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Criteria 2 – Teaching Learning & Evaluation

2.6: Student Performance and Learning Outcomes

2.6.1

Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website

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Criteria 2 – Teaching Learning & Evaluation

2.6. Student Performance and Learning Outcomes

2.6.1 **Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website**

Document related to Stating of PO and CO offered by the Institute.

Sr. No.	Contents (Documents)
1	Flow chart demonstrating the Attainment of Program Outcome
2	Programme Outcome
3	Summary of Course Outcome for five years

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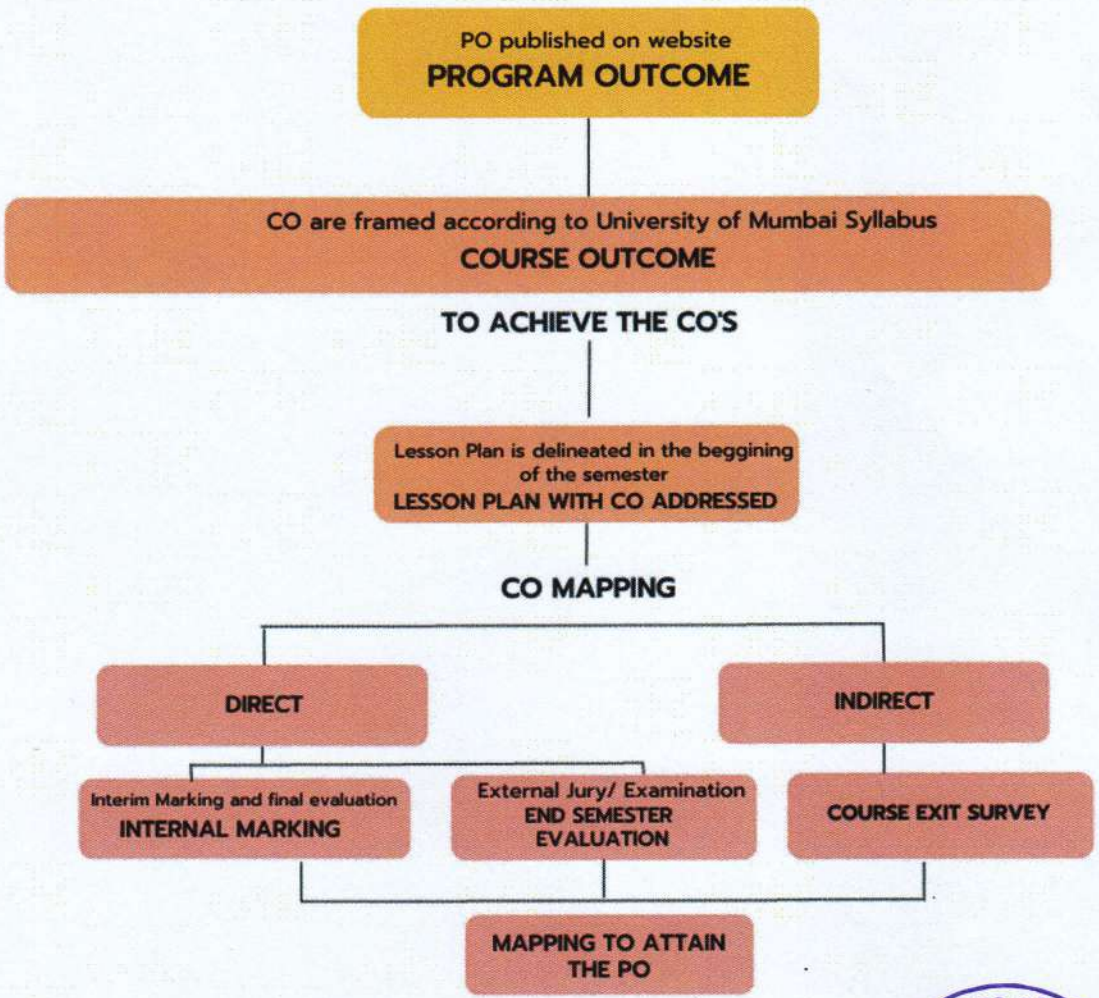
Attainment of Program Outcome

Procedure



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Program Outcomes	
PO1	**Architectural knowledge:** Acquire knowledge on diverse architectural sub domains such as history, theory, planning, building technology and utilities, structural concepts and professional practice.
PO2	**Problem analysis :** Use concepts and principles from specialized fields and allied disciplines into various architectural problems
PO3	**Design/development of solutions:** Ability to apply relevant law, codes, charters and standards of Architecture and the built environment in the preparation of design solutions.
PO4	**Conduct investigations of complex problems:** Application of research methods including experiments, analysis
PO5	**Modern tool usage:** Use of various information and communication technology (ICT) media for architectural solutions, presentations and techniques in design and construction
PO6	**The architect and society:** Acquisition of entrepreneurial and business acumen relevant to architectural practice
PO7	**Environment and sustainability:** Understanding the principles of sustainability in making architectural decisions that conserve natural and built resources, including culturally important buildings and sites and in the creation of healthy buildings and communities.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the architectural professional practice.
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication:** Ability to communicate effectively to produce a comprehensive architectural project
PO11	**Project management and finance:** Involvement in the management of the construction works and building administration
PO12	**Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change

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Course Outcomes (CO)

First Year B.Arch. (Sem 1)

Sl.No.	Course Code & Subject Name	Course Outcomes	
1	101- Architectural Design 1	CO1	Students will be able to calculate human scale and anthropometry with respect to space
		CO2	Students will be able to analyse space required to perform the activities to any human through different body postures.
		CO3	Students will be able to compose the activities with respect to range of movement by creating a 3D model
		CO4	Students will be able to classify the tangible and in-tangible requirement of user for the space by evaluating the objects and space requires to perform the activity and related feelings and emotions.
		CO5	Students will be able to design a small space for a single user through a complete design presentation in terms of plan sections elevations and view.
2	102- Allied Design 1	CO1	Students will be able to analyse principles of composition in examples of great art
		CO2	Students will be able to apply Principles of composition in the two dimensional format
		CO3	Students will be able to interpret Positive and negative spaces in the two dimensional format
		CO4	Students will be able to compose Planar compositions in three dimensional but planar format
		CO5	Students will be able to apply Principles of composition to complex 2/3 dimensional solids

