DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, MAHARASHTRA
DETAILED SYLLABUS – BACHELOR OF ARCHITECTURE (B. Arch) 2021-22

FINAL Teaching - Evaluation Scheme for B. Arch (October 2021)

FOURTH YEAR B.ARCH

SEMESTER VII

Course Code	Subject / Course	L/w	S/w	T/w	C T	Cr	T M	CA1	MSE	CA2	ESE-P	ESE-SV/STW
BA21071S	Architectural Design VI	0	12	12	SV	12	600	120	0	120	0	360
BA21072S	Interior Design	0	4	4	SV	4	200	40	0	40	0	120
BA21073T	Professional Practice I	2	0	2	TH	2	100	10	20	10	60	0
BA21074S	Quantity surveying and Estimation	2	0	2	STW	2	100	20	0	20	0	60
BA21075T	Specification Writing	2	0	2	TH	2	100	10	20	10	60	0
BA21076S	Urban Design	2	0	2	STW	2	100	20	0	20	0	60
BA21077S	BIM	2	0	2	STW	2	100	20	0	20	0	60
BA21078S	Elective VIII(anyone) A. Digital Graphics & Art B. Advanced Computers	2	0	2	STW	2	100	20	0	20	0	60
BA21079S	Elective IX (anyone) A. Architectural Conservation B. Road safety and civic sense	2	0	2	STW	2	100	20	0	20	0	60
	Total	14	16	30		30	1500					

SEMESTER VIII

Course Code	Subject / Course	L/w	S/w	T/w	C T	Cr	T M	CA1	MSE	CA2	ESE-P	ESE-SV/STW
BA21081S	Professional Training	6 Months / 1 Semester			SV	30	1500	0	0	0	0	1500
	Total					30	1500					

Abbreviations:

L/w	Number of Clock Hours of Lectures per week for the Subject / Course
S/w	Number of Clock Hours of Studios per week for the Subject / Course
T/ w	Total Number of Clock Hours per week for the Subject / Course
C T	Subject / Course Type: Theory (TH) or Studio Term Work (STW)or Studio Viva (SV)
Cr	Total Number of Credits allotted for the Subject / Course in the Semester
T M	Total Number of Marks allotted for the Subject / Course in the Semester
CA 1	Marks allotted for Continuous Assessment during the Semester before Mid Semester examinations the Subject / Course in the Semester
MSE	Marks allotted for Mid Semester examinations for the Subject / Course in the Semester
CA2	Marks allotted for Continuous Assessment during the Semester after Mid Semester examinations the Subject / Course in the Semester
ESE-P	Marks allotted for End of Semester examinations Paper for the Subject / Course in the Semester
ESE-SV/STW	Marks allotted for End of Semester examinations Studio Sessional work or Studio Viva for the Subject / Course in the Semester

FOURTH YEAR B. ARCH. - SEMESTER 7

BA21071S: Architectural Design - VI

Course Information:

Sem.	Code	Course	L	S	T/w	CT	Cr	TM	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21071S**	Architectural Design - VI	0	12	12	SV	12	600	120	0	120	0	360

Course Pre-requisite:

A Student will be able to attempt this course only if he / she has completed (attended the course; submitted the work) of **"BA21061S Architectural Design - V"** course / subject of semester VI - Third year Architecture, AND has secured passing grade in **"BA21051S Architectural Design - IV"** course / subject of semester V - Third year Architecture

Learning Objectives:

After successful completion of this course, student should be able to:
Understand definition of campus formation and various parameters of organizing multiple typologies together.
Design Agenda – **Campus Design**

Detailed Syllabus:

1	Campus Design – Principles of Campus Design – interaction both different built form functional zoning with site specification.
2	Formal introduction to the word called Site planning where it will introduce to the concept of zoning with respect to density, mapping, function etc.
3	Reflection, philosophy of ideology of particular situation in Architectural language.
4	Infrastructural assessment like electrical lighting, transport, communication at Campus scale for example Apple Parkway, Assembly building Bangladesh, IIT Kanpur, IIM Bangalore, Salk Institute etc.
5	Formulation of building guideline in the campus to set control over Built form.

Recommended Reading:

1	Kanvinde & Miller – Campus Design in India
2	Paul Sprereingen - Urban Design, the Architecture of Town & Cities.
3	Charles Jencks – Modern Movements in Architecture
4	Charles Jencks – Language of Post Modern Architecture
5	Robert Venturi – Complexities and Contradictions in Architecture.
6	Aldo Rossi – Architecture of the city.
7	Raseem Badran – Narrative of people & Places.
8	Edmond Beckon – Design of Cities
9	Petrick Geddes
10	Various monographs & periodicals

BA21072S: Interior Design

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21072S**	Interior Design	0	4	4	SV	4	200	40	0	40	0	120

Learning Objectives:

After successful completion of this course, student should be able to:
Visualization of space. Principles of Space planning. To learn Modulations of space through studio exercises.

