

Dr D Y Patil Pratishthan's
PADMASHREE DR. D Y PATIL COLLEGE OF ARCHITECTURE
Sector No. 29, B/h. Akurdi Railway Station, Nigdi Pradhikaran, Akurdi, Pune - 411044

Criteria 2 – Teaching Learning & Evaluation

2.6 – Student Performance and Learning Outcomes

2.6.1



Criterion 2 – Teaching Learning and Evaluation

Key Indicator – 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

Sr. No	Contents (B Arch and M Arch)
1	B Arch Course Outcomes (2019 Pattern)
2	B Arch Course Outcomes (2015 Pattern)
3	M Arch Course Outcomes (2019 Pattern)
4	Course Structure B .Arch SPPU (Savitribai Phule Pune University)
5	Course Structure M .Arch SPPU (Savitribai Phule Pune University)



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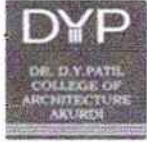
PADMASHREE DR. D Y PATIL COLLEGE OF ARCHITECTURE

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2.6.1

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

- **B Arch Course Outcomes 2019 Pattern**
- **B Arch Course Outcomes 2015 Pattern**



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Program Outcomes for B. Arch
As per Savitribai Phule University of Pune, 2019 Pattern Syllabus
A.Y. 2021-22, Term II

PROGRAM OUTCOMES [PO]

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

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Course Outcomes for First Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH108 AD - I 1201909 [SV]	CO1	BARCH108.1	Students will be introduced to the study and analysis of small scale built spaces considering the aspects like anthropometry, climate, form, function, structure and materials.
	CO2	BARCH108.2	Students will design a single activity space by applying the knowledge of various design aspects through two and three dimensional hand drawings, sketches and models.
	CO3	BARCH108.3	Students will learn to comprehend and review the architecture, culture, history of various rural settlements.
	CO4	BARCH108.4	Students will examine the rural settlement with respect to lifestyle, climate, social structure, infrastructure, amenities and facilities through measurement drawings, models, interpretation, analysis and conclusion.
	CO5	BARCH108.5	Students will give a design proposal based on the issues addressed in the studied settlement.
	CO6	BARCH108.6	Students will develop hand drawn plans, sections, elevations, 3D views and models of the project sited on the studied settlement.
BARCH109 BCM-II 1201910 [PP] 1201911 [SV]	CO1	BARCH109.1	Students will understand Earthquake resistant load bearing Building Techniques along with they gain knowledge about RCMW & domes walls construction.
	CO2	BARCH109.2	The main outcome of this unit is to understand all about Timber & its derivatives along with understanding of varied roof structure and materials.
	CO3	BARCH109.3	Single and Double Floor wooden construction for G+1 structures are to be learnt as a part of this unit along with Timber staircase details.
	CO4	BARCH109.4	Students will gain knowledge about Timber Panelled Door, Flush Door & Casement windows construction Techniques along with Joinery Details.
	CO5	BARCH109.5	Timber King Post and Queen Post Trusses for Roof construction Techniques are to be Understood in this Course Outcome
	CO6	BARCH109.6	Wooden Partition Wall Paneling for Interior application is to be understood along with joinery details.
BARCH110 TOS-II 1201912 [PP]	CO1	BARCH110.1	Student will study S.F.D and B.M.D of Overhanging Beams
	CO2	BARCH110.2	Students will be Introduced to Plane Lattice Construction and structural actions in it's member
	CO3	BARCH110.3	Student will study Applications of Frames and Trusses - Geometry, Assumptions and Effect of Horizontal and Vertical Forces on Frames.
	CO4	BARCH110.4	Student will study Effect of Force on Spanning Members - Theory of Simple Bending to create Moment of Resistance.
	CO5	BARCH110.5	Student will study Effect of Force on Spanning Members - Shear Stress Distribution across different Section
	CO6	BARCH110.6	Student will study Effect of Force on Spanning Members - Maximum and Minimum Slope and Deflection for different cases
	CO7	BARCH110.7	Student will Understand and study the Failure of Compression Members
BARCH111 AGD-II 1201913 [SS]	CO1	BARCH111.1	Students will to understand and express composite three-Dimensional objects and buildings formed by additive and interpenetrated solids using various graphical projection systems including sections.
	CO2	BARCH111.2	Students will understand to communicate an architectural idea / proposal in a legible and effective manner through perspective projections
	CO3	BARCH111.3	Students will understand use of shades and shadows, and various architectural presentation and rendering techniques
	CO4	BARCH111.4	Students will learn surface Development of various three dimensional objects and orthographic projections of true shapes of sectional planes.
	CO5	BARCH111.5	Students will learn one-point and two-point perspective of objects and buildings/ building components using various methods including grid method.
	CO6	BARCH111.6	Students will be introduced to concept of bird's eye view, worm's eye view etc
	CO7	BARCH111.7	Students will learn principles of Sciography (shades and shadows) for 3-Dimensional objects and buildings on plans, elevation, isometric and perspective.