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		CO6	Students will be able to distinguish various principles of design
3	103- Architectural Building Construction & Materials	CO1	Students will be able to summarize different building components like floor, roof, walls, doors, windows, etc. through a visual survey of various buildings
		CO2	Students will be able to illustrate continuous stepped trench footing and isolated pad footing for load bearing and framed structural systems respectively
		CO3	Students will be able to illustrate different types of horizontal spanning members such as arches, lintels, beams, etc.
		CO4	Students will be able to illustrate different types of doors and windows used in a typical building
		CO5	Students will be able to illustrate different types of staircases used in a typical building
		CO6	Students will be able to create detailed plans and sections of a given building project by applying their knowledge and learning's of the building components
4	104- Theory & Design of Structures 1	CO1	Students will be able to explain functions of structural components for framed and load bearing structure
		CO2	Students will be able to implements systems of units for force and moment calculations
		CO3	Students will be able to classify loads acting on the structure
		CO4	Students will be able to calculate resultant of force system acting on the structure
		CO5	Students will be able to analyse simply supported beams subjected to gravity loading
		CO6	Students will be able to conclude about the stability of the simple existing structures

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5	105- Humanities	CO1	Students will be able to explain stages of human evolution (timeline prehistory) for three main Prehistoric era.
		CO2	Students will be able to distinguish cultural, religious and architectural achievements beginning with cultural development.
		CO3	Students will be able to classify prehistoric events as various milestones of the evolution era.
		CO4	Students will be able to classify information gathered based on parameters learned in the previous stage.
		CO5	Student will be able to analyse the information to create informative reports and demonstration models.
		CO6	Students will be able to outline the gathered knowledge by answering the model paper.
6	106- Environmental Studies	CO1	Students will be able to explain the different natural resources with respect to availability
		CO2	Students will be able to classify the building types according to the climate zones
		CO3	Students will be able to illustrate the relation and co-existence of natural and built environment
		CO4	Students will be able to critique the climate zones according to the geographical location
		CO5	Students will be able to explain concepts of Natural Environment, Ecology and ecosystems, Bio diversity and co-existence
		CO6	Students will be able to design according to the parameters learnt.
7	107- Architectural Representation & Detailing 1	CO1	Students will be able to create different types of line with the help of drafting instrument (degree- 30,60,90,45)

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		CO2	Students will be able to develop Architectural hatch of brick wall , stone wall, soil , metal , Wall insulation, Concrete etc.
		CO3	Students will be able to create lettering of A to Z and 1 to 9
		CO4	Students will be able to create Study scales of 2D shapes
		CO5	Students will be able to create Orthographic projection of 3D object
		CO6	Students will be able to create Sections of Prism
8	120- College Project 1	CO1	Students will be able to create Surface development of geometrical forms
		CO2	Students will be able to create geometrical forms with the help of file card
		CO3	Students will be able to create 3D balancing of geometrical forms
		CO4	Students will be able to develop 2D design with the strips of file card
		CO5	Students will be able to create 2D design with the layer of mount board
9	121- Elective	CO1	Students will be able to map and analyse Human activities in respect to small space.
		CO2	Students will be able to calculate the space required to perform different activities by first doing the measure drawings
		CO3	Students will be able to distinguish the multi-functionality of the spaces in terms of activities.
		CO4	Students will be able to illustrate the space and material through measure drawings

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First Year B.Arch. (Sem 2)

10	201- Architectural Design 2	CO1	Students will be able to explain human scale and anthropometry with respect to space
		CO2	Students will be able to illustrate the existing entities on and around site with respect to proposed activity.
		CO3	Students will be able to outline the activities with respect to range of movement by creating a 3D model of different zones
		CO4	Students will be able to justify the tangible and in-tangible effect of the surrounding on site and space planning for different users
		CO5	Students will be able to design a small cafe for different user groups through a complete design presentation in terms of plan sections elevations and view.
11	202- Allied Design 2	CO1	Students will be able to interpret form around physical space
		CO2	Students will be able to illustrate space and form through drawings/sketches
		CO3	Students will be able to analyse relation between space and form
		CO4	Students will be able to compose form and space through model making
12	203- Architectural Building Construction & Materials	CO1	Students will be able to summarize different types of bricks, sizes, uses, their physical and chemical properties through sketches/drawings and report
		CO2	Students will be able to illustrate types of brick bonds like English bond, Flemish bond, Rat trap bond, cavity wall and other generic brick bonds for different wall thicknesses, Tee junctions, cross junctions and quoins

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		CO3	Students will be able to illustrate coursed rubble, uncoursed rubble, ashlar stone masonry techniques for stone wall construction
		CO4	Students will be able to illustrate different types of techniques to span openings using arches, corbels, lintels, squinches, pendentives using stone and brick masonry construction
		CO5	Students will be able to illustrate various joineries like lengthening, widening and framing joints in timber construction
		CO6	Students will be able to design king post and queen post timber trusses for a given building or space
13	204- Theory & Design of Structures 2	CO1	Students will be able to analyse bending of a cantilever beam by shear force and bending moment diagrams
		CO2	Students will be able to assess Properties of a section Centre of gravity and centroid
		CO3	Students will be able to calculate Point of failure of a structure upon loading by stress and strain graph
		CO4	Students will be able to analyse bending of a simply supported beam by shear force and bending moment diagrams
		CO5	Students will be able to evaluate simple bending of a beam Theory of simple bending
		CO6	Students will be able to calculate the earlier specified factors.
14	205- Humanities	CO1	Students will be able to explain Evolution of Civilization as a whole introduction of evolution of civilisation throughout history
		CO2	Students will be able to summarize Rise and fall of 1st civilization -Mesopotamian civilization

