture, Works of Chisholm, Mant, Irwin, Emerson, etc. Interpret Architecture style parallel to the movement of visual and performing art
HAC 4	CO 5	Describe the works of William Morris, Pugin, Ruskin, Phillip Webb et al
HAC 4	CO 6	Define total art style, Secessions De Stijl, Jugendstil, Stile Liberty, Modernism, Modern style, Glassgow School, Tiffany style Examine the concept of Communism and the Architecture evolved from it. Discuss Moving away from traditional styles and creating a new vocabulary
HAC 4	CO 8	Memorise how Architecture adapted to the world of machines, radios and fast cars
HAC 4 HAC 4	CO 9 CO 10	Describe Architecture style 1960's onwards, Introduction to works of Venturi, Johnson, Moore, Graves, et al. Describe Le Corbusier, Concepts of form follows function, machines for living, Eero Saarinen, Alvar Alto
HAC 4	CO 11	Describe Prairie style, high modernism, works of Wright, Schindler, and Neutra
HAC 4 HAC 4	CO 12 CO 13	Describe the Post second world war reconstruction, architecture in the 1950's, works of Frank Lloyd Wright, Mies van der Rohe Describe Style through Europe, American Art Deco. Cathedrals of Commerce, Streamliner style, Art deco India, works of G.R. Mhatre, Master, Bhuta, Sarbe, Pansare
HAC 4	CO 14	Describe Style through Europe, American Art Deco- Cathedrals of Commerce, Streamliner style, Art deco India- works of G.B. Mhatre, Master, Bhuta, Sarhe, Pansare
		Discuss Post Independence Architecture in India through the 50's and 60's, Works of Luytens, Stein, Kanvinde, Doshi, Correa, Rewal, Pravina Mehta, Baker, et al.
HAC 4	CO 15	Expression of buildings visited in a technical format
BS2	CO 1	Illustrate the methods of solid waste disposal at building, campus and city level
BS2 BS2	CO 2 CO 3	Discussing the space requirement for solid waste disposal at building, campus and city level Using the required method for solid waste disposal on project site
BS2	CO 4	Describing the passive design strategies
BS2 BS2	CO 5 CO 6	Summarizing different glazing materials as available in market and their specification Calculating day-light in given example
BS2 BS2	CO 7	Describing the new technologies for incorporating day-light in indoor spaces
BS2 BS2	CO 9	Paraphrazing the sources of light, their characteristics (CRI, Color temperature) Describing the lighting systems - types of lighting (Ambient, accent, task, decorating, directional) and types of lighting (incandescent, fluorescent, LED, CFL,
BS2	CO 10	Halogen) Using the lighting methods and selection of light in case study
BS2	CO 11	Calculating energy consumption in residence
BS2 BS2	CO 12 CO 13	Calculating the examples by Lumen method for no. of lights in given space Quoting the electric supply from generation to electric point in building
BS2	CO 14	Using the lighting methods and selection of light in case study for load calculation
BS2 BS2	CO 15	Diagramming the electrical wiring system in given residential project Diagramming the electrical wiring system in given commercial project
BS2	CO 17	Summarizing the materials available
BS2 BS2	CO 18 CO 19	Describing the Sources of energy - Renewable and non-renewable and their method of energy generation Give original example for low voltage network systems as stated
SSA SSA	CO 1 CO 2	Explaining the use of various instruments like chain, cross-staff, tapes, ODM, EDM, Total station for taking linear measurements Determine area of a polygonal plot using chainages and offsets measured on a Survey line
SSA SSA	CO 3 CO 4	Explain the reading of land demarcation drawings Explain the use of compass for horizontal and theodolite for vertical angle measurements (bearings)
SSA	CO 5	Formulate a closed traverse based on given chainages and bearings
SSA SSA	CO 6 CO 7	Explain the use of dumpy level and auto level for vertical elevation measurements Formulate contour lines for a given plot size based on elevations of points
SSA	CO 8	Illustrate the application of contour survey in terms of calculating slope between two points, stormwater drainage, identifying location of proposed building
SSA SSA	CO 9 CO 10	Formulate longitudinal and cross section of a road profile with given elevations Illustrate the vertical gradient, road cross section, cut-fill for road profile based on given elevations
SSA	CO 11	Explain the use of plane table and planimeter
SSA SSA	CO 12 CO 13	Generate plan of a building, locate the objects using plane table with respect to known points Illustrating various aspects of architectural site analysis for a given site

		Third Year Bachelor of Architecture CO - PO Mapping												