Detailed Syllabus:

1	Definitions, concepts, themes and types of interior spaces. Behavioral psychology, perception and the related role of interior spaces. Designing the size and form of interior spaces using- activity analysis & ergonomics. The effect of enclosure fenestration, colour & lighting on perception of space. Application of scale, proportion to enhance the quality of space.
2	Designing of interior spaces using- activity analysis & ergonomics. Functional working of the space. Study of different layouts in the given space to analyze it's impact. Volume analysis.
3	Volume modulations and redefining the given space. Defining the space through lighting design. Application of colour & texture to modulate the space.
4	Study & application of various treatment methods & finishes.
	Studio Exercise: Interior design of Residential / Commercial premises.

Recommended Reading:

1	Francis D.K.Ching, Interior Design Illustrated
2	Rao M.Pratap-Interior Design Principles & Practice
3	Time Sever Standards for interior design and space planning
4	Syanne Slesin and Stafford Ceiff, Indian Style
5	Kurtich,Jhon and Eakin Garret-Interior Architecture
6	Gary Gordon, Interior Lighting For Designers
7	Steprt Devan Kness, Logan and Szebely, Introduction to Interior Design
8	Ahmed Kasu, Interior design

BA21073T: Professional Practice - I

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21073T**	Professional Practice - I	2	0	2	TH	2	100	10	20	10	60	0

Learning Objectives:

After successful completion of this course, student should be able to:
Understand nature of Professional practice and code of conduct.

Detailed Syllabus:

1.	Architectural profession as a vocation. Comparison of architectural & trade union activities. History of architectural profession, its future, degeneration and up gradation. Social obligations of an Architect as professional, Clientele, Aspects and roles of architect and client and their relationship within the profession.
2.	Comparative study of different professions and also different roles and avenues within the profession of architecture. Future of professional directions. Code of conduct & ethics. Professional role: responsibilities and liabilities of architects and their indemnity (security against damages).

Recommended Reading:

1.	Handbook of Professional Documents - Council of Architecture publication
2.	Professional Practice - By Roshan H. Namavati
3.	Professional Practice in India - By Madhav G. Deobhakta
4.	Private Architectural practice – by Manrice E. Tayler
5.	Architectural Practice and Procedure – by Hamilton H. Turner.
6.	Professional Practice of Architecture by Prof. S.C.Garg & amp; Dr. Yogesh K. Garg

BA21074S: Quantity surveying & Estimation

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21074S**	Quantity surveying & Estimation.	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

After successful completion of this course, student should be able to:
Understand quantity Survey and cost analysis so as to make estimates in the design process.

Detailed Syllabus:

1.	Estimation: Methods of Quantity surveying, Methods of recording measurements, computing quantities of different Items in a building from working drawings. Schedule of Quantities
2.	Rate and Cost Analysis: Methods of Analysis of rates of different materials. Estimation of Materials, Labour, Transportation, Profit etc. components with respect to the specifications, site conditions, etc. in analysis of rates. Rate Abstracts.

Recommended Reading:

1.	Estimating and Costing by Rangwala
2.	Professional Practice by R. H. Namavati
3.	Estimating and Costing by B. N. Dutta
4.	Civil Engineering Contracts and Estimates by B. S. Patil
5.	Estimating, costing, specification and valuation in civil engineering by M. Chakraborti
6.	Estimating and Costing by A.K. Upadhyay
7.	B.I.S 1200 - Part-I 1992. n.d.

BA21075T: Specification Writing

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21075T**	Specification Writing	2	0	2	TH	2	100	10	20	10	60	0

Learning Objectives:

After successful completion of this course, student should be able to:
Understand the nature of building specifications and contracts and its relevance to architectural practice.