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		CO3	Students will be able to explain Civilizations rose after 1st civilization Egyptian, Indus Valley, Meson American
		CO4	Students will be able to classify Summery of all civilization and their achievements Evolution of Social, cultural, economic and architectural achievements.
		CO5	Students will be able to differentiate Individual achievements of each of the civilization Benefits from the historical achievements
		CO6	Students will be able to compose A report based on the information related to all civilization Detailed reports based on all civilization historic timeline wise
15	206- Environmental Studies	CO1	Students will be able to explain the architectural development on natural resources
		CO2	Students will be able to illustrate the concepts of sustainable development
		CO3	Students will be able to differentiate the various renewable resources to generate energy
		CO4	Students will be able to critique how can energy be conserved and generated
16	207- Architectural Representation & Detailing 2	CO1	Students will be able to create isometric Views of 3D objects
		CO2	Students will be able to create sciography drawing of points and lines
		CO3	Students will be able to create perspective view of 3D objects
		CO4	Students will be able to create sketch of Landscape outdoor
17	220- College Project 2	CO1	Students will be able to create plan of famous architectural structure
		CO2	Students will be able to create elevation of famous architectural structure

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		CO3	Students will be able to create section of famous architectural structure
		CO4	Students will be able to create 3D view of famous architectural structure
		CO5	Students will be able to create 3D Modal of famous architectural structure
18	221- Elective 2	CO1	Students will be able to distinguish the difference between visual and non-visual communication considering the selected story line
		CO2	Students will be able to illustrate the selected story through pictographically representation by doing the measure drawings
		CO3	Students will be able to distinguish the multi-functionality of the spaces in terms of activities.
		CO4	Students will be able to illustrate the space and material through measure drawings

Second Year B.Arch. (Sem 3)

19	301- Architectural Design 3	CO1	Students will be able to interpret space design and anthropometric requirements and document their observations during a site visit for a small group of people in a rural context project
		CO2	Students will be able to explain concept and thought process/logical reasoning behind their design for the project
		CO3	Students will be able to apply the learning's from site visit, site analysis, and case studies and specific needs of the users in developing their design for the project
		CO4	Students will be able to analyse Requirements and relationship between built and unbuilt spaces in rural context projects through case studies

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		CO5	Students will be able to create Graphically, technically correct drawings, 3D visualization/views and physical models for the project
		CO6	Students will be able to design the built forms and building elements with respect to local/vernacular materials and construction techniques for a community project in rural context
20	302- Allied Design 3	CO1	Students will be able to distinguish various styles with respect to interior designs
		CO2	Students will be able to analyse the concept with respect to the space
		CO3	Students will be able to differentiate the user and space through doing case studies and research
		CO4	Students will be able to justify their concept and design through plan, sectional elevation and sketches
		CO5	Students will be able to design a complete cafe space using different design tools
		CO6	Students will be able to illustrate the entire portfolio with all the detailed drawings
21	303- Architectural Building Construction & Material	CO1	Students will be able to distinguish between load bearing and framed structural systems through examples
		CO2	Students will be able to explain properties of materials used and function of various components of a RCC framed structural system in a building
		CO3	Students will be able to apply the knowledge of structural framing to design a RCC structure for a typical low rise building
		CO4	Students will be able to illustrate the reinforcement details of various components in a RCC framed structure

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		CO5	Students will be able to create Column and beam framing plans for a RCC framed low rise building
		CO6	Students will be able to evaluate structure, characteristics, function, advantages and disadvantages of various light weight partition systems and materials
22	304- Theory & Design of Structures 3	CO1	Students will be able to analyse simply supported and cantilever beams using Theory of Pure bending
		CO2	Students will be able to evaluate deflections of beams using DI and Macaulay's method
		CO3	Students will be able to critique Basics of an RCC structure
		CO4	Students will be able to apply Material testing of various structural components shear forces and bending moment
		CO5	Students will be able to assess mechanical properties of common construction materials
23	305- Humanities	CO1	Students will be able to distinguish between the characteristics of different building elements in classical architecture and city planning
		CO2	Students will be able to illustrate the impact of climate and social changes on development of architectural style during medieval period
		CO3	Students will be able to differentiate the architectural styles based on their climate, social conditions, material etc.
		CO4	Students will be able to critique the different styles followed in the past in prevailing geographical and political conditions.

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24	306- Environmental Studies	CO1	Students will be able to explain fundamentals of climatology in terms of climate zones of India, macro and micro climate and vernacular architectural methods of construction according to the relevant climatic zones
		CO2	Students will be able to illustrate vernacular methods of construction according to the climatic zones through presentations
		CO3	Students will be able to interpret wind flow patterns around the building and sunpath by 2d and 3d sun path diagrams
		CO4	Students will be able to create Drawings and models related to sun path, wind flow around the buildings
		CO5	Students will be able to explain Passive methods in Architectural design
25	307- Architectural Representation & Detailing 3	CO1	Students will be able to create three dimensional entity through 2 point Perspective Drawings
		CO2	Students will be able to create three dimensional entity through 1 point Perspective Drawings
		CO3	Students will be able to create freehand drawing through observation & render with any medium
		CO4	Students will be able to compose sheets in different aspects such as line weight, line types, dimensioning, labelling etc for measured drawings
26	308- Architectural Building Services	CO1	Students will be able to compare different sanitary appliances and user space requirements in a residential building
		CO2	Students will be able to differentiate various types of traps used with appliances
		CO3	Students will be able to calculate the capacity of water tanks using the standard formula

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		CO4	Students will be able to evaluate the basic services required for a residential building
		CO5	Students will be able to design the water supply system for residential buildings
		CO6	Students will be able to implement drainage and water supply systems in their designs
27	309- Architectural Theory 1	CO1	Students will be able to summarize ideas in architecture through writings in architecture
		CO2	Students will be able to classify changing ideas in architecture chronologically over time
		CO3	Students will be able to analyse theories in architecture through readings, theoretical texts and architectural criticism
		CO4	Students will be able to critique ideas and theories in architecture through class discussions and debates
		CO5	Students will be able to outline architectcs and their works chronologically over time
		CO6	Students will be able to formulate the data collected and critique / reflect through presentations
28	320- College Project 3	CO1	Students will be able to interpret the basic software interface for AutoCAD and draft shapes and lines
		CO2	Students will be able to illustrate the use of commands required for drafting a plan in AutoCAD
		CO3	Students will be able to create a basic layout of a house in AutoCAD
		CO4	Students will be able to apply editing commands like stretch, move, trim, expand for the drafted plan
		CO5	Students will be able to differentiate the use of commands like group, block, explode, text, for detailing out the plan further

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		CO6	Students will be able to create layouts, plot drawings to scale and finally print the drafted plans to scale according to the sheet size
29	321- Elective 3	CO1	Students will be able to distinguish between left and right brain working and selectively switch to appropriate thinking style
		CO2	Students will be able to evaluate relevant information and apply it to drawing communication
		CO3	Students will be able to interpret visual information and stimulus and record it as accurately as possible
		CO4	Students will be able to formulate strategies and means to record visual information
		CO5	Students will be able to create realistic images out of visual stimulus

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Second Year B.Arch. (Sem 4)

30	401- Architectural Design 4	CO1	Students will be able to interpret user requirements and design intent in changing rural context through topical study of on-going government rural schemes and civic administration
		CO2	Students will be able to analyse physical and social context of the project through study of site, surrounds and precedents
		CO3	Students will be able to formulate a functional and conceptual design briefly demonstrating their understating through an essay
		CO4	Students will be able to assess various methodologies and their outcomes through the design process
		CO5	Students will be able to illustrate their understanding of users and activities through scaled drawings and graphical representation
		CO6	Students will be able to design a built environment that reflects physical and social context through a complete design presentation
31	402- Allied Design 4	CO1	Students will be able to interpret user requirements and design intent in changing rural context through detailed study through client research
		CO2	Students will be able to organise the research and relate it to the space received through study of site and space planning
		CO3	Students will be able to plan the space and create a design compiling all their learning by demonstrating their learning by drafting and planning
		CO4	Students will be able to justify the purpose of their design and various options through design process

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		CO5	Students will be able to illustrate their client needs through design through scaled drawings and graphical representation
		CO6	Students will be able to design a complete residential space compiling the entire plan and needs that functions through a complete design presentation
32	403- Architectural Building Construction & Material	CO1	Students will be able to summarize properties, characteristics and various application of steel as a construction material through a field visit of a steel structure and creating scaled physical models and drawings
		CO2	Students will be able to design foundation plan, floor plans, and structural column layout for a warehouse building in steel
		CO3	Students will be able to create construction details for various connections of steel column with RCC pad footing, steel column splicing, steel beam to column and beam to beam connections for the warehouse building
		CO4	Students will be able to create construction details for various parts/connections of steel deck floor for the warehouse building
		CO5	Students will be able to create construction details for various parts/connections of steel truss roof for the warehouse building
		CO6	Students will be able to create construction details for various parts/connections of steel staircase for the warehouse building
33	404- Theory & Design of Structures 4	CO1	Students will be able to outline use of limit state design for steel structure
		CO2	Students will be able to design bolted / welded connections for members of steel structure
		CO3	Students will be able to design tension members in a steel structure

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		CO4	Students will be able to design compression members in a steel structure
		CO5	Students will be able to design beams in a steel structure
		CO6	Students will be able to illustrate use of slab base / gusseted base and grillage foundation in a steel structure
34	405- Humanities	CO1	Students will be able to interpret Transition of architectural styles and techniques influencing future design through visual, technical and technological development
		CO2	Students will be able to classify Shortcomings due to materials with respect of different ages
		CO3	Students will be able to analyse different features of Temples in accordance with Parameters of aesthetics, administrative, social and cultural adaptation in local architecture
		CO4	Students will be able to illustrate evolution of different building typologies and style of temples according to geography in different dynasties.
		CO5	Students will be able to distinguish Origins and adaptation of Persian influences into local aesthetics of Indian Sub-continent with respect to Visual vocabulary of Islamic Architecture
		CO6	Students will be able to assess Evolution of Rock cut cave and Temple Architecture terminology with respect to Buddhist and Hindu Ideologies.
35	407- Architectural Representation & Detailing 4	CO1	Students will be able to summarize activities of Survey of India Department
		CO2	Students will be able to interpret survey maps of India.
		CO3	Students will be able to implement process of chain surveying to calculate area of given plot
		CO4	Students will be able to calculate angular measurements using Theodolite

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		CO5	Students will be able to implement process of transverse surveying to plot the area
		CO6	Students will be able to formulate setting out plan for a building
36	408- Architectural Building Services	CO1	Students will be able to explain building drainage system through sketches
		CO2	Students will be able to analyse site drainage system in drawings
		CO3	Students will be able to design site drainage system in drawings and building layout
		CO4	Students will be able to justify rainwater harvesting through research and group discussion
		CO5	Students will be able to classify rainwater harvesting with sketches and illustrations
		CO6	Students will be able to design Septic tank through the calculation
37	409- Architectural Theory 2	CO1	Students will be able to interpret Fundamentals of architectural research its objectives and methodologies through readings and writings
		CO2	Students will be able to summarize Architectural research and build up documentation and data collection through photo essays and presentations
		CO3	Students will be able to analyse the collected data and represent it graphically through photo essays and presentations
		CO4	Students will be able to critique the analysed with reflective reasoning/writing/presentation through illustrations in groups
		CO5	Students will be able to formulate Mind maps and write vision statement for their studio work

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38	420- College Project 4	CO1	Students will be able to distinguish different building material and building components in selected structure or area
		CO2	Students will be able to illustrate the impact of climate, culture, geography on the style of architecture
		CO3	Students will be able to analyse the overall planning of the cluster and its impact over the development of the surrounding area.
		CO4	Students will be able to critique on the building components and planning aspect of the place in selected cluster
		CO5	Students will be able to create a consolidated documentation which will include the plans, sections, elevations, views and details
		CO6	Students will be able to summarize the overall learning with write-ups
39	421- Elective 4	CO1	Students will be able to interpret user interface and basic shapes, faces and edges in sketch up environment
		CO2	Students will be able to implement 3D Sketch Up environment effectively through 3d models
		CO3	Students will be able to compose objects and components and 3d models of simple compositions
		CO4	Students will be able to construct 2d models into 3d interface and work on architectural plans
		CO5	Students will be able to assess use of Cameras, views and model information in a complete architectural drawing
		CO6	Students will be able to illustrate plans, sections and elevations, walkthrough for a given project

Third Year B.Arch. (Sem 5)

40	501- Architectural Design 5	CO1	Students will be able to classify various parameters determining site study in relation to a particular activity and historical importance.

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		CO2	Students will be able to interpret design in response to site, its characteristics and context
		CO3	Students will be able to implement passive design strategies and local construction techniques and develop self-sustaining spatial forms.
		CO4	Students will be able to create various architectural forms and spaces required for various activities in relation to proximity and other previously derived inferences.
		CO5	Students will be able to outline building services and construction techniques to demonstrate the practicality of the built form.
41	502- Allied Design 5	CO1	Students will be able to explain fundamentals of landscape architecture like design principles and elements
		CO2	Students will be able to analyse land morphology, slopes, hydrology of a given site
		CO3	Students will be able to apply knowledge of slope analysis and surface drainage mapping for a given site
		CO4	Students will be able to evaluate various parameters in a given site to draw inferences for design strategies
		CO5	Students will be able to design landscape intervention scheme for a small project
		CO6	Students will be able to create strategies for design intervention based on site analysis, slope analysis, etc.
42	503- Architectural Building Construction 5	CO1	Students will be able to interpret purpose of foundations and factors affecting the same.
		CO2	Students will be able to differentiate different types of foundations and consider various foundations.
		CO3	Students will be able to outline particular type of foundation system and the need for them.

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		CO4	Students will be able to design foundations depending on the parameters.
		CO5	Students will be able to infer use of various canopies and building skin based on latest trends and techniques
		CO6	Students will be able to construct canopy and choose building skin
43	504- Theory & Design of Structures 5	CO1	Students will be able to outline use of limit state design for steel structure
		CO2	Students will be able to design bolted / welded connections for members of steel structure
		CO3	Students will be able to design tension members in a steel structure
		CO4	Students will be able to design compression members in a steel structure
		CO5	Students will be able to design beams in a steel structure
		CO6	Students will be able to illustrate use of slab base / gusseted base and grillage foundation in a steel structure
44	505- Humanities 5	CO1	Students will be able to explain Modern movements in art and architecture in the world and India
		CO2	Students will be able to analyse Post-modern movements in art and architecture
		CO3	Students will be able to analyse influence of Modern master architects in the field of architecture
		CO4	Students will be able to illustrate Critical Regionalism in India
45	507- Architectural Representation & Detailing	CO1	Students will be able to implement methods of approximate estimates using current rates in Mumbai

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		CO2	Students will be able to calculate detailed quantities of material and abstract of estimate using long wall- short wall or centreline method
		CO3	Students will be able to analyse rates for civil works
		CO4	Students will be able to calculate quantities for civil works offload bearing structure
		CO5	Students will be able to calculate quantities for civil works of framed structure
		CO6	Students will be able to formulate detailed specifications for a residential building
46	508- Architectural Building Services 3	CO1	Students will be able to illustrate basics of electrical distribution, supply, wiring and safety in a building.
		CO2	Students will be able to outline electrical layout of a small space
		CO3	Students will be able to analyse basics of artificial direct and indirect lighting in a building
		CO4	Students will be able to argue the basic terminologies of sound propagation, acoustics of studios and auditoriums
47	509- Architectural Theory 3	CO1	Students will be able to interpret Fundamentals of architectural research its objectives and methodologies
		CO2	Students will be able to summarize Architectural research and build up documentation and data collection
		CO3	Students will be able to analyse the collected data and represent it graphically
		CO4	Students will be able to critique the analysed with reflective reasoning/writing/presentation
		CO5	Students will be able to formulate data collected based on site visits through research through 1)observations 2) Reflective Reasoning 3) Critical writing

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48	520- College Project 5	CO1	Students will be able to distinguish the structural support system and difference between load bearing and framed structures
		CO2	Students will be able to summarize the construction techniques and details of various building components of a load bearing structure
		CO3	Students will be able to analyse the various parameters and constraints in design of a load bearing structure using an example of their own school building design work
		CO4	Students will be able to apply the design criteria's of load bearing structure in a G+1 school building design
		CO5	Students will be able to implement the design strategy and construction details for various building parts in a G+1 load bearing school building design
		CO6	Students will be able to create working drawings for a G+1 load bearing school building
49	521- Elective 5 (The power of Public Wall Art)	CO1	Students will be able to interpret different categories of public wall art in the urban city.
		CO2	Students will be able to illustrate public wall art collected through images and interviews.
		CO3	Students will be able to analyse the power of wall art on the locals, visitors and surroundings.
		CO4	Students will be able to conclude the documentation done in the form of visual presentation.
50	521- Elective 5 (Software)	CO1	Students will be able to implement the software skills in their design development
		CO2	Students will be able to apply the software and create different design options

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		CO3	Students will be able to explain their design with the use of 3d modelling.
		CO4	Students will be able to plan and use different materials to understand how the end product will come out to be
51	521- Elective 5 (Photography)	CO1	Students will be able to classify different photography methods to capture architectural spaces
		CO2	Students will be able to apply them while capturing images using a DSLR or manually operated cameras
		CO3	Students will be able to distinguish between an ISO, shutter speed, appeture under different lighting
		CO4	Students will be able to create an image in different perspective
		CO5	Students will be able to analyse different styles and angles in a given frame
		CO6	Students will be able to compose their final output with theme and captions
52	521- Elective 5 (Interior Design)	CO1	Students will be able to explain ergonomics in the given layout.
		CO2	Students will be able to apply different finishes and materials related to their designed space.
		CO3	Students will be able to outline flooring plan and ceiling layout in the given layout.
		CO4	Students will be able to justify the services like HVAC, electrical and plumbing provided in the designed space.
		CO5	Students will be able to create working drawings and views for the given layout.

Third Year B.Arch. (Sem 6)			
53	601- Architectural Design 6	CO1	Students will be able to interpret Nature of working spaces and differentiate co-working spaces architecturally.

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		CO2	Students will be able to analyse the site based on parameters such as site services, circulation etc.
		CO3	Students will be able to illustrate the inferences on their design with workability of structures and services.
		CO4	Students will be able to organise spaces and activity cumulating inferences from case studies and site studies.
54	602- Allied Design 6	CO1	Students will be able to illustrate the attributes of natural elements through scaled drawings of a natural landscape setting
		CO2	Students will be able to create an ideas based design for a space in context of nurturing childhood through nature based play areas through a site visit and followed by a short design exercise
		CO3	Students will be able to analyse the various landscape elements of a given site, users and their inter-relationship, topography, hydrology, vegetation, climate, etc. through site analysis
		CO4	Students will be able to design landscape design scheme for a commercial/hospitality/public project in urban/peri-urban context
		CO5	Students will be able to create landscape drawings like planting plan, civil plan, sections and views to explain their design scheme
55	603- Architectural Building Construction 6	CO1	Students will be able to distinguish various structural system based upon span and advanced construction system
		CO2	Students will be able to analyse parameters for various conditions to construct large span bays
		CO3	Students will be able to assess thumb rules to calculate parameters of the structure system for different advanced floors

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		CO4	Students will be able to justify the use of particular large span bay according to the mentioned use and thumb rules
		CO5	Students will be able to design long span in their semester architectural design with respect to design demands and application of given specifications
		CO6	Students will be able to explain various types of precast and prefab systems in different conditions.
56	604- Theory & Design of Structures 6	CO1	Students will be able to differentiate between types and grades of concrete used in construction
		CO2	Students will be able to design framed structural elements using IS 456 -2000
		CO3	Students will be able to justify the use of RCC grid floors for long spans
		CO4	Students will be able to critique use of RCC flat slab against the conventional construction
57	605- Humanities 6	CO1	Students will be able to analyse global urbanization trends by analysing one international urban agglomeration
		CO2	Students will be able to analyse urbanization trends in India by analysing one Indian urban agglomeration
		CO3	Students will be able to apply mass housing and infrastructural trends in India post-independence
		CO4	Students will be able to justify urban population growth due to increased migration
58	607- Architectural Representation & Detailing	CO1	Students will be able to explain purpose of working drawings, guidelines, standards, setting out a plot and locating a building on the plot for a RCC framed structure
		CO2	Students will be able to organise column placement in plan, beam framing plans for all levels, foundation plan with isolated footings and column centreline plan for a RCC framed structure

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		CO3	Students will be able to create detailed floor plans with all necessary measurements and details as required for executing a building design for a RCC framed structure
		CO4	Students will be able to create detailed sections and elevations with all necessary measurements and details as required for executing a building design for a RCC framed structure
		CO5	Students will be able to design working details of any three building elements which require special design for a RCC framed structure
		CO6	Students will be able to create a complete set of working drawings that can communicate building construction details to the contractor for a RCC framed structure
59	608- Architectural Building Services 4	CO1	Students will be able to explain Fire fighting regulations and code of safety for high rise buildings
		CO2	Students will be able to compare Different fire fighting systems, building materials, different water supply systems for buildings
		CO3	Students will be able to implement active fire fighting system on current semester design according to thumb rules and parameters learnt
		CO4	Students will be able to analyse various vertical high-rise system with detailed terminologies
		CO5	Students will be able to evaluate zoning of spaces and technical aspect for water supply.
		CO6	Students will be able to assess various vertical electrical Systems with related technical aspects
60	620- College Project 6	CO1	Students will be able to distinguish different building material and building components in selected structure or area

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		CO2	Students will be able to illustrate the impact of climate, culture, geography on the style of architecture
		CO3	Students will be able to analyse the overall planning of the cluster and its impact over the development of the surrounding area.
		CO4	Students will be able to critique on the building components and planning aspect of the place in selected cluster
		CO5	Students will be able to create a consolidated documentation which will include the plans, sections, elevations, views and details
61	621- Elective 6 (Revit)	CO1	Students will be able to implement three dimensional modelling for architectural designs
		CO2	Students will be able to illustrate area uses of a floor plan
		CO3	Students will be able to evaluate design options of an architectural design
		CO4	Students will be able to construct an information rich building information model of an architectural structure

Fourth Year B.Arch. (Sem 7)

62	701- Architectural Design 7	CO1	Students will be able to interpret Introduction to the project & case study live, online, book
		CO2	Students will be able to analyse study of similar projects, space study Case Study
		CO3	Students will be able to evaluate documenting collected information, technical details Pre design related to said project
		CO4	Students will be able to formulate site planning and other analytical studies related to services, construction and environmental aspects Formulating design strategies as per analysis

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		CO5	Students will be able to implement implementing design strategies in design concepts in relation to proximity and other previously derived inferences.
		CO6	Students will be able to justify finalising design including building services and construction techniques to demonstrate the practicality of the built form.
63	702- Allied Design 7	CO1	Students will be able to explain fundamentals of Town Planning, like planning principles and elements
		CO2	Students will be able to analyse land use development, like growth patterns and infrastructure
		CO3	Students will be able to evaluate various parameters of planning, to draw inferences for design strategies
		CO4	Students will be able to design planning intervention, for the given site
		CO5	Students will be able to implement design strategies based on analysis and inferences
		CO6	Students will be able to justify design strategies as per various planning theories
64	703- Architectural Building Construction 7	CO1	Students will be able to distinguish various foundation system as per soil conditions
		CO2	Students will be able to analyse various pile foundation for various ground conditions
		CO2	Students will be able to analyse different types of excavation and waterproofing system for basements
		CO3	Students will be able to evaluate size and number of piles for foundation
		CO4	Students will be able to explain the construction techniques for high rise building with consideration of wind load and earthquake techniques

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		CO5	Students will be able to analyse design techniques for earthquake resistance structure in different zones
		CO6	Students will be able to implement waterproofing system to the basement for different building type and soil conditions
65	704- Theory & Design of Structures 7	CO1	Students will be able to assess suitability of deep foundation with respect to building and soil type
		CO2	Students will be able to design combined footing
		CO3	Students will be able to design pile and pile cap
		CO4	Students will be able to design retaining walls
		CO5	Students will be able to evaluate earthquake force to resist the same safely
		CO6	Students will be able to illustrate principles of structural design of tall buildings
66	707- Architectural Representation & Detailing 7	CO1	Students will be able to calculate the various required areas for the purpose of evaluating the proposed buildings/ construction w.r.t FSI, carpet area, construction area
		CO2	Students will be able to analyse the various required rules and regulations for a particular project prospect
		CO3	Students will be able to apply the various building requirements according to the building plans
		CO4	Students will be able to interpret various norms and bye laws wherever required
		CO5	Students will be able to create approval drawings of a given project
67	708- Architectural Building Services 5	CO1	Students will be able to distinguish different Air Conditioning systems available in the market
		CO2	Students will be able to justify the selection of air conditioning system applicable to their design

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		CO3	Students will be able to explain the concept of natural ventilation and human comforting the buildings
		CO4	Students will be able to argue the application and selection of mechanical system in their design
		CO5	Students will be able to explain various heating systems that can be used in buildings
		CO6	Students will be able to attribute various thumb rules for design of ducting layouts in the buildings
68	710 - Professional Practice 1	CO1	Students will be able to interpret The professional role, responsibilities, duties, liabilities of Architects towards society and follow the code of conduct of COA
		CO2	Students will be able to formulate Role of professional bodies and Architect's Registration Act 1972 set up by the Council of Architecture
		CO3	Students will be able to implement orgsnisation structure and Nature of partnership, registration of firm and dissolution Small practice, medium practice & Large practice.
		CO4	Students will be able to infer types of competitions and Copy write Act as a Practicing architect
		CO5	Students will be able to evaluate Tender invites and scrutinise tenders for a given tender document
		CO6	Students will be able to organise selection of successful contractor and execution till the smooth completion of project
69	720- College Project 7	CO1	Students will be able to distinguish different building material and building components in selected structure or area
		CO2	Students will be able to illustrate the impact of climate, culture, geography on the style of architecture

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		CO3	Students will be able to analyse the overall planning of the spaces and its impact over the development of the surrounding area.
		CO4	Students will be able to critique on the building components and planning aspect of the place in selected area
		CO5	Students will be able to create a consolidated documentation which will include the plans, sections, elevations, views and details
70	721- Elective 7 (Conservation)	CO1	Students will be able to apply understanding of historic context of Navy Mumbaiw.r.t its urban development.
		CO2	Students will be able to apply understanding of various nodes of Navi Mumbai based on pre-decided parameters.
		CO3	Students will be able to analyse and select any one node of Navi Mumbai for studying modern heritage of the precinct.
		CO4	Students will be able to apply basic laws and regulations governing heritage in Indiaw.r.t modern heritage.
		CO5	Students will be able to outline listing of modern heritage of Belapur CBD based on pre-decided parameters.

Fourth Year B.Arch. (Sem 8)

71	811- Professional Training	During this term the students have to undergo training outside the institute in offices & organizations

Fifth Year B.Arch. (Sem 9)

72	901- Architectural Design 9	CO1	Students will be able to evaluate project details and case study with decided parameters

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		CO2	Students will be able to analyse similar types of projects, space study
		CO3	Students will be able to summarize data collection and information process, technical details with Pre-design
		CO4	Students will be able to implement site planning, services, construction and environmental aspects in site development
		CO5	Students will be able to implement Planning concept into design processing final conceptual design
		CO6	Students will be able to design complete project with respect to complete building design and all technical details with complete site plan, building plans, sections and elevations
73	902- Allied Design 9	CO1	Students will be able to justify elements of urban design applicable to the site
		CO2	Students will be able to design urban level Interventions in part of the whole site
		CO3	Students will be able to justify ICE theories in their own project for their respective sites
		CO4	Students will be able to analyse the city context with the ICE theories for their respective sites
		CO5	Students will be able to classify the ICE concept in their project within the city of Mumbai and Navi Mumbai
		CO6	Students will be able to interpret the meaning of Image of the City Elements of various city examples
74	903- Architectural Building Construction 8	CO1	Students will be able to design beam / truss / arches for long spans in their AD
		CO2	Students will be able to design cable supported structures in their AD
		CO3	Students will be able to design folded plate in their AD

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		CO4	Students will be able to design space frames in their AD
		CO5	Students will be able to design Domes / shell and vault structure in their AD
75	904- Theory & Design of Structures 8	CO1	Students will be able to assess suitability of beam / truss / arches for long spans
		CO2	Students will be able to assess cable supported structures
		CO3	Students will be able to argue about suitability of folded plate and shell structure
		CO4	Students will be able to critique about use of space frames
		CO5	Students will be able to assess use of portal frames for industrial structures
		CO6	Students will be able to critique about use of pre-stressed concrete in buildings
76	906- Environmental Studies 4	CO1	Students will be able to explain meaning and key concepts of sustainability through chapter 11 of the National Building Code
		CO2	Students will be able to calculate energy consumption of everyday household electrical fittings and appliances with the help of a live building project (eg. their own house) using ECBC norms
		CO3	Students will be able to calculate generation of electricity using solar energy for a building project
		CO4	Students will be able to assess various green building certification systems based on their various parameters, understand systems like DEWATS, rain water harvesting, etc. Through comparative case studies of two buildings rated in GRIHA and IGBC
77	908- Architectural Building Services 5	CO1	Students will be able to summarize building management systems and service core designs in buildings

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		CO2	Students will be able to interpret MEP services in hotel/commercial kitchens through an expert session with help of real case examples of projects
		CO3	Students will be able to outline various integrated MEP services in a commercial building with case study of a live project
		CO4	Students will be able to create integrated MEP services layouts requirements and sizes of UGT, OHT, RWHT, HVAC, fire fighting layouts, etc. For a design project from previous semester
78	910 - Professional Practice 2	CO1	Students will be able to interpret legal and technical aspects of land acquisition with reference to norms of compensation
		CO2	Students will be able to apply legal and technical aspect of valuations per the market standards
		CO3	Students will be able to analyse various norms related to rent with respect to case examples
		CO4	Students will be able to assess legal and technical aspect of dilapidation with reference to preparation of report
		CO5	Students will be able to illustrate easement of light, ventilation and access with reference to a building structure
		CO6	Students will be able to assess the terms related to fire insurance policy with reference to the practical field
79	911- Design Dissertation 1	CO1	Students will be able to infer various parameters involved in the DD1 stage with the help of various analysis techniques
		CO2	Students will be able to implement by justifying topic related to previous mentioned parameters
		CO3	Students will be able to analyse case studies and site with certain parameters specified

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		CO4	Students will be able to assess various user groups as inference to the case study analysis.
		CO5	Students will be able to design an area program in justification to the previous analysis done
80	921- Elective 8 (Conservation)	CO1	Students will be able to explain research methods in architecture w.r.t conservation practise.
		CO2	Students will be able to infer research on any one aspect of building conservation practise based on thesis topic.
		CO3	Students will be able to apply methods of research writing in the field of architecture.
		CO4	Students will be able to analyse depiction of built heritage through study of a chosen film
		CO6	Students will be able to compose A final Project Report Total final project report based on analysis done on studied and documented factors
81	921- Elective 8 (Urban Design)	CO1	Students will be able to interpret evolution and meaning Urban Design
		CO2	Students will be able to distinguish various theories and case studies in Modern cities
		CO3	Students will be able to differentiate various elements of a city(Based on IoC)in a given site
		CO4	Students will be able to assess concepts and theories of Lewis Mumford and Jane Jacobs In modern cities like Mumbai, Pune, Delhi, Ahmedabad, Bogota
		CO5	Students will be able to analyse based on the Principles of Design with Nature in their concerned site of study
		CO6	Students will be able to design based on the Planning theories in the area of intervention

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82	921- Elective 8 (Project Management)	CO1	Students will be able to interpret construction projects and expance different types of projects
		CO2	Students will be able to explain Details of considered project considering project individually
		CO3	Students will be able to classify data generated during work process evaluation of data obtained from project
		CO4	Students will be able to organise generated data compiled in report - stage wise to get BOQ, WBS, Cost and time schedule
		CO5	Students will be able to justify presented data in report format as Project report analysis of above pointers
		CO6	Students will be able to compose A final Project Report Total final project report based on analysis done on studied and documented factors
81	921- Elective 8 (Revit)	CO1	Students will be able to implement three dimensional modelling for architectural designs
		CO2	Students will be able to illustrate area uses of a floor plan
		CO3	Students will be able to evaluate design options of an architectural design
		CO4	Students will be able to construct an information rich building information model of an architectural design
81	922- Elective 9	CO1	Students will be able to distinguish various research methods for different topics
		CO2	Students will be able to apply appropriate research methodology with respect to the scope of the topic selected
		CO3	Students will be able to analyse different survey patterns required on basis of the topic and scope of work
		CO4	Students will be able to argue the conclusion of their researcher various methodologies applied

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Fifth Year B.Arch. (Sem 10)

82	1006- Environmental Studies 5	CO1	Students will be able to predict impact of built environment on its surroundings
		CO2	Students will be able to outline parameters of urban suatainabilty through case studies of sustainable cities
		CO3	Students will be able to outline sustainable building strategies for their individual Designs
		CO4	Students will be able to assess water, electricity consumption and sewage and solid waste management for their individual Designs
		CO5	Students will be able to design active and passive systems for their buildings with respect to environment protection
83	1007- Architectural Representation & Detailing 8	CO1	Students will be able to interpret the desired system related to chosen design typology
		CO2	Students will be able to classify various ARD aspect with design parameters and standards
		CO3	Students will be able to calculate the required system after the design finalisation
		CO4	Students will be able to critique the designed system is right with cross verification by experts
		CO5	Students will be able to design a final ard portfolio with design standards.
84	1012- Advanced Building Construction & Structures	CO1	Students will be able to conclude the use of suitable structural system for proposed design dissertation
		CO2	Students will be able to analyse advanced methods construction
		CO3	Students will be able to analyse Intelligent Structures and control of structural response in the architectural designs

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		CO4	Students will be able to design building for design dissertation
85	1009- Architectural Theories 4	CO1	Students will be able to analyse Origin of various Architectural Styles in their socio-economic context
		CO2	Students will be able to assess features of chosen architectural style / ism
		CO3	Students will be able to critique significant architects their buildings and writings with respect to their context
		CO4	Students will be able to analyse the effects of that style / ism in the current scenario
		CO5	Students will be able to conclude with relevance of that style in current context
86	1010 - Professional Practice	CO1	Students will be able to interpret the duties and Liabilities in Profession under contract and rules and regulation of council of Architecture
		CO2	Students will be able to assess Legal responsibility of architect to Employers part of architects duties towards client
		CO3	Students will be able to implement Elements of Arbitration and conciliation in a given case study
		CO4	Students will be able to outline MRTP Act, 1966, Environmental policies National and State level
		CO5	Students will be able to summarize role Municipal corporation and the Municipality for MMR
		CO6	Students will be able to assess Role Government bodies and local bodies for Maharashtra state
87	1011- Design Dissertation	CO1	Students will be able to summarize area program and conceptual design from the case study analysis
		CO2	Students will be able to illustrate design development and detailing

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		CO3	Students will be able to outline the functionality of the design with cross jury evaluation
		CO4	Students will be able to organise construction and services detailing wrt architectural design parameter
		CO5	Students will be able to conclude the final design solution to the architectural topic and faculty feedback
88	1022- Elective 10	CO1	Students will be able to explain research methods in architecture w.r.t conservation practise.
		CO2	Students will be able to outline research on any one aspect of building conservation practise based on thesis topic.
		CO3	Students will be able to apply methods of research writing in the field of architecture.
		CO4	Students will be able to analyse depiction of built heritage through study of chosen film

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