SMT. K. L. TIWARI
COLLEGE OF ARCHITECTURE

Approved by Council of Architecture, New Delhi & DTE, Maharashtra State &
Affiliated to University of Mumbai | DTE Code No.: AR 3484

PIONEERING EDUCATION
SINCE 1992

2.6.2 Attainment of POs and COs are evaluated.

Supporting Document	
Sr. No.	**Particulars**
1.	Attainment Levels
2.	Program Outcome Statements
3.	Course Outcome Statements
4.	PO CO Mapping (Course Articulation Matrix)
5.	Average Course Outcome Attainment
6.	Programme Exit Survey
7.	Average Attainment level of CO PO
8.	Gap Analysis and Recommendations on PO CO Attainment

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Programme and Course Outcome Attainment
Bachelor of Architecture
Batch 2018 - 2023

	CO Attainment Method	Attainment Level		
		1	2	3
Direct Assessment	University Examination (Theory Papers and Viva)	40 - 44.99 % students score more than or equal to 50% marks in the university exams	45-49.99 % students score more than or equal to 50% marks in the university exams	50% and above students score more than or equal to 50% marks in the university exams
Direct Assessment	Internal Assesment (Assignments (Submissions)/ Presentations/Project reports/Internal viva)	50-59.99% students score more than or equal to 50% marks in the internal assesments.	60-69.99% students score more than or equal to 50% marks in the internal Tinternal assesments.	70% and above students score more than or equal to 50% marks in the internal internal assesments.
Indirect Assessment	Course Survey	60-69.99 % of students agree with CO Attained	70-79.99% of students agree with CO Attained	80% and above of students agree with CO Attained

Program Outcome Statements

After Successful completion of the B.Arch program students will be able to:

PO1	Design/Spatial	Effectively visualize, manipulate, and communicate complex three-dimensional designs and relationships between physical spaces, forms, and structures.
PO2	Professional Competence	Pursue the knowledge, skills, and judgment to design and develop safe, functional, and aesthetically pleasing buildings and spaces that meet legal, technical, and social requirements.
PO3	Technical Competence	Apply technical skills and knowledge in areas like building systems, materials, construction methods, and digital tools to design, document, and deliver Architectural projects.
PO4	Critical Thinking	Analyze complex design problems, evaluate information, and make informed decisions that balance creative, technical, and social factors to create innovative and effective Architectural solutions.
PO5	Social Responsibility	Recognize the impact of design decisions on users, communities, and the environment to create buildings and spaces that promote social justice, equity, and sustainability.
PO6	Quantitative Reasoning	Apply mathematical and analytical skills to measure, calculate, and evaluate spatial relationships, structural systems, energy efficiency, and construction costs to inform design decisions and optimize building performance.
PO7	Theoretical Foundation	Understand the historical, cultural, philosophical, and scientific principles that underlie Architectural design to enable critically evaluate and innovate within the discipline.
PO8	Innovative Thinking	Generate creative and original design solutions that challenge conventional norms, address complex problems and enhance the quality of built environments, user experiences, and social outcomes.

COURSE OUTCOME

	Course Outcome Statements
	After Successful completion of the course students will be able to :
CO 1	Demonstrate an understanding of basic art form & develop perception, the ability to think graphically and utilize drawing as a language of communication.
CO 2	Learn the architectural rendering techniques for building exteriors and interiors by using pen & ink, color, values, tones, etc.
CO 3	To develop a design idea into a coherent proposal and to communicate ideas and concepts through graphical representation.
CO 4	Articulate an understanding of visual impact of colors, lines, shapes and textures used in design & construct conceptual and presentation models as a design presentation tool for aesthetic exploration.
CO 5	To draw inspiration and develop sense of observation from their surroundings, society and things happening around them.