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Course Outcomes for First Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH112 HOAC-II 1201914 [SS]	CO1	BARCH112.1	Students will learn about about the various types of Islamic architectural elements through library study.
	CO2	BARCH112.2	Students will understand new developments due to Islamic invasion and their effects on architecture. Understanding the effects of Islamic principles on Arch. Form.
	CO3	BARCH112.3	Students will understand new construction techniques were brought through Islamic invasion and depict through sketches.
	CO4	BARCH112.4	Understanding the various Indo-Islamic features and making sketches of them.
	CO5	BARCH112.5	Studying in groups about various monuments of Islamic architecture and presenting in the class.
	CO6	BARCH112.6	Drawing sketches of various types of arches, domes, squinches and minarets-studying in detail about the various elements and it's types.
	CO7	BARCH112.7	Studying about the various methods of dome construction and showing them on the sheets.
BARCH113 FOA 1201915 [SS]	CO1	BARCH113.1	Introduction to the profession of Architecture and its distinguishing characteristics with respect to other professions.
	CO2	BARCH113.2	Scope of architecture as a discipline
	CO3	BARCH113.3	Fundamentals of architecture -function, structure, culture and environment and their integration into the architectural form
	CO4	BARCH113.4	Factors affecting architectural design- site, context, function, circulation, structural system, materials, sustainability and aesthetics.
	CO5	BARCH113.5	Concept of Shelter and introduction to various building typologies and their design concerns
	CO6	BARCH113.6	Scope and significance of subjects in architectural curriculum.
BARCH114 WS-II 1201916 [SS]	CO1	BARCH114.1	To introduce students to the Significance of Model making in Architecture in exploring and representing Massing, form of buildings and spaces. Introduction to various basic model making techniques and materials their relationship.
	CO2	BARCH114.2	To enable students to make Architectural and construction models using various materials. Introduction to the Model making of settlement study in a group.
	CO3	BARCH114.3	To enable students to make Construction models with various materials. Use of various materials in individual design models.
	CO4	BARCH114.4	To understand the 3D modeling and visualizing software "Sketchup".
	CO5	BARCH114.5	To understand the commands and applying them during model making in the software.

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Course Outcomes for Second Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH208 AD - III 2201926 [SV]	CO1	BARCH208.1	Students will learn to design a project that introduces the concept of site planning with multiple built spaces with an area 1000 sq.m. to 1500 sq.m..
	CO2	BARCH208.2	Students will learn to study a settlement considering history, demography, architectural characteristics, social and urban/rural issues and a proposal in terms of design solution to address issues in the settlement.
	CO3	BARCH208.3	Students will design a project or eskee based in the settlement that students have studied.
	CO4	BARCH208.4	Students will develop concepts, zoning, single line plans and block sections with block model wrt site
	CO5	BARCH208.5	Students will evolve their designs into functional and sensible plans with appropriately planned approaches, services, etc. on site
	CO6	BARCH208.6	Students will buildout sections and elevations with 3d views from the finalised plans
BARCH209 BCM-IV 2201927 [PP] 2201928 [SV]	CO1	BARCH209.1	Students will learn theoretical knowledge of types of special concretes, to include lightweight concrete, ready-mixed concrete, ferrocement etc; study of its ingredients viz. along with storage of materials on site, understanding good quality material and field & lab tests involved.
	CO2	BARCH209.2	Students will learn theoretical knowledge of causes of dampness and reasons for damp- & 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 etc.
	CO3	BARCH209.3	Students will learn to draw R.C.C structural details for balcony slabs, canopies and Construction of various types of precast and in-situ RCC stairs, along with earthquake resistant features, reference of a RCC drawing
	CO4	BARCH209.4	Students will understand elevators, escalators, conveyors – types, size, capacity, speed and Mechanical safety methods, provisions in civil work for installation of elevators and escalators
	CO5	BARCH209.5	Students will learn to draw Various types of sliding and folding doors and Construction of Bay Window
	CO6	BARCH209.6	Students will learn theoretical knowledge of glass as a building material, brief history of its use through examples. Manufacture, properties and uses of glass. Various types of glass and its application in building construction. Plastic as a building material; its properties, types, uses and application of plastics in building industry. Different types of adhesives and sealants used in building construction
	CO7	BARCH209.7	-
BARCH210 TOS-IV 2201929 [PP]	CO1	BARCH210.1	Students will understand different ways of supporting a Balcony - Cantilever Slab
	CO2	BARCH210.2	Students will study design of Cantilever beams and Concept of Under Reinforced, Balanced and Over Reinforced Sections
	CO3	BARCH210.3	Student will Understand Dividing Larger Rooms in Smaller One Way or Two Way Slab Units
	CO4	BARCH210.4	Students will understand the design of different Staircases with Beams at Various Positions:
	CO5	BARCH210.5	Students will understand Steel as a Material and Various Steel Sections and their use.
	CO6	BARCH210.6	Students will understand concept of Steel Girders and Stanchions
BARCH211 ENV. SCIENCE 2201930 [SS]	CO1	BARCH211.1	Student will understand, analyze the different Natural resources like land, water, forest, minerals, food, etc.
	CO2	BARCH211.2	Students will understand the types of ecosystems, biogeochemical cycles, and importance of their conservation and preservation.
	CO3	BARCH211.3	Students will gain the knowledge of Value of biodiversity like consumptive, productive use, social, ethical and aesthetic and also the threats to biodiversity and conservation of biodiversity (in-situ and ex-situ) and their role as an Architect and its conservation and preservation.
	CO4	BARCH211.4	Students will understand the Causes, effects and control measures of air pollution, water pollution, soil pollution, marine pollution noise pollution, thermal pollution and nuclear hazards
	CO5	BARCH211.5	Students will understand different Environment related acts and green building concepts.
BARCH212 HOAC-IV 2201931 [SS]	CO1	BARCH212.1	Students will understand social, cultural changes occurred due to industrial revolution. They will sketch and analyze inventions, typologies invented due to this social and cultural change.
	CO2	BARCH212.2	Students will sketch, differentiate features of various revival style of architecture. They will study typologies of Revival Period of Europe and America.
	CO3	BARCH212.3	Students will learn about the development of Colonial Architecture across India and how different countries contributed to architectural development of the particular region
	CO4	BARCH212.4	Students will understand the different phases of Early Modern Movements, master architects, their design philosophy and their notable works
	CO5	BARCH212.5	Students will understand the philosophy of '-isms' and their evolution, defining features and adaptation across the world