AD IV	CO1	Identify activities and spaces through precedent studies.	Ability to communicate design using various representation tools	Design Architectural form working from a conceptual argument that is well articulated and presented and uses the principles of form making.	Ability to prepare a design brief that is presented as a detailed analysis of all the functions and associated activities.	Ability to employ appropriate Structural system with an understanding of its components and with due architectural considerations	Ability to resolve various associated services in response to the challenges posed by building typology / scale / site.	Ability to design a building using a variety of passive climate control strategies including orientation, site planning, and building envelope design	Ability to design outdoor space with a program and achieving a good integration of the inside and the outside	Ability to theoretically position a project as an argument for an issue of urban, cultural or architectural relevance	Ability to extensively analyse context of a project and explore a set of possible ways of responding to the social and cultural context	Preparing design documentation that is adequate for various requirements such as estimation, construction and regulatory approvals.	Ability to undertake research activity in any area related to the built environment	Ability to execute a project in a competent manner including client communication and collaboration with the various consultants
AD IV AD IV AD IV AD IV	CO2 CO3 CO4 CO5	Develop an area program based on activity and anthropometric study Prepare a project argument based on the focus of the studio/ Design approach. Understand and document the location in the settlement map, proximity to transportation hubs, and road hierarchy of roads for accessibility. Understand and document the existing physical/natural features(vegetation/waterbodies) within the site.	= - -		-					-	-			
AD IV AD IV AD IV AD IV	CO6 CO7 CO8 CO9	Understand and document the surrounding built and unbuilt environment. Understand and document any historical/socio-cultural context relevant to the project. Existing land-use and activity patterns in the vicinity. Design and develop a campus design demonstrating response as reflected in location- entry/exits, zoning. Design and develop a campus design demonstrating response as reflected in Minimum intervention in contour site, retention of important natural features by integrating into	-								-			
AD IV AD IV	CO10 CO11	landscaping. Design and develop a campus design demonstrating response as reflected in zoning in response to the activities around the site. Design and develop a campus demonstrating a response to the historical/socio-cultural context in one of the following ways: metaphysical, reinterpretation through abstraction.	-											
AD IV AD IV AD IV AD IV	CO12 CO13 CO14 CO15	Analyze the site for the topography (slope analysis, buildable/non- buildable areas, site sections). Assign levels to building blocks and entry levels. To clearly show connecting steps/ramps, and the existing and modified contours Design and develop well-integrated and proportionate outdoor functional areas considering levelling, access, hardscape, and softscape. Define the climatic zone. To analyze and document the macro and micro climate of the site. To determine and document the passive design strategies.	- - - -											
AD IV AD IV	CO16	Design a campus that reflects the passive climate control strategies at the site level (orientation of building blocks as per sun path and wind direction, massing, built-unbuilt proportion, integration of vegetation and water bodies, and placement of services. Design a campus that reflects the passive design strategies at the building level including buffer areas, envelope design, location and sizes of the opening, shading devices, and material selection and finishes.												
AD IV AD IV AD IV AD IV	CO18 CO19 CO20 CO21	Design a campus that reflects the passive design strategies at the building element level including wall and roof assemblies. Identify and analyze organizational principles of campus planning. (including focus, axes, nodes, vistas, enclosure, symmetry, order, etc) with the help of case studies. Demonstrate the application of organizational principles of campus planning in the proposed design. Analyze the hierarchy of open spaces, built-unbuilt ratio, linkages, and figure-ground of existing campus.	-						-					
AD IV AD IV AD IV AD IV	CO22 CO23 CO24 CO25	Demonstrate the hierarchy of open spaces, built-unbuilt ratio,linkages and figure ground in the proposed design. Analyze the zoning (public, semi-public, private), circulation (vehicular, pedestrian), and adjacencies (inter-relation of various activities) of the existing campus. Demonstrate the learnings through application in the proposed design Explore various volumetric alternatives and select an appropriate form.	-											
AD IV AD IV AD IV AD IV	CO26 CO27 CO28 CO29	Identify the Architectural character of the existing campus Design a campus reflecting a chosen Architectural character. Indicate site-level services like UGWT, STP, transformer, Rainwater harvesting arrangements, solar panels etc in the site plan. Identify and apply appropriate structural systems and represent the components adequately.	-											
BCM V BCM V BCM V	CO1 CO2	Listing of materials available in market and labelling samples / pictures of the market forms Describe characteristics, properties and application of listed materials												