Detailed Syllabus:

1.	Nature of specifications types of specifications -process oriented and performance specification. Constituents of specification -material qualities and proportions, labour - quality of inputs, tests and acceptance criteria. Mode of measurements; methods of structuring and writing specification, role of specifications in a total set of contract. Economic and quality implications of specifications. Tradeoff between ideal and realistic specifications. Nature of building contracts Tenders -calling, scrutiny and recommendations open and selective tender systems; two stage tender scrutiny process, Pretender qualifications and registrations of contractors
2.	Contracts (and sub contracts) between architect & client, between client and contractor (drafted by architect), Tenders, Conditions of contracts; obligations and responsibilities of clients, contractors and architects, Deposits, labor laws and obligations; disputes and settlement of disputes. Management of the contracts. Roles of Client, Consultant (coordinator of) Contractor/sub-contractor and their coordination by architect. Site supervision Role and responsibilities of Architect Contractor

Recommended Reading:

1.	Specification Writing for Architects & Engineers, By Donald A. Watson
2.	Specification Writing for Architects & Surveyors, By Arthur J. Wills
3.	Estimating, Costing, Specification & Valuation, By M. Chakraborty
4.	C.P.W.D. Specifications and schedule of rates

BA21076S: Urban Design

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21076S**	Urban Design	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

To introduce urban design as a profession that sits at the crossroads of architecture, landscape architecture, and urban planning; To familiarize students with the concept of the public realm, the city as a three-dimensional entity, and the perception of spaces at various scales. Through various statutory and non-statutory guidelines, introduce them with the implementation processes.

Detailed Syllabus:

1.	• Introduction and Scope Relationship between Architecture & Urban Design. Brief review of the evolution of the urban design as a discipline. Broad understanding of urban forms and spaces at various spatial scales. • Elements of Urban Design -Organization of spaces and their articulation in the form of squares, streets, vistas and focal points, Image of the city and its components such as edges, paths, landmarks, street features. Special focus on streets; Expressive quality of built forms, spaces in public domain • Typologies and Procedures -Concepts of public and private realm, Different types and procedures of urban design interventions their scale relationships, constraints and challenges of urban design in democratic versus authoritarian settings.
2.	• Urban Design and Sustainability - Sustainability concept, Relationship of urban design with economic, environmental, and social sustainability. Urban renewal and urban sprawl. Concepts of Transit Oriented Development, Compact City, Healthy City and Walkable City.
	URBAN DESIGN EXERCISE - Conducting an urban design survey, Analysis of data, formulating urban design guidelines and drawings for an area - practical problem solving.

Recommended Reading:

1.	Larice, M. and Macdonald, E. Ed. (2013). The Urban Design Reader. 2nd Ed. The Routledge Urban Reader Series, Abingdon, Oxon: Routledge.
2.	Carmona, M., Heath, T., Oc, T. and Tiesdell, S. (2010). Public Places Urban Spaces. Oxford: Architectural Press.
3.	Lang, J. T. (2005). Urban Design: A Typology of Procedures and Products. Oxford: Elsevier/Architectural Press.
4.	Moughtin, C., Cuesta, R., Sarris, C. and Signoretta, P. (2003). Urban Design - Methods and Techniques. Oxford; Architectural Press.
5.	Watson, D., Plattus, A. and Shibley, R. (2003). Time-Saver standards for urban design. New York: McGraw Hill.
6.	Lynch, K. (1960). The image of the city. MIT Press.

BA21077S: BIM

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21077S**	BIM	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

After successful completion of this course, student should be able to:
Understand that BIM is used to collaboration - between engineers, owners, architects and contractors in a three dimensional environment (common data environment), and it shares information across these disciplines. BIM is the management of information through the whole life cycle of a built asset, from initial design all the way through to construction, maintaining and finally de-commissioning.

Detailed Syllabus:

1.	• Introduction to Building Information Modeling. The advantages of using the software. Introduce various software's likeRevit, Archicad, etc. Special Features of Revit Architecture Understanding Revit Elements Working in one model with many views Using Ribbon & Quick Access Toolbar (QAT) Using Project Browser. • Working with project: Configure Project UNITS Settings Adding Levels Referring Layout with temporary dimensionsAdding Columns. • Modelling walls, doors and windows: Adding Walls Wall Properties and Types Using Modifying Tools AddingDoors and Windows all Joints • Linking in revit: Linking AutoCAD Drawing Files Import Tips Create a Group.
2.	• Modelling roof, ceiling & floor: Working with Roofs Working with Ceilings Working with Floors • Working with stairs: Working with Stairs Adding Railings to Stairs • Views, visibility & graphic controls: Hiding and Isolating objects in a model Displaying Objects Above-Below inPlan Views • Documentation: Adding Schedule Views Modifying Schedule Views Exporting to AutoCAD Adding Text

Recommended Reading:

1.	BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors by Rafael Sacks, Chuck Eastman, Ghang Lee, Paul Teicholz
2.	Building Information Modeling for Dummies Book by David Philp, Paul Swaddle, and Stefan Mordue

BA21078S: Electives – VIII (A) Digital Graphics & Art

ANY ONE OF THE ELECTIVES (A) or (B)

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21078S (A)**	Electives – VIII (A) Digital Graphics & Art	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

After successful completion of this course, student should be able to:
Gain knowledge in areas of Graphic Design, Web Development, Illustration, Photography, Digital Games and Animation involving video, image and vector editing using editing software; scripting; synchronization of sound with patterns generated; Presentation using voice over.