Dr. D Y Patil Prathisthan's

Course Outcomes for Second Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
	CO6	BARCH212.6	Students will understand the Post Independence Architecture in India and the several discourses of Post Liberalisation and its influence on Architecture in India
	CO7	BARCH212.7	Students will measure a Building/ Campus from any of the styles taught in this semester and document it in form of drawings and photographs
BARCH213 BS-II 2201932 [PP] 2201933 [SS]	CO1	BARCH213.1	Students should be able to understand basic concepts of solid waste management, beginning from source generation to waste disposal.
	CO2	BARCH213.2	Students should be able to understand basic principles of daylight and artificial lighting and should be able to design a lighting plan for a space.
	CO3	BARCH213.3	Students should be able to understand different sources of light, their characteristics lighting systems (Direct & Indirect) and their applications in building projects and what is Lumen Method
	CO4	BARCH213.4	Students should be able to understand Electrical installations in a building with load calculations.
	CO5	BARCH213.5	Students should be able to understand Low Voltage electrical systems and its integration in BMS
BARCH214 SSA 2201934 [SS]	CO1	BARCH214.1	Students will understand Taking out linear measurement and locating the objects in horizontal and vertical plane.
	CO2	BARCH214.2	Students will be able to take angular & directional measurement by using equipment. Prepare and interpret the survey drawing for same.
	CO3	BARCH214.3	Students will Understanding how to use and operate dumpy Level .Taking Level/ elevation of a point.
	CO4	BARCH214.4	Students will be explained the Accessories used in plane tabling and calculating area of irregular shape.
	CO5	BARCH214.5	Students will understand Accessories used in plane tabling and calculating area of irregular shape
	CO6	BARCH214.6	Students will be Plotting the contours and profiles, Understanding gradient, methods of contouring.
	CO7	BARCH214.7	Students will understand Natural and Manmade aspects, Site Analysis





Dr. D Y Patil Prathisthan's

Pad. Dr. D Y Patil College of Architecture

Akurdi, Pune 411044



Course Outcomes for Third Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH308 AD - V 3201944 [SV] 3201945 [PP]	CO1	BARCH308.1	Students will learn to Identify and examine various types Building services in different typology of buildings like Hotels. Hospitals, Office buildings, malls, etc.
	CO2	BARCH308.2	Students will identify and analyse case studies of Shopping mall concluding in comparative analysis and study of standards
	CO3	BARCH308.3	Students will develop a programme for shopping mall based on case studies, identify appropriate site and study of prevalent UDCPR and NBC 2016 byelaws
	CO4	BARCH308.4	Students will develop concepts, zoning, single line plans and block sections with block model wrt site
	CO5	BARCH308.5	Students will evolve their designs into functional and sensible plans with appropriately planned approaches, services, etc. on site
	CO6	BARCH308.6	Students will buildout sections and elevations with 3d views from the finalised plans
	CO7	BARCH308.7	Students will get experience of time bound design paper solving by attempting to solve previous question paper.
BARCH309 BCM-VI 3201946 [SV]	CO1	BARCH309.1	Student will classify & differentiate the features, classification, applications Uses and Market forms of newer class materials like Structural Steel, nonstructural Steel, and Sheet Roof
	CO2	BARCH309.2	At the End of the Unit Student will Appraise ,Critique and design the fencing using different materials like steel, barbed wire, chain-link, weld-mesh and other available materials in market.
	CO3	BARCH309.3	At the end of the unit Student will understand the concept of trusses along with earthquake resistant features & develop Construction details of trusses for low rise medium span buildings
	CO4	BARCH309.4	Student will understand and sketch the methods of construction of various components of steel structures; steel frame construction for multi-storey steel building and also develop the design for assembly of structure with earthquake resistant features.
	CO5	BARCH309.5	Student understand Concept of modular coordination for Industrialized building construction, planning and construction details
	CO6	BARCH309.6	Student understand the Application of Moment resisting frames, crossed braced frames and shear wall for Earthquake resistance structures
BARCH310 TOS-VI 3201947 [PP]	CO1	BARCH310.1	Student will study the effect of Lateral Pressure of Soil and Water for increasing heights.
	CO2	BARCH310.2	Students will develop the Feel for Structural Principles and their Relates to Building Design
	CO3	BARCH310.3	Students will understand the fact that Architecture and Structure cannot be conceived independently.
	CO4	BARCH310.4	Students will Design the Structural System for Ground +2 Storey R.C.C Structure
	CO5	BARCH310.5	Students will Design the medium span Factory Building in steel.
	CO6	BARCH310.6	Students will Understand different Structural Systems for Larger Spans and Tall Buildings with an understanding of Wind Load
	CO7	BARCH310.7	Students will develop a Confidence that they could explore a Structural System of their own design and execute the same.
BARCH311 RIA-I 3201948 [SS]	CO1	BARCH311.1	Students will understand the meaning and need of research, variables, ethics , Selection of samples ,research methodology and its types.
	CO2	BARCH311.2	Students will select and define the selected research topic and narrowing it down to further a final topic.
	CO3	BARCH311.3	Students will carry out the literature review of 5 research papers on their selected topic.
	CO4	BARCH311.4	Students will review case studies, qualitative and quantitative data collection, various tools need to be used as per their selected topic.
	CO5	BARCH311.5	Students will create a research proposal including framing of Abstract, Aim and objective Scope of work of their selected topic.