BCM V BCM V	CO4	Paraphrasing the classification of paints and varnishes based on application (walls - internal/external and furniture), composition (oil based, water based) and types of paints Paraphrasing the types of shallow and deep foundation (spread footings, grillage foundation, Eccentric loaded footings, combined footings and raft foundation) Illustrate construction of single basement with box type (Internal and External tanking) water proofing method. Listing other water-proofing methods - Chemicals and membrane												
BCM V BCM V BCM V	CO6 CO7 CO8 CO9	Paraphrasing types of RCC floor slabs based on spans/ application, advantages and disadvantages Illustrating Prestressed and post tensioned RCC slabs construction methods, advantages and disadvantages Associating the knowledge of proprietary and non-proprietary partition systems, material and hardware knowledge for a partition design in given space												
BCM V BCM V BCM V BCM V	CO10 CO11 CO12 CO13	Associating the knowledge of proprietary and non-proprietary suspended ceiling systems, material and hardware knowledge to design a Size Bed in given space Associating the knowledge of material and hardware knowledge to design a Display and storage rack in given space Associating the knowledge of material and hardware knowledge to design a Table and Chair in given space Associating the knowledge of material and hardware knowledge to design a Table and Chair in given space Associating the knowledge of material and hardware knowledge to design a Kitchen counter with storage in given space												
TOS V TOS V TOS V TOS V TOS V	CO1 CO2 CO3 CO4 CO5	Discuss the alternatives of RCC beams limited to doubly reinforced, flanged RCC beams and prestressed concrete beams Calculate the amount of steel required for doubly and flanged RCC beams Illustrate the reinforcement details for doubly and flanged RCC beams Calculate column loads for multiple floors Demonstrate the effect of column loads at multiple floors on column-size and reinforcement												
TOS V TOS V TOS V TOS V	CO6 CO7 CO8 CO9	Outline of various types of foundations calculate structural actions on isolated RCC footings for given column loads Determine the thickness and reinforcement for RCC isolated footing based on structural actions Discuss the effect of additional flange plates on steel sections used for girders and stanchions												
TOS V TOS V TOS V TOS V	CO10 CO11 CO12 CO13	Calculate the loads and spans for steel sections with given additional flange plates Describe various steel members used for specific functions limited to plate girder, gantry girder, castellated girder and portal frames Interpret the effect of lateral soil loads on retaining wall calculate structural actions on gravity retaining wall												
TOS V TOS V TOS V	CO14 CO15 CO16	Analyze the stability of gravity retaining wall Describe the effect of pre-stressing and various types of pre-stressing systems Illustrate the effect of prestressing on resulting stresses in simply supported beams with given span and load												
LA LA LA	CO1 CO2 CO3 CO4	Identify and present qualitative aspects of landscape design through use of verbs/adjectives Identify and illustrate elements and principles of landscape design through historic styles Identify, document and demonstrate hardscape materials through typical sections Document and demonstrate plants and classify their characteristics												
LA LA LA	CO5 CO6 CO7 CO8	Analyse live case study for the open space design in terms of size, scale, hierarchy of open spaces, Planting strategies, hardscape materials Design contours and correlate slopes with their sections Evaluate building placements with respect to slopes Design parking space in accordance with contours												
LA LA LA	CO9 CO10 CO11 CO12	Evaluate grading of contours Analyse physical parameters of the site with respect to contours, hydrology, vegetation, surrounding edges and landuses, and visual analysis wherever relevant Create landscape design in response to the site parameters Develop planting strategies as per the function of the design												
CAS CAS	CO1 CO2 CO3	Identify Key contributors in contemporary architecture Recognize milestones and timeline of contemporary architecture Understand and analyse various approaches to comtemporary architecture												
CAS CAS CAS CAS	CO4 CO5 CO6 CO7 CO8	Formulate a research paper proposal for further research Analyse and critically appraise a building/ approach/ theory/ philosophy in a research paper format Review a research paper to understand its structure including Abstract, Introduction, Methodology, Body, Conclusion Formulate a Paper with the understanding of Abstract, Introduction, Methodology, Body, Conclusion Develop skill of orally presenting a topic of choice, and generating a discussion.												
BS III BS III BS III	CO1 CO2 CO3 CO4	Read & Understand the theory of Natural Ventilation, Recall remember and answer the quiz or Questions asked on the topic. Remember basic theory, give reasons, by observing, giving examples of real case scenario about Natural ventilation and write conclusions. Understand, read, rememberTheory of Mechanical Ventilation, think, suggest, and develop a strategy and Illustrate with the help of diagrams Reason the solutions for the given problem of Mechanical Ventilation.												