(This is one example out of all course in 5 Years of B.Arch Degreee)

PO CO Mapping

	Course Articulation Matrix									
Academic Year: 2018-19				Course Code: 101						
Program: B. Arch				Course Name: Architectural Design						
Department: Architecture				Faculty: Asst. Prof. Persis Rebello						
CO	**Statement**	Programme Outcome								
		PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**
CO 1	Know about the fundamentals of design and development of design vocabulary and to apply the same thought process in development of design.				1	1	1	1	1
CO 2	Implement the design through conceptualization and organization.	1	1	1	1				1
CO 3	Enhance the creative skills through creative exercises.	1	1		1			1	1
CO 4	Understand their surroundings and promoting it as a basic creative instinct.	1		1	1	1	1	1	1

Note: Value 1 indicates mapped correlation as YES

BARC904	Theory & Design Of Structures	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC906	Environmental Studies	1.40	2.20	1.80	2.04	3.00	3.00	1.40	3.00
BARC908	Architectural Building Services	3.00	3.00	3.00	2.52	1.80	2.20	2.40	2.52
BARC910	Professional Practice	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC911	Design Dissertation	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC921	Electives 8	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC922	Electives 9	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC1006	Environmental Studies	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC1007	Architectural Representation & Detailing	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC1009	Architectural Theory	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC1010	Professional Practice	2.95	2.95	2.95	2.97	3.00	3.00	3.00	2.97
BARC1011	Design Dissertation	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC1012	Advanced Building Construction & Structures	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC1021	Electives	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Average of all CO-PO Matrix		**2.70**	**2.77**	**2.16**	**2.22**	**2.82**	**2.27**	**2.17**	**2.74**

AVERAGE COURSE OUTCOME ATTAINMENT
B-ARCH Batch (AY 2018-19 to 2022-23)

Course Code	Name of subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
BARC101	Architectural Design Studio	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC102	Allied Design Studio	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC103	Architectural Building Construction & Material	3.00	2.95	2.95	2.87	2.76	2.79	2.84	2.87
BARC104	Theory & Design Of Structures	2.20	2.30	2.30	2.30	2.36	2.36	2.30	2.04
BARC105	Humanities	3.00	3.00	2.84	2.94	2.89	3.00	2.94	3.00
BARC106	Environmental Studies	2.47	2.73	2.60	2.68	3.00	3.00	2.47	3.00
BARC107	Architectural Representation & Detailing	2.40	3.00	0.80	1.00	3.00	0.80	0.80	2.40
BARC120	College projects	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC121	Electives	2.52	2.20	2.20	2.52	3.00	3.00	2.52	2.52
BARC201	Architectural Design	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC202	Allied Design Studio	2.80	2.60	2.60	2.80	3.00	3.00	2.80	2.80
BARC203	Architectural Building Construction	3.00	2.95	2.95	2.87	2.76	2.79	2.84	2.87
BARC204	Theory & Design of Structures	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
BARC205	Humanities	3.00	3.00	2.76	2.90	2.84	3.00	2.90	3.00
BARC206	Environmental Studies	2.47	2.73	2.60	2.68	3.00	3.00	2.47	3.00

BARC207	Architectural Representation & Detailing	2.20	2.47	0.73	1.00	3.00	0.73	0.73	2.20
BARC220	College projects	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC221	Elective	2.52	2.20	2.20	2.52	3.00	3.00	2.52	2.52
BARC301	Architectural Design Studio	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC302	Allied Design Studio	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC303	Architectural Building Construction & Material	2.84	2.84	2.84	2.81	2.76	2.84	2.88	2.81
BARC304	Theory & Design Of Structures	2.84	2.94	2.94	2.94	2.84	2.95	2.94	2.84
BARC305	Humanities	3.00	3.00	2.84	2.94	2.89	3.00	2.94	3.00
BARC306	Environmental Studies	1.40	2.20	1.80	2.04	3.00	3.00	1.40	3.00
BARC307	Architectural Representation & Detailing	2.52	3.00	0.84	1.00	3.00	0.84	0.84	2.52
BARC308	Architectural Building Services	2.20	2.20	2.20	2.17	2.12	2.20	2.24	2.17
BARC309	Architectural Theory	1.93	2.47	2.20	2.36	3.00	3.00	1.93	3.00
BARC320	College projects	2.60	3.00	2.20	2.68	3.00	2.20	2.20	2.20
BARC321	Electives	2.52	2.20	2.20	2.52	3.00	3.00	2.52	2.52
BARC401	Architectural Design Studio	2.79	2.84	0.93	0.92	2.76	0.93	0.93	2.80
BARC402	Allied Design Studio	2.20	2.20	0.60	0.73	2.20	0.60	0.60	1.80
BARC403	Architectural Building Construction & Material	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
BARC404	Theory & Design Of Structures	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84