Course Outcomes for Third Year B. Arch [2019 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH312 Elective-II 3201949 [SS]	CO1	BARCH312.1	At the End of the Course Student will be analyze and define their selected research area in comparison with other given topic.
	CO2	BARCH312.2	At the End of the Course Student will create a Research Proposal including framing of Abstract, Aim and objective Scope of work of their favorable research area
	CO3	BARCH312.3	At the End of the Course Student will review research paper review
	CO4	BARCH312.4	At the End of the Course Student will review Case Study, qualitative and quantitative data collection
	CO5	BARCH312.5	At the End of the Course Student will create a inferences , conclusion and some topic can be in form of proposal
BARCH313 BS-IV 3201950 [PP] 3201951 [SS]	CO1	BARCH313.1	Students will learn about sound properties. Planning and design to control outdoor noise and indoor noise. About different acoustical material & its application
	CO2	BARCH313.2	Students will learn parameters of good acoustical conditions and design techniques to control air and structure born noise
	CO3	BARCH313.3	Students will learn to calculate Reverberation time calculation, acoustical treatment and different sound amplification systems
	CO4	BARCH313.4	Students will understand and learn about the passive strategies of fire prevention
	CO5	BARCH313.5	Students will learn Exit requirements, egress components, Compartmentalisation, provision for basements, gas supply, fire detection and alarm in high rise building
	CO6	BARCH313.6	students will learn about active strategies fire prevention
BARCH314 WD-II 3201952 [SS]	CO1	BARCH314.1	Students will Learn to represent working drawing using standard practices, conventions, graphic annotations, sequencing and cross reference systems of a good working drawing set.
	CO2	BARCH314.2	Students will show Design development and detailing of own design to resolve the design idea
	CO3	BARCH314.3	students will execute their design ideas in working drawing considering the construction parameters, limitation and sequencing
	CO4	BARCH314.4	students will generate a working drawing set for the chosen design/ building
	CO5	BARCH314.5	students will understand framed/composite construction including schedules of material, finishes, components and accessories
	CO6	BARCH314.6	Students will Develop and draft details of Civil work & Building Components.
	CO7	BARCH314.7	students will generate interior design drawings including schedule of finishing details



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Akurdi, Pune 411044

Course Outcomes for Fourth Year B. Arch [2015 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH409 Design VIII 4201562 [SV]	CO1	BARCH409.1	This Study will help student to understand Urban Fabric of Design Project. Study of Urban Areas in terms of Urban level issues like Mobility, movement network, builtform disposition, character, identity, activities, open space networks, walkability, inclusiveness, etc.
	CO2	BARCH409.2	This Study will Students to learn rules and regulation and site analysis for the Draft Development Plan.
	CO3	BARCH409.3	This Study will help student to understand architectural design of a component/s of the neighborhood study at City Level, Community Level, Local Level, Community participation initiatives
	CO4	BARCH409.4	Students will understand the challenges and analysis. Identify issues related to above aspects at Neighbourhood level and offer design solutions for improving the status of the neighbourhood with reference to the above aspects.
	CO5	BARCH409.5	students are expected to design a Multi Functional Complex of Buildings or Speciality Building in an Urban Context with substantial Complexity addressing Issues of Character, Identity, Builtform, Contextuality, Advanced Services, Green Initiatives , landscape integration, traffic management with impact on immediate surroundings.
BARCH410 ABTS-II 4201563 [SV]	CO1	BARCH410.1	Student will able to design an auditorium using the data collected from study of standards and case studies
	CO2	BARCH410.2	Students will be able to their own construction working details to an appropriate scale for the Proposed Auditorium designed in Unit 1, with the help of market survey. Out of five, one detail shall comprise of provisions for differently abled people.
	CO3	BARCH410.3	Students will be able to comprehend advanced structural systems employed in several high rise buildings under different loading conditions through model making
	CO4	BARCH410.4	Students will be able to comprehend advanced structural systems and advanced services that help functioning of high rise buildings through case studies
	CO5	BARCH410.5	Students will be able to design their own curtain wall system for 1 external facade for the Proposed Auditorium in Unit 1.
	CO6	BARCH410.6	Students will be able to make decisions for material selection as per detailing for Curtain walls from market survey
BARCH411 PP-II 4201564 [PP]	CO1	BARCH411.1	Students will learn the introduction to Construction Management - Types and Systems of Tendering - Open and Invited Tenders - Pre-Qualification and Empanelment procedures - Selection of Contractors.
	CO2	BARCH411.2	Introduction to Contracts - Articles of Agreement and Conditions of Contract (IIA document) Contents of a Tender - Terms of Reference - Specifications - Bill of Quantities - Billing, Measurement of work and Payments - Advances and recovery - Bonus and Penalties, etc
	CO3	BARCH411.3	Introduction to National Building Code - ISI Codes and Standards, Limits and Tolerances.
	CO4	BARCH411.4	Students will learn the role of Architects in Construction / Site management - Supervision and monitoring of Speed, Quality and Economy - Status on project sites - Meetings, Minutes, Instructions & Records.
	CO5	BARCH411.5	General Introduction to the Role and Legal duties of Architects in Arbitration and Valuation.
BARCH412 US-II 4201565 [SS]	CO1	BARCH412.1	Students will learn the theoretical knowledge of aspects involved in urban study process such as Survey, analysis, proposals and development.
	CO2	BARCH412.2	Students will learn the theoretical knowledge of Urban Planning legislation such as town planning acts, building bylaws, city conservation.
	CO3	BARCH412.3	students will learn theoretical knowledge of urban economics such as demand and supply, housing finance, Government schemes and various bodies etc
	CO4	BARCH412.4	students will be able to study the existing town and town planning proposals for municipal council level town-(group work)
	CO5	BARCH412.5	Identification of urban issues related to various aspects such as environment, society, traffic and transportation, hills and hill slopes, riverfront development, urban heritage conservation through primary surveys
BARCH413 RIA-II 4201566	CO1	BARCH413.1	Student will understand how to collect authentic data for research work as well analysis of data using certain matrix or statics.
	CO2	BARCH413.2	Student will understand how to write & Present the data using various techniques (verbal, visual, graphical, numerical based on research topic & type.
	CO3	BARCH413.3	Students will understand & analysis the data obtained through literature review as per their topic.
	CO4	BARCH413.4	Students will review the data collection- qualitative & quantitative data collection
	CO5	BARCH413.5	Students will reframe a question related to their selected topic and start to write research paper draft
	CO6	BARCH413.6	Students will select appropriate research methodology for their topic to produce a research paper