BS III BS III BS III	CO5 CO6 CO7 CO8	Recall what is learned in classroom about Heating and Cooling of Buildings and by observations and case studies and apply knowledge, by understand the situation of existing problem Give acceptable solutions for Heating and Cooling of Buildings. Illustrate with the help of schematic diagrams. Recall what is learned in classroom about AirConditioning, by observations and case studies and Apply knowledge, by understanding the situation of existing problem and give acceptable solutions for Air Conditioning by doing correct analysis. Illustrate with help of diagrams and present the same graphically.												
WD I WD I WD I	CO1 CO2 CO3	Summarize the basics of working drawings and prepare a list of drawings required for the docket of execution drawings required on site Summarize the methodology of the working drawings and its importance in professional practice. List various terms used in WD and analyze the appropriate use of graphical representation and annotations.												
WD I WD I WD I	CO4 CO5 CO6 CO7	Analyze your project for various aspects of structural system Apply and demonstrate through manual drafting with appropriate graphical representation of technical drawings required for working drawing subject. Illustrate structural drawings at different levels of buildings (foundation, plinth, ground floor and upper floors). Generate a full set of execution drawings.												
WD I	CO8	Generate details of door and windows with appropriate details like size, material, style, etc. Demonstrate via preparing graphical drawings of the same and tabular schedule. Mimic and demonstrate various Details in the project.												
AD V	CO1	Generating design brief - To identify activities and spaces of a multifunctional building. To understand a project concerning the Development plan, UDCPR, and FSI calculations. Pre-study - Interpreting the design program. Site analysis with respect to physical, cultural, and climatic context. Case studies with respect to services, structural system, circulation												
AD V AD V AD V	CO3 CO4 CO5	and fenestration To Analyse the context with respect to the social, cultural and architectural context. To demonstrate design ideas based on site analysis, adjacency studies and climate analysis To demonstrate form development using volumetric analysis in multistory building												
AD V AD V AD V AD V	CO6 CO7 CO8 CO9	Structural and parking grid - To understand and design suitable structural grid with respect to the site, service core, and parking for a multistory building Service cores - to understand and design appropriate service cores satisfying all the functional requirements and fire- fighting norms Design the basement (Plinths, Ramps, and Heights) to make provisions for UGT. STP, pump rooms, AC plant, meter rooms, generator and transformer. Design basement parking (Plinths, Ramps, Heights) and resolving ramps, facilitating the efficient movement and parking of all the vehicles.												
AD V AD V AD V	CO10 CO11 CO12	To design skin/ facade of building based on structural, and construction techniques To design climate-responsive skin / facade of the building using appropriate material/products Demonstrate a graphically correct and complete design scheme												
BCM VI	CO1	Understand potential of steel as a structural material in building construction and its inherent structural benefits												

	T		T	
BCM VI		Analyse construction details of fencing and suitable gates with due consideration to design parameters		
BCM VI		Assemble a medium span truss with basic connections and earthquake resistant features		
BCM VI		Associate a case study of a technical drawing of various components of multi storied steel building with a ref of existing building		
BCM VI		Understand the assembly of prefabricated components of CBRI		
BCM VI	CO6	Applying the knowledge the assembly of prefabricated components of CBRI		
BCM VI	CO7	Apply the basic knowledge of moment resisting and cross braced frames for earthquake resistant structures		
TOS VI	CO1	Discuss the effect of lateral soil load on cantilever and counterfort RCC retaining walls		
TOS VI	CO2	Calculate the structural actions on RCC retaining wall for given situation		
TOS VI	CO3	Discuss the structural actions on water tanks		
TOS VI	CO4	Illustrate the reinforcement details for retaining walls and water tanks		
TOS VI	CO5	Formulate structural framing plan using RCC elements for given architectural plan of G+1 building using thumb rules		
TOS VI	CO6	Determine the size of steel section and it's orientation for a compound stanchion		
TOS VI	CO7	Determine the size of steel sections for members of a given truss		
TOS VI	CO8	illustrate the bolted and welded connections for truss joints		
TOS VI	CO9			
		Formulate structural framing plan using steel elements for given architectural plan for medium size industrial building		
TOS VI	CO10	describe the effect of wind on low rise and high rise buildings		
TOS VI	CO11	Calculate the wind load on a building not more than G+9		
TOS VI	CO12	Discuss various long span structural systems		
TOS VI	CO13	Discuss various high rise structural systems		
RIA I	CO1	Explain meaning of Research and discuss its need and significance in the Architectural domain		
RIA I	CO2	Explain types of research and categorize them based on quantitative and qualitative research		
RIA I	CO3	Identify various steps involved in research and various components of research		
RIA I	CO4	Identify sampling strategies, sampling design, sampling profiles and apply then to a research problem		
RIA I	CO5	Analyse types of variables and discuss their use in Research		
RIA I	CO6	Summarize literature and categorize research papers thematically		
RIA I	CO7	Recognize ways to referencing and citation through research papers		
RIA I	CO8	Describe Visual and Verbal research methods		
RIA I	CO9	Develop and present a research proposal		
BS IV	CO1	Understanding, remembering, describing in form of written information and representing with sketches the properties, behaviour of sound.		