Detailed Syllabus:

1.	Introduction to Digital Graphics and Art through Principles of Design, Visual Composition and Computer applications.
2.	Introduction to imaging tool & techniques, Narrative Skills, Animation, Brand Communication.
3.	Digital sound design, Elements of video production, Visual effects & motion graphics, image and vector editing using editing software; scripting; synchronization of sound with patterns generated.

Recommended Reading:

1.	How to be an illustrator, by Darrel Rees
2.	Thinking Visually For Illustrators, by Mark Wigan
3.	Digital Art, by David Cousens
4.	Digital Design Now, by Awwwards
5.	Graphic Design Fundamentals, by Michael Beirut

BA21078S: Electives – VIII (B) Advanced Computers

ANY ONE OF THE ELECTIVES (A) or (B)

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21078S (B)**	Electives – VIII (B) Advanced Computers	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

To study Advance computer techniques (Rendering). To understand use of computers as tool for modeling. To understand rendering techniques using softwares. Focus on 3D Drawing. Demonstrate the concepts of 3D Rendering methods and techniques through various architectural projects. Use computer as a tool to generate rendered 3D models

Detailed Syllabus:

1.	• **Architectural Rendering software** • Introduction to Interface of software for Rendering and Printing. • Application of Materials, textures, Surroundings, lighting, Shadow etc. to generate realistic model.
2.	• **Computer generated imagery Rendering software** • Introduction to Interface of software for Rendering and Printing. • Application of Materials, textures, Surroundings, lighting, Shadow etc. to generate realistic model.

Recommended Reading:

1.	Fundamentals Of Three-Dimensional Computer Graphics by Watt.
2.	Computer Aided Design guide For Architecture, Engineering And Construction by Aouad
3.	Architectural drawing: a visual compendium of types and methods; Rendow Yee; John Wiley and Sons, 2007
4.	Architectural Graphics; Francis D. Ching; John Wiley and Sons, 2009

BA21079S: Electives – IX (A) Architectural Conservation

ANY ONE OF THE ELECTIVES (A) or (B)

Course Information:

Sem.	Code	Course	L	S	T/w	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21079S (A)**	Electives IX (A) Architectural Conservation	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

After successful completion of this course, student should be able to:
To develop the expertise in the field of Architectural conservation specifically catering to the regional context. To make architects aware of the holistic nature of the conservation practice. To equip architects with technical know-how required for Architectural Conservation.

Detailed Syllabus:

1.	• History of Conservation movement. Principles of conservation, Degrees of interventions. Terms associated withconservation practice like rehabilitation, redevelopment, revitalization, regeneration, redevelopment, Role of UNESCO, other bodies. Study of Charters from Venice to Mexico. • Introduction to historic structures and structural systems of India. Elements of historic structure as foundation, walls,floors, roof and structural behavior of the same. Identification of problems pertaining to each element. Study of traditional materials used in India. Process of their formation and extraction and properties.
2.	• Fundamental theories and principles of documentation. Inventory formats and comparative study, Methods of documenting historic structures, areas, cities and region. Measured drawings of historic structures Methodology ofidentification and listing. Photography and photogrammetry. • Systematic Study and analysis of historic Areas Identification of potential – cultural significance, Architectural vocabulary Traditional technology and materials. Identification of issues Study of existing legal framework. • Preparation of conservation plan including short term and long term goals. Formation of conservation policy withholistic approach. Student will select one building of historic value and study the same for structural conservation along with appropriate reuse.

Recommended Reading:

1.	Technical Manual by Bernard Fieldon
2.	Charters by UNESCO
3.	Elements of structure – Morgan Reference Books
4.	Structural Systems – Cowan Henry J and Wilson Forrest
5.	Wood Technology in the design of structures – Hoyle Robert
6.	Stone – Nunn E
7.	Planning for conservation by Roger Kain
8.	Management Plans of world heritage sites
9.	A History of Architectural Theory – From Vitruvius to present day by Hanno-Walter
10.	A History of Architectural Conservation by Jukka Jokilehto
11.	Guidance on Heritage Impact Assessments for Cultural World Heritage Properties by ICOMOS
12.	Tender documents of heritage works
13.	Architecture of the city – Aldo Rossi
14.	PWD specifications

BA21079S: Electives – IX (B) Road Safety & Civic Sense

ONE OF THE ELECTIVES (A) or (B)

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VII	**BA21079S (B)**	Electives – IX (B) Road Safety & Civic Sense	2	0	2	STW	2	100	20	0	20	0	60

Learning Objectives:

To introduce the concepts , Principles , tools and Aids of road safety and civic sense to the students. To acquaint them with the design and safety standards for roads. Also Inculcate the practice of safe road behavior and civic sense among them.

Detailed Syllabus:

1.	**Introduction to road safety:** Road as an active space, Types of Users, User Behavior, Sensory Factors like Vision and Hearing in User Behavior. Types of Vehicles, Vehicle Characteristics, Type of Hazards.
2.	**Typology of Roads: Components and Design:** Road Classification, Design of Roads, Spatial Standards for the Cross-Section Design. Relationship between Road Design and Road Safety.
3	**Intersections:** Types of Road Intersections
4	**Pedestrian Circulation and Barrier Free Design** Requirement of Pedestrian Infrastructure, Barrier Free Design, Safety Provisions
5	**Traffic Signs and Road Markings** Type for Traffic Signs, Standards for Traffic Signs, Types of Road Markings.
6	Traffic Signals, Traffic Control Aids, Street Lighting
7	Nature and Types of Road Accidents Traffic Management Measures and their influence in Accident Prevention
8	**Road Safety and Civic Sense** Need for Road Safety, Category of Road Users and Road Safety Suggestions. Introduction to Concept of Civic Sense and its relationship to Road Safety
9	**Traffic Regulations, Laws & Legislations** Indian Motor Vehicles Act (Chapter VIII: Control of Traffic to be discussed in detail), Regulations Concerning Traffic: Cycles, Motor Cycles and Scooters, Rules for Pedestrian Traffic, Keep to the Left Rule, Overtaking Rules, Turning Rules, Priority Rules, Hand Signals, etc., Speed and Hazard Management. Penal Provisions, National Road Safety Policy, Central Motor Vehicle Rules, State Motor Vehicle Rules Introduction to Good Practices.

Recommended Reading:

1.	Introduction to Traffic Engineering, R Srinivasa Kumar
2.	Traffic Engineering and Transport Planning, LR Kadiyali
3.	Book on Road Safety Signage and Signs, Ministry of Road Transport and Highways, Government of India
4.	MORT&H Pocketbook for Highway Engineers, 2019 (Third Revision)
5.	Publications by UTTIPEC namely, Street Design Guidelines, UTTIPEC Guideline for Road Markings, UTTIPEC Guideline and Specification for Crash Barriers, Pedestrian Railing and dividers, UTTIPEC Standard Typical Crossing Design
6.	Street Design Standards as provided in TimesSavers, Neuferts etc.
7.	Publications by Indian Road Congress.

FOURTH YEAR B. ARCH. - SEMESTER 8

BA21081S: Professional Training

Course Information:

Sem.	Code	Course	L	S	T	CT	Cr	T M	CA 1	MSE	CA2	ESE-Pap	ESE-SV/STW
VIII	**BA21081S**	Professional Training	6 Months / 1 Semester			SV	30	1500	0	0	0	0	1500

Learning Objectives:

The student shall work at an Architect's office (Internship) as per the guidelines of CoA, and approved by the Institute, for duration of one semester. After successful completion of this course, student should be able to understand on-going construction work on sites, supervisory controls of an Architect in a Project.

Detailed Syllabus:

1.	Making presentation drawings for client presentations, and municipal approval drawings of projects undertaken in the office- of at least one project each, duly attested by the supervising architect.
2.	Visiting sites of ongoing projects undertaken by the office, photo documenting progress with appropriate descriptions, as per the directions of the supervising architect. Identifying various stages of work.
3.	Discussions, getting inputs from the Consultants on the ongoing projects undertaken by the office, documenting as per the directions of the supervising architect. Understanding the inputs to be given to the consultants and feedback from them.
4.	Visiting sites of ongoing projects undertaken by the office, photo documenting the progress of work. Understanding the impact of local conditions in the Design and method of execution of job / jobs.
5.	Understanding the basic working system of an architect's office, regularity in attendance, maintaining a daily log book of activities involved in the office, personnel & management and hierarchy of office staff.
6.	Prepare Working drawings & details of an Architectural project, under the guidance of supervising architect.