BARC405	Humanities	3.00	3.00	2.84	2.94	2.89	3.00	2.94	3.00
BARC407	Architectural Representation & Detailing	1.88	2.20	0.63	0.73	2.20	0.63	0.63	1.88
BARC408	Architectural Building Services	2.20	2.20	2.20	2.17	2.12	2.20	2.24	2.17
BARC409	Architectural Theory	1.67	1.93	1.80	1.88	2.20	2.20	1.67	2.20
BARC420	College projects	1.80	2.20	1.40	1.88	2.20	1.40	1.40	1.40
BARC421	Electives	1.88	1.67	1.67	1.88	2.20	2.20	1.88	1.88
BARC501	Architectural Design Studio	2.89	3.00	0.97	0.95	2.84	0.97	0.97	2.92
BARC502	Allied Design Studio	3.00	3.00	0.80	1.00	3.00	0.80	0.80	2.40
BARC503	Architectural Building Construction & Material	2.89	2.89	2.89	2.84	2.76	2.84	2.88	2.84
BARC504	Theory Design Of Structures	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84
BARC505	Humanities	3.00	3.00	2.84	2.94	2.89	3.00	2.94	3.00
BARC507	Architectural Representation & Detailing	2.52	3.00	0.84	1.00	3.00	0.84	0.84	2.52
BARC508	Architectural Building Services	2.20	2.20	2.20	2.17	2.12	2.20	2.24	2.17
BARC509	Architectural Theory	1.93	2.47	2.20	2.36	3.00	3.00	1.93	3.00
BARC520	College projects	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC521	Electives	2.52	2.20	2.20	2.52	3.00	3.00	2.52	2.52
BARC601	Architectural Design Studio	3.00	3.00	0.96	1.00	3.00	0.96	0.96	2.88
BARC602	Allied Design Studio	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC603	Architectural Building Construction	2.89	2.89	2.89	2.84	2.76	2.84	2.88	2.84

BARC604	Theory & Design Of Structures	2.95	2.95	2.95	2.87	2.76	2.84	2.88	2.87
BARC605	Humanities	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC607	Architectural Representation & Detailing-I	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC608	Architectural Building Services	2.84	2.84	2.84	2.90	3.00	3.00	3.00	2.90
BARC620	College projects	3.00	3.00	0.80	1.00	3.00	0.80	0.80	2.40
BARC621	Electives	2.73	2.60	0.93	0.87	2.60	0.93	0.93	2.80
BARC701	Architectural Design Studio	1.93	2.20	0.67	0.60	1.80	0.67	0.67	2.00
BARC702	Allied Design Studio	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC703	Architectural Building Construction	2.89	2.89	2.89	2.94	3.00	3.00	3.00	2.94
BARC704	Theory & Design Of Structures	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC707	Architectural Representation & Detailing	2.89	3.00	0.97	0.95	2.84	0.97	0.97	2.92
BARC708	Architectural Building Services	3.00	3.00	3.00	2.90	2.76	2.84	2.88	2.90
BARC710	Professional Practice	2.95	2.95	2.95	2.97	3.00	3.00	3.00	2.97
BARC720	College projects	2.80	3.00	2.60	2.84	3.00	2.60	2.60	2.60
BARC721	Electives	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARCT811	Professional training	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BARC901	Architectural Design Studio	3.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00
BARC902	Allied Design Studio	2.20	2.20	2.20	2.52	3.00	3.00	3.00	2.52
BARC903	Architectural Building Construction	2.80	2.80	2.60	2.84	2.20	2.60	2.60	2.60