BS IV	CO2	Understanding, describing, calculate, explore, apply, solve, illustrate, present Materials used for Acoustics, their purpose, characteristics in given Indoor space.		
BS IV	CO3	Study the existing conditions and identify, analyse to control Outdoor and Indoor noise in previous semester AD Campus design project		
BS IV	CO4	Identify, Choose, categorize, analyze, illustrate graphically and give optimal solution for controlling Reverberation time of a chosen space, by application of Materials, techniques for		
		the space given		
BS IV	CO5	Understanding, remembering, describing in form of written form and verbally presenting information to fulfill all Fire Norms in Different types of buildings.		
BS IV	CO6	Identify, Choose, categorize, apply, illustrate graphically and comply to STDs and Norms by refering to NBC guide and follow UDPCR rules for Fire safety in any commercial		
		building.		
BS IV	CO7	Identify, Choose, categorize, apply, illustrate graphically and comply to STDs and Norms by refering to NBC guide and follow UDPCR rules for Fire safety in any commercial		1
		building.		
BS IV	CO8	Identify, Choose, categorize, analyze, evaluate and comply to STDs and Norms by refering to NBC guide and follow UDPCR rules for Fire safety in any commercial building.		
WD II	CO1	To Know the basics and importance of Working Drawings		
WDII	CO2	To prepare a set of working drawings for a Residential Unit - Time limit Assignment with manual Drafting. (All Drawings)		
WD II	CO3	To Acquaint students with a Computer Aided software (AutoCad) for making working drawing		
WD II	CO4	To undesrtand the construction system of framed structure buildings - To prepare a Framing Plan for their Architectural Design with position, orientation and Calculations for RCC		
		Column Sizes. (TOS Faculty)		
WD II	CO5	To Convert the framing Plan into Centre-line Plan and complete all level Floor Plans, Sections and Elevations.		
WD II	CO6	Site Visit - To see the details on site and understand how drawings are referred and executed on site.		
WD II	CO7	Hands-on Work: Students to Mark a Centerline Plan prepared for a small (part) space and Demonstrate the Process of Centerline marking and checking.		
WD II	CO8	To design and provide Water supply systems as essential services for the Project and prepare the working drawings along with size calculations for OHWT & UGWT		
WD II	CO9	Understanding plumbing system for public toilets and making of working drawing for the same. Calculation for size of Treatment of Waste water (Septic tank and Soak pit)		
WD II	CO10	Introduction to research of façade treatment, materials and construction prequisites and Preparing Details for the Project.		
WD II	CO11	Introduction to various details for Interior Architecture and Furniture. Preparing details of Suspended Ceiling and one Furniture Unit for a selected area in the Project.		