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Akurdi, Pune 411044

Course Outcomes for Fourth Year B. Arch [2015 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH414 QSE-II 4201567 [PP]	CO1	BARCH414.1	Students will be introduced to Rate analysis in detail
	CO2	BARCH414.2	Students will be introduced to various costs, different typed of work and indent preparation
	CO3	BARCH414.3	Students will be Studying and Working out rate Analysis of standard items of work
	CO4	BARCH414.4	Students will be Studying and preparing Indent of Material of standard items of work
	CO5	BARCH414.5	Students will be Working out quantities for plumbing and sanitation items of work
	CO6	BARCH414.6	Students will be preparing measurement sheet and abstract for all items of work.
	CO7	BARCH414.7	Students will be Working out quantities for Industrial structure with steel Truss and sheet roofing
BARCH415 SW-II 4201568 [PP]	CO1	BARCH415.1	Students will be explained importance of specifications in contract document for any construction project
	CO2	BARCH415.2	Students will be preparing Checklist for any construction project
	CO3	BARCH415.3	Students will be introduced to Techniques & methods of writing different types of specifications of different items of works in construction.
	CO4	BARCH415.4	Students will be introduced to methodology of writing specifications for service installations of different items of work in construction.
	CO5	BARCH415.5	Students will be introduced to Different Building trades scope & contents
BARCH416 Elective-III 4201569 [PP]	CO1	BARCH416.1	Student will study different research paper, book to brain storm about the different topics of their interest, to finalize their topic.
	CO2	BARCH416.2	Other than the specified subject in syllabus student will get opportunity to try and learn something new of their choice and it will encourage student to do research in that and to gain theoretical and practical knowledge to apply it in practice.
	CO3	BARCH416.3	Students will present their work in class which will help students to gain knowledge of different topic all together such as planning and architectural theories, research and data collection methodology etc.
	CO4	BARCH416.4	Student will do in depth study of their selected topic, will do live case study, measurement dwg., literature review etc. as per the need of topic and have to present their own analysis on the same.
	CO5	BARCH416.5	Student will be able to present their work in form of research paper, design proposal, which can be idea based or design based solution.

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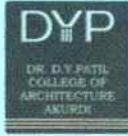
Course Outcomes for Fifth Year B. Arch [2015 Pattern]

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
BARCH502 Elective IV 5201572 [SS]	CO1	BARCH502.1	Student will select and finalise a topic based on their interest areas from the topics prescribed in syllabus
	CO2	BARCH502.2	Students will be exposed to different aspects of selected management topics.
	CO3	BARCH502.3	Students will study each aspect of topic in detail and present it in group
	CO4	BARCH502.4	Students will study research papers to understand and analyze the depth and research problems under their selected topics
	CO5	BARCH502.5	Students will undergo live case study exercise where they will be exposed to practical aspects of management
BARCH503 ADP 5201573 [SV]	CO1	BARCH503.1	Student will select and finalise a topic based on there interest areas and from the different typologies like resorts, hospitals, residenatial buildings, IT parks, etc
	CO2	BARCH503.2	Students will identify and analyse case studies of there selected topics concluding in comparative analysis, study of standards and will identify different options of site for there project and fianlise and carry a detailed site investigation.
	CO3	BARCH503.3	Students will develop a programme for there own project based on case studies and study of prevalent UDCPR and NBC 2016 byelaws
	CO4	BARCH503.4	Students will develop concepts, zoning, single line plans and block sections with block model wrt site
	CO5	BARCH503.5	Students will evolve their designs into fuctional and sensible plans with appropriately planned approaches, structural system, services, landscape development,etc. on site
	CO6	BARCH503.6	Students will build out sections and elevations with 3d views from the finalised plans
	CO7	BARCH503.7	To present the entire project in the viva-voce exam along with drawings and models in a systematic manner