Programme Exit Survey

Program Outcome Statements		QUESTIONNAIRE	After Successful completion of the B.Arch program students will be able to:							
			Low (1)	Fair(2)	Good(3)	Excellent(4)	Total Number of responses collected	Weighted Average	Weighted Average (%)	Attained level
PO1	Design/Spatial	How do you rate for Design/Spatial understanding ?	0	0	19	9	28	3.32	83.04	3
PO2	Professional Competence	How do you rate Professional Competence ?	0	8	11	9	28	3.04	75.89	2
PO3	Technical Competence	How do you rate Technical Competence ?	0	9	16	3	28	2.79	69.64	1
PO4	Critical Thinking	How do you rate ability for Critical Thinking?	0	2	19	7	28	3.18	79.46	2
PO5	Social Responsibility	How do you rate awareness towards Social Responsibility?	0	7	9	12	28	3.18	79.46	2
PO6	Quantitative Reasoning	How do you rate ability for Quantitative Reasoning?	0	11	13	4	28	2.75	68.75	1
PO7	Theoretical Foundation	How do you rate understanding of Theoretical Foundation?	0	6	14	8	28	3.07	76.79	2
PO8	Innovative Thinking	How do you rate for Innovative Thinking?	0	9	14	5	28	2.86	71.43	2

COURSE END SURVEY	ATTAINMENT LEVEL
60-69.99 % of students agree with PO Attained	1
70-79.99% of students agree with PO Attained	2
80% and above ofstiidents agree with PO Attained	3

AVERAGE ATTAINMENT LEVEL OF CO PO

B-ARCH Batch (AY 2018-19 to 2022-23)

PO Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
PO Direct attainment	2.71	2.77	2.15	2.21	2.77	2.28	2.20	2.76
PO Indirect attainment	2.88	2.88	2.34	2.34	2.88	2.34	2.34	2.88
PO Program exit survey attainment	2.38	2.18	2.00	2.28	2.28	1.97	2.21	2.00
PO Seminar feedback attainment	3	3	3	-	3	3	3	3
PO Indirect attainment AVERAGE	2.75	2.71	2.37	2.28	2.73	2.40	2.44	2.66
Final PO Attainment	(0.2*Indirect attainment)+(0.8*Direct Attainment)							
Final PO Attainment	2.72	2.76	2.19	2.22	2.76	2.31	2.25	2.74

Gap Analysis and Action Taken Report on PO CO Attainment

Area of Concern	Issues	Recommendations
Syllabus design by MU	Less emphasis on modern technologies and sustainable practices.	Include innovations in delivery of curriculum to include more modern technologies, sustainable practices, and interdisciplinary approaches.
Practical Experience	Limited practical exposure: Insufficient hands-on experience and industry interactions.	Increase practical exposure through internships, workshops, and industry partnerships.
Knowledge upgradation	Upgadation of Experience and exposure of faculty members.	Provide in house training for existing faculty through faculty developement programs
Infrastructure issues	Less equipped labs, libraries, and workshop facilities.	Invest in modern infrastructure, including self sufficient computer labs
Mentorship	Need for more individual attention and mentorship with good student faculty ratio	INervention of Mentor Mentee program to ensure personalized attention.
Research opportunities	Students unaware of chances for student's engagement in research projects.	Encourage research projects and collaborations with industry and academia.
Industry Connect	Curriculum need more alignment with industry needs and expectations.	Foster industry connections through guest lectures, mentorship programs, and alumni networks.
Soft Skills	Inadequate focus on communication, teamwork, and management skills required	Integrate soft skills training into the course.
International exposure	Need of knowledge developement beyond class room environment and opportunities for global collaborations and exchange programs	Develop international collaborations and exchange programs.
Mental health	