		Fourth Year Bachelor of Architecture CO - PO Mapping												
		Karvenagar, Pune-411 052.	Ability to communicate design using various representation tools	Design Architectural form working from a conceptual argument that is well articulated and presented and uses the principles of form making.	Ability to prepare a design brief that is presented as a detailed analysis of all the functions and associated activities.	Ability to employ appropriate Structural system with an understanding of its components and with due architectural considerations	Ability to resolve various associated services in response to the challenges posed by building typology / scale / site.	Ability to design a building using a variety of passive climate control strategies including orientation, site planning, and building envelope design	Ability to design outdoor space with a program and achieving a good integration of the inside and the outside	Ability to theoretically position a project as an argument for an issue of urban, cultural or architectural relevance	Ability to extensively analyse context of a project and explore a set of possible ways of responding to the social and cultural context	Preparing design documentation that is adequate for various equirements such as estimation, construction and regulatory approvals.	Ability to undertake research activity in any area related to the built environment	Ability to execute a project in a competent manner including client communication and collaboration with the various consultants
Sem_Sub AD_VI AD_VI AD_VI	CO / PC CO1 CO 2 CO3	CO Description 1. Understanding the project argument and developing the requisite level of competency towards the studio theme 2. Remembering the key concepts of housing and their correlationsip with studio theme 3. Creating a mind map describing the project argument	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
AD_VI AD_VI AD_VI	CO4 CO5 CO6	Analysing the project site context in terms of prevailing physical conditions, local culture, socio economic development of around site Evaluating the site analysis and developing a judgment for SWOT Understanding the principles of organising housing cluster, road hierarchy, amenities, open space, public space, parking												
AD_VI AD_VI AD_VI	CO7 CO8	 4. Creating a detail layout with clearly defined boundaries of indoor and outdoor space that is proportionate to built 4. Understanding the principles of space planning and correlation with housing unit design 5. Remembering the principles of space planning and creating unit plans that adhere to circulation, furniture layout, utility 												
AD_VI AD_VI AD_VI AD_VI	CO10 CO11 CO12	space, functional spaces such as terraces or balconies, habitual spaces such as bedroom, kitchen, living room. 6. Creating housing cluster plans with several permutation and combination and converting it into volumetrics 3. Understanding configuration of service core while integrating it into housing unit cluster 4. Analysing service core design in relation with number of housing floor												
AD_VI AD_VI AD_VI AD_VI AD_VI	CO13 CO14 CO15 CO16	3. Remembering the principles of structural design and applying it for housing building 4. Creating a layout indicating the column placement on housing layout in correlationship with parking 4. Understanding the number of parking or parking requirement housing unit wise 5. Analysing the vehicular movement with reference to entry exit of housing campus and providing parking solution												
AD_VI AD_VI AD_VI AD_VI	CO17 CO18 CO19	6. Creating a parking layout at campus level 4. Understanding the local bylaws that are applicable to proposed housing typology 5. Remembering the basic housing bylaws that are applicable to individual unit, building, campus level and for volumetrics												
AD_VI	CO20	6. Applying the design bylaws Analysing third year AD project to plan and produce Architectural design for Multibasement to enable appropriate parking facilities and required utilities with proper means of access compliant with NBC 2016, UDCPR bylaws and regulations for fire												
ABCS 1 ABCS 1	CO 2	safety and suitable construction technology Applying prior and currently gained knowledge of building services to the architectural layout design in order to make the multibasements workable in terms of function, services and usability												
ABCS 1 ABCS 2	CO 3	Preparing architectural Design of a swimming pool of size and purpose specified and complying with the bylaws and safety requirements using the suitable construction technology Applying the knowledge of methods of water filtration, circulation, cleaning & maintanance of a swimming pool and various methods of construction of Swimming pools and application of materials for swimming pools.												
ABCS 3	CO 5	Analysing the manufacturing process followed by the chosen industry typology and Applying the previous knowledge of structural steel, IS sections, Joinery, foundations and Preparing architectural Design of a medium scale industrial shed (PEB)												
ABCS 4	CO 6	assigning suitable gantry space and mezzanine area for the proper functioning of the industry Choosing and Applying architectural details like eaves gutter details, cladding, masonry and window opening details in order to impart desired aesthetics along with functionality suited to the industry typology Applying the previous knowledge of structural steel, IS sections, Joinery, foundations, types of steel sections, Structural												
ABCS 5	CO 7	members, trusses, Gantry, roofing & claddings, Industrial floors and conceptualizing, designing and drafting the Architectural design of a long span structure with all relevant services and utilities. Detailing the joinery, composition, assembly of components, gantry provisions etc												
US 1 US 1 US 1	CO 1 CO 2 CO 3	Understand the urban context and its correlation to Architectural Project Understand and identify the issues related to various day to day factors of a city Understand the principles of Urban planning and urban design through case examples												
US 1 US 1 US 1	CO 4 CO 5	Understand the various planning theories through diagrammatic expression Understand the various housing typologies with respect to social and economic aspects (High rise housing, slum housing, bungalows, Row houses, rural housing, twin bungalows, public housing, social housing, affordable housing) Evaluate best case examples of housing typology conducted in housing design studio												
US 1 US 1 US 1 US 1 US 1	CO 7 CO 8 CO 9 CO 10	Understand the various aspects of urban land development and its implication Understand by laws and rules from the document of development control rules and its implications Understand the process of town planning scheme execution and various stakeholders involved Understand the by laws and rules applicable to TPS Creating a layout of town planning scheme												
RIA 2	CO 1 CO 2 CO 3 CO 4 CO 5 CO 6 CO 7 CO 8	Explain research proposal focussing on an issue related to the built environment. Describe research proposal focussing on an issue related to the built environment, in a two page writeup. Discuss and Explain in detail suitable research method and construct suitable pointers Collect quantitative/qualitative data based on derived research methods Analyse and simplify collected data in the form of diagrams/charts Discuss and Draw inferences based on data analysis Understand sequence of presenting data in a technical paper Discuss and Describe research proposal with technical writing Choose and write appropriate citation and referencing style in research paper Discuss and draft a technical research paper including Title, Abstract, Introduction, Empirical study Methods,												
RIA 2	CO 10	Results, Discussion, and References sections Explain the research paper with FOLLOWING STEPS 2. area of concern, present your research question and why it matters; 3. describe how you conducted your research, 4. explain major findings; and.												