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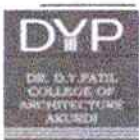
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2.6.1

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

- **M Arch (CM) Course Outcomes 2019 Pattern**



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Program Outcomes for M. Arch
As per Savitribai Phule University of Pune, 2019 Pattern Syllabus
A.Y. 2021-22, Term II

PROGRAM OUTCOMES [PO]

1. Manage a quality construction project from start to completion while maintaining budget, schedule, and safety requirements and delight Stakeholders expectations.
2. Evaluate and select computer applications for successful construction management throughout different phases.
3. Apply professional and ethical standards of behaviour in dealing with all stakeholders in the construction process.
4. Deployment of optimum use of resources in the context of environmental sensitivity, and occupational safety.
5. Develop comprehensive construction management plan, also to enable to examine the legal context for successful construction implementation and closeout process.

Sr.No.	Program Outcomes	Subjects in curriculum
1	Manage a quality construction project from start to completion while maintaining budget, schedule, and safety requirements and delight Stakeholders expectations.	CM I, CM II, CM III, Financial Appraisal and Project Funding, Procurement, Quality and Safety Management systems.
2	Evaluate and select computer applications for successful construction management throughout different phases.	Softlab I, Softlab II, Softlab III
3	Apply professional and ethical standards of behavior in dealing with all stakeholders in the construction process.	Introduction to Construction Management, Practical Training **
4	Deployment of optimum use of resources in the context of environmental sensitivity, and occupational safety.	Real Estate Development & Facilities Management, Procurement, Quality and Safety Management systems.
5	Develop comprehensive construction management plan, also to enable to examine the legal context for successful construction implementation and closeout process.	Managing Large Projects - Construction Management Framework at Sites, Contract management and Building Construction Laws, Financial Appraisal and Project Funding.

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Course Outcome for First Year M. Arch (2019 Pattern)

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
MARCH201 Construction Management - Risk, Communication and	CO1	MARCH201.1	Students will study risk management process through live case study
	CO2	MARCH201.2	Students will learn resource management and its application in a project
	CO3	MARCH201.3	Students will learn complete PIMS relating to a live project
MARCH202 Elective II 2019CM202	CO1	MARCH202.1	Student will select and finalise a topic based on their interest areas from the topics prescribed in syllabus
	CO2	MARCH202.2	Students will study research papers to understand and analyze the depth and research problems under their selected topics
	CO3	MARCH202.3	Students will study book case study exercise where they will be exposed to practical aspects of the selected topic
	CO4	MARCH202.4	Students will undergo live case study exercise where they will be exposed to practical aspects of the selected topic
MARCH203 Real Estate Development & Facilities Management 2019CM203	CO1	MARCH203.1	Students will study Planning norms for various Services & Utilities
	CO2	MARCH203.2	Students will study organization structures of services management
	CO3	MARCH203.3	Students will study Real estate consultants and their activities,
	CO4	MARCH203.4	Students will study principal functions of real estate participant and stakeholders
	CO5	MARCH203.5	Students will study Real Estate investment, sources and related issues
	CO6	MARCH203.6	Students will study Code of ethics for Real Estate participants.
	CO7	MARCH203.7	Students will study Environmental issues related to Real Estate transactions
MARCH204 Advance Building Construction Technology & Services 2019CM204	CO1	MARCH204.1	Students will be exposed to all aspects of precast and pre-stressed concrete
	CO2	MARCH204.2	Students will be exposed to all aspects of prefabricated and offsite technologies
	CO3	MARCH204.3	Students will be introduced to structural system concepts and design process methodology
	CO4	MARCH204.4	Students will be exposed to advanced HVAC system with on site study
	CO5	MARCH204.5	Students will be exposed to advanced electrical/LV and BMS with on live site case study and market survey
	CO6	MARCH204.6	Students will study in group a live case study for Unit 6 topics
MARCH205 Research I 2019CM205	CO1	MARCH205.1	Students will study the theory of research
	CO2	MARCH205.2	Students will identify the research area and will develop research proposal
	CO3	MARCH205.3	Student will study the literature and literature sourcing
	CO4	MARCH205.4	Students will study different methods of data collection and sampling


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	CO5	MARCH205.5	Students will be exposed to procedure of data analysis and results
	CO6	MARCH205.6	Students will be exposed to procedure of derivation of conclusion
MARCH206 Softlab II 2019CM206	CO1	MARCH206.1	Students will be explore MSP and Primavera softwares
	CO2	MARCH206.2	A project will be executed and completed in the lab for hands on experience
	CO3	MARCH206.3	Student will study implement Cost planning in the project
	CO4	MARCH206.4	Students will understand and learn to cost control in software
	CO5	MARCH206.5	Students will be exposed to site information management through software

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Course Outcome for First Year M. Arch (2019 Pattern)

A.Y. 2021-22, Term II

Subject	Course Outcome No.	CO Code No.	Statement
MARCH401 Project 2019CM401	CO1	MARCH401.1	Students will finalize the topic of their interest and submit their synopsis
	CO2	MARCH401.2	Students will discuss the preliminary study of their project and develop the methodology for their research
	CO3	MARCH401.3	Student will perform the literature study to understand the research problem
	CO4	MARCH401.4	Students will perform case studies live, book, internet relevant to the topic
	CO5	MARCH401.5	Students will collect data required for their research through interviews, surveys, questionnaire, etc
	CO6	MARCH401.6	Students will derive their analysis of study
	CO7	MARCH401.7	Students will derive conclusion based on their research and give recommendations
MARCH402 Elective III 2019CM402	CO1	MARCH402.1	Student will select and finalise a topic based on their interest areas from the topics prescribed in syllabus
	CO2	MARCH402.2	Students will study each aspect of topic in detail and present it in group
	CO3	MARCH402.3	Students will study research papers to understand and analyze the depth and research problems under their selected topics
	CO4	MARCH402.4	Students will study book case study exercise where they will be exposed to practical aspects of the selected topic
	CO5	MARCH402.5	Students will undergo live case study exercise where they will be exposed to practical aspects of the selected topic
	CO6	MARCH402.6	Students will conclude their topic with their outcome of overall study
	CO7	MARCH402.7	

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2.6.1

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

- **Course Structure B .Arch SPPU (Savitribai Phule Pune University)**

SAVITRIBAI PHULE PUNE UNIVERSITY

[Formerly the University of Pune]



COURSE STRUCTURE

FIVE YEAR DEGREE COURSE IN ARCHITECTURE

[B.ARCH.]

TO BE IMPLEMENTED FROM 2019-20

**BOARD OF STUDIES IN ARCHITECTURE
FACULTY OF SCIENCE AND TECHNOLOGY**

Dr. D Y Patil Pratishthan's
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BACHELOR OF ARCHITECTURE COURSE STRUCTURE AND RULES

PREAMBLE

The New Syllabus of the B.Arch. course hence forth to be referred as the 2019 Pattern, to be implemented from the year 2019-20, is designed to address the rising expectations of knowledge to be borne by an architect. The interdisciplinary nature of the field of architecture demands integration of knowledge domains from various disciplines such as humanities, art, and technology and so on. However, what distinguishes an architect is the design knowledge and ability to employ the knowledge from the various disciplines for arriving at a solution to a problem.

Hence the syllabus has been designed such that the professional core subjects are supported by building science and technology courses, professional ability enhancement courses and the elective courses. The professional ability enhancement courses and the practical training of one semester focus on connecting the students with the practice. The elective courses enable an exposure to some other domain or nurtures the students' proficiency or skill. The Audit courses are introduced to acknowledge the knowledge that the student seeks in his/her area of interest but not directly contribute to the CGPA.

At the end of the course the graduating student shall be able to methodically approach a problem of creating a built environment be it a small house or a township by employing knowledge from various domains and at the same time making it safe, equitable, feasible and environment friendly. Education needs to equip the student to face the challenges and demands in the field by imbibing first principles.

As per the University guidelines, the course is structured upon the Credit System Based Assessment. The syllabus is structured with the following objectives and expected outcomes

PROGRAM EDUCATIONAL OBJECTIVES[PEO]-

1. **Theoretical Base**—To establish strong theoretical base and understanding of Architecture and work of an architect.
2. **Knowledge and Skills**—To inculcate design sensitivity and ability, as well as knowledge in the domains of humanities, technology & art and impart skills so as to equip the graduate student to undertake work of an architect.
3. **Values** - Sensitize the students to the universal values of equity, environmental care, accessibility, and respect for heritage and equip them to address these through design.
4. **Research** -Train the students to methodically research a issue or a situation to find a creative solution to meet the contextual challenges in the realm of changing technologies, socio economic and cultural changes.
5. **Practice and Ethics**- To enable the students to practice as architects and imbibe them with the knowledge of the professional practice and ethics.
6. **Changes and Diversification**- To expose the students to the changes in architectural practice, diversifications and evolving role of an architect.

PROGRAM OUTCOMES [PO]

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

Rule no.1: ELIGIBILITY FOR ADMISSION.

Eligibility Criteria: Students seeking admission to First year of Bachelor's degree course in Architecture must fulfil the eligibility criteria laid down by Savitribai Phule Pune University / Govt. of Maharashtra / Council of Architecture as applicable from time to time.

Rule no.2: SCHEME OF ASSESSMENT.

A candidate to be eligible for the degree of Bachelor of Architecture will be required to appear for and pass examinations as under:

	Semester Numbers	Credits
1	Semester 1	28
2	Semester 2	28
	Total credits for First Year B.Arch.	56
3	Semester 3	28
4	Semester 4	28
	Total credits for Second Year B.Arch.	56
5	Semester 5	28
6	Semester 6	28
	Total credits for Third Year B.Arch.	56
7	Semester 7	28
8	Semester 8	28
	Total credits for Fourth Year B.Arch.	56
9	Semester 9	14
10	Semester 10	24
	Total credits for Fifth Year B.Arch.	38
	Total credits	262

Total Credits of the Course = 262

Colleges may offer the students audit courses one per semester [Sem I to Sem VIII]. The students may choose to opt these courses. The passing in audit courses is by clearance and they are non-credits courses and are not part of the SGPA / CGPA calculation.



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PADMASHREE DR. D Y PATIL COLLEGE OF ARCHITECTURE
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- **Course Structure M .Arch SPPU (Savitribai Phule Pune University)**

SAVITRIBAI PHULE PUNE UNIVERSITY
(FORMERLY UNIVERSITY OF PUNE)



SYLLABUS FOR
MASTERS IN ARCHITECTURE
M.ARCH. (CONSTRUCTION MANAGEMENT)
(To be implemented w.e.f. A.Y. 2019-20)

BOARD OF STUDIES IN ARCHITECTURE
FACULTY OF SCIENCE AND TECHNOLOGY

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PREAMBLE

The course focuses on the fundamentals of construction management giving insight into the management, construction techniques and legal issues related to construction industry with a focus on buildings.

Area of study includes site construction and management, construction documentation, Project management, Safety management and Construction related laws regulations and codes.

With the growing role of the Architect as a coordinator between the design, site and other agencies involved in the construction industry, this course aptly provides opportunity to equip the architect giving specialized knowledge in construction management in contemporary times.

The aim is to help the student acquire knowledge and skills that can be used to in construction industry and be a versatile leader of a successful construction team.

SALIENT FEATURES:

Construction management deals with Coordination, Planning and control of a project from setting up to completion. An architect project manager can help to fulfil clients' requirements and to produce a functionally optimized and monetarily viable project. An Architect is a person associated with client from day one and also is in coordination with the entire team, the process becomes more efficient if the construction manager/Project manager is an Architect, i.e. planning, directing and budgeting of a project.

Therefore there are vast opportunities for an Architect as a Construction manager in public and private sector companies.

PROGRAM EDUCATIONAL OBJECTIVES [PEO]-

1. Impart **Technical Expertise** on Construction project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success for complex Building Projects.
2. Provide opportunities and develop leadership skills and professional competency to lead multidisciplinary Building Project for end to end Construction management of complex Building Projects.
3. Develop **Professional Behavior** in terms of managing stakeholders and communication skills to manage construction teams for effective implementation of Building Project.
4. Provide opportunities and develop responsible professionals in terms of ethics and value systems.
5. Develop **Strategic Awareness** and knowledge of strategic and operational drivers required to inform decisions and deliver sustained competitive advantage.




PROGRAM OUTCOMES [PO]

1. Manage a quality construction project from start to completion while maintaining budget, schedule, and safety requirements and delight Stakeholders expectations.
2. Evaluate and select computer applications for successful construction management throughout different phases.
3. Apply professional and ethical standards of behaviour in dealing with all stakeholders in the construction process.
4. Deployment of optimum use of resources in the context of environmental sensitivity, and occupational safety.
5. Develop comprehensive construction management plan, also to enable to examine the legal context for successful construction implementation and closeout process.

Sr.No.	Program Outcomes	Subjects in curriculum
1	Manage a quality construction project from start to completion while maintaining budget, schedule, and safety requirements and delight Stakeholders expectations.	CM I, CM II, CM III, Financial Appraisal and Project Funding, Procurement, Quality and Safety Management systems.
2	Evaluate and select computer applications for successful construction management throughout different phases.	Softlab I, Softlab II, Softlab III
3	Apply professional and ethical standards of behavior in dealing with all stakeholders in the construction process.	Introduction to Construction Management, Practical Training **
4	Deployment of optimum use of resources in the context of environmental sensitivity, and occupational safety.	Real Estate Development & Facilities Management, Procurement, Quality and Safety Management systems.
5	Develop comprehensive construction management plan, also to enable to examine the legal context for successful construction implementation and closeout process.	Managing Large Projects - Construction Management Framework at Sites, Contract management and Building Construction Laws, Financial Appraisal and Project Funding.

Sr.No.	Electives	Tentative Subjects of Electives
01	Elective I (SEM I)	<ul style="list-style-type: none"> • Critical Appraisal of Building Services for Hotels/ Hospitals. • Review of Fire detection and Fire Fighting in High-rise Buildings. • Building Energy Modeling for large building complex. • Building Services design for Large IT PARK. • Design documentation management system for large projects
02	Elective II (SEM II)	<ul style="list-style-type: none"> • Construction technologies for Affordable Housing Projects. • Integrated Project Management Information System. • Design detailing and Management for Aluform Shuttering in High rise Towers. • Labour laws and compliance system in Construction. • Environmental Clearance for Large Building Projects - critical appraisal.

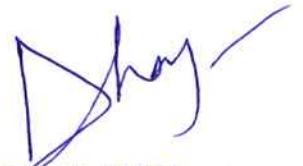

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03	Elective III (SEM III)	Choice based –Interdisciplinary or any ongoing project based.
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Note- The Institute shall have the freedom to offer listed or any additional subjects based on the availability of experts.

MATRIX OF PROGRAM EDUCATIONAL OBJECTIVES AND PROGRAM OUTCOMES

M.Arch (CONSTRUCTION MANAGEMENT)		PO1	PO2	PO3	PO4	PO5
	PEO	from start to completion while maintaining budget, schedule, and safety requirements and delight Stakeholders expectations.	Evaluate and select computer applications for successful construction management throughout different phases.	Apply professional and ethical standards of behaviour in dealing with all stakeholders in the construction process.	Deployment of optimum use of resources in the context of environmental sensitivity, and occupational safety.	management plan, also to enable to examine the legal context for successful construction implementation and closeout process.
1	PEO1 Leadership skills and professional competency	✓			✓	✓
2	PEO2 Technical Expertise	✓	✓	✓	✓	
3	PEO3 Professional Behaviour			✓		✓
4	PEO4 responsible professionals			✓	✓	✓
5	PEO5 Strategic Awareness	✓	✓		✓	



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