RIA 2	CO 12	5. conclude with a summary of main points.6. Invite audiance for their suggestions/ feedback/ questions if anyRevise and write technical research paper including appropriate remarks if any with standard parts of research paper												
QS 1 QS 1 QS 1	CO 1 CO 2 CO 3	Associate Built Form and quantity estimation of an architectural project Identify the qualities of an estimator Discuss importance of estimation												
QS 1 QS 1 QS 1	CO 4 CO 5 CO 6	Identifying ways of writing cost estimation and material quantity Defining terminologies of estimation Identifying stages of work												
QS 1 QS 1 QS 1 QS 1	CO 7 CO 8 CO 9 CO 10	Associate working drawings and Specficiation writing Identifying different types of specfications and their uses Discuss Schedule of rates Identifying Units of Measurement												
QS 1 QS 1 QS 1	CO 11 CO 12	IS Standards Calculating quantities for Load Bearing and RCC Structure through Offset and Centre line method Breaking Down the Load Bearing/RCC structure into individual Material component												
QS 1 QS 1 QS 1	CO 15	Categorizing quantities through stages of work Illustrating quantities and costs through Measurement and Abstract sheets Illustrating descriptive notes on materials and workmanship based on working drawings												
PP PP PP	CO 1 CO 2 CO 3 CO 4	To acquaint the student with the current mode and trends of Professional Architectural Practice To prepare the student for the Professional Training in an Architect's Office in the IX Semester. To introduce the Students to the Roles & Responsibilities of Architects, through Architects Act To expose students to the intricacies of Architectural Professional practice. To enable Students to make a decision as per their awareness about the Role and Responsibilities as a professional Architect.												
PP PP	CO 5	To induce high standards of Ethical practices, social sensitivity, and code of Conduct, amongst the Students By engaging into a debate												
PP	CO 7	To familiarize the student with the Council of Architecture, The Architect's Act, Architectural competitions, and other allied professional organizations.												
_	CO 1 CO 2 CO 3	To demonstrating the physical, geographical, historical, larger city/regional level context applicable to the project. To analyse immediate and wider context Evaluating the site analysis and developing a judgment for SWOT To develop a narrative for the project covering various aspects like the need, and theme of the project and to argue its relevance based on socio-cultural, socio-economic, urban/architectural aspects												
AD_VII		relevance based on socio-cultural, socio-economic, urban/architectural aspects To conduct case studies and analyse their context/s and various approaches, strategies of contextual responses and discuss in groups To develop strategies of contextual responses through sketches and models, scale of the project, site planning, form and												
AD_VII AD_VII AD_VII	CO 6	architectural character. To create imageability and identity through Architectural character To analyse case studies for the open space design in terms of size, scale, hierarchy of open spaces, structure of open spaces and their relationship with the building edge, their uses, identify the patterns of built and un-built spaces, and discuss in groups												
AD_VII	CO 8	To create segregation and integration of pedestrian and vehicular movement in a layout after analysing the configuration of open spaces formed as a result of spatial arrangement of buildings blocks through site planning												
AD_VII AD_VII AD_VII AD_VII	CO 9 CO 10 CO 11 CO 12	To analyse Design Brief with respect to various functions, their scale and adjacencies To develop Architectural vision for the project based on figure ground and/or volumetric iterations To develop a comprehensive site plan considering open spaces, parking and circulation, and built form To design built form and present through architectural drawings, models												
AD_VII AD_VII	CO 13	To design parking layout with parking bays, driveway, applicable turning radius and provision of ramps etc. and to denote these in site plan, basement/floor plans and sections as applicable To indicate the vertical core required as per the bye-laws, showing basic spatial provisions for overhead water tank, lift machine room and indicate the same in plan, elevation, sections wherever relevant												
AD_VII AD_VII	CO 15	To indicate site level services like UGWT, STP (if applicable), transformer etc in site plan To design structural grid considering parking layout and design grid of buildings and denote it clearly in floor plans and sections based on function of buildings												
AD_VII	CO 17	To apply bye laws and demonstrate it's understanding in design						<u> </u>						

ABCS 2	CO 1	Designing of an Auditorium building for capacity of 500 + seats with provision of balcony and ancilLaries required				
		Preparing Architectural layouts by following byelaws, NBC etc Applying, Analysing, the required services for auditorium and Preparing services layout, detailing of accoustical treatment,				
		stage with plenum, ceiling, etc.				
ABCS 2	CO 2	Recalling and remembering previous knowledge of accoustical services, long span structures techniques, material application,				
		etc. with the help of case study				
ADCS 2	CO 3	Designing of Architectural details from previous year/semester design projects				
ABCS 2	CO 3	by choosing architectural elements and preparing a legible composition from the same				
ABCS 2	CO 4	Analysing and applying different materials and construction techniques for selected architectural elements (indoor and outdoor) and making working drawings for same				
		Drafting the designed plans for last semester (from ABCS I) industrial building and working out(applying) relevant services				
ABCS 2	CO 5	and utilities by Recalling and remembering previous knowledge of Industrial services				
ABCS 2	CO 6	Understanding the structural techniques and typologies of High rise building d Illustrating assembly of components with the				
		help of model of chosen type of structure				
LIC 3	CO 1	Understanding survey methods and mapping methods of urban area/pocket with reference to context, preparing urban pocket				
US 2	CO 1	base map wrt to design studio				
US 2	CO 2	Understanding of bylaws related to urban area, housing development, urban development and it's application in design program				
US 2	CO 3	Understanding various aspects of urban conservation in context to urban design				
US 2	CO 4	Understanding of acts such as MRTP act and guidelines related to urban development				
US 2	CO 5	Understanding practical scenario related to housing demand and supply, various financial institutions				
US 2	CO 6	Understanding of various government bodies and their role and schemes related to urban development (schemes related to infrastructure, roads, urban conservation, redevelopment, water and sanitation)				
US 2	CO 7	Understanding the redevelopment index and it's various aspects through mapping exercises				+
US 2	CO 8	Urban Design Intervention in the form of street design and application of the same in design				
QS 2	CO 1	Develop Advanced Rate Analysis: Perform rate analysis for complex construction items and work with current market data to prepare accurate cost estimates.				
06.3	CO 2	Prepare Detailed Bills of Quantities (BoQ): Create comprehensive BoQs for large-scale projects, ensuring accurate				
QS 2	CO 2	measurement and cost planning.				
QS 2	CO 3	Write Comprehensive Specifications: Draft detailed specifications for both common building elements and specialized services (e.g., HVAC, electrical systems, drainage).				
QS 2	CO 4	Work with Industrial Structures: Calculate quantities and prepare measurement sheets for industrial steel structures, including				
₹~ -		roofing, trusses, and footings.				
PM	CO 1	To acquaint the student with the traditional Organisational Structure Vs Modern Project Management Structure				
PM	CO 2	To enable Students to understand the importance of Project Manager & the Role of Project Manager in a Project				
PM	CO 3	To introduce the Students to the various phases and stages of a Project. To equip them to identify difference between Project Management and Construction Management				
		To expose students to the intricacies of Tenders & Contracts. To enable them differentiate between various Tenders,				
PM	CO 4	Procedures and Articles of contracts				
PM	CO 5	To familiarize Students to the Knoweldge Areas of Project Management with focus on understanding of how various				
PM	CO 6	knowledge areas work in relationship with each other				+ + + + + + + + + + + + + + + + + + + +
		To create awareness amongst the Students about ethical Project Management practices, Computer applications for				
PM	CO 7	effective Project Management				
PM	CO 8	To familiarize the student with the Specialized Management themes and equip students in using the relevant				
		knowledge for various types of Projects and various Computer apps for Effective Project Management				
PM	CO 9	To make the Students competent enough to handle and manage a small-scale project from conceptualization to completion Stage (handing over stage)				
		completion stage (nanding over stage)			<u> </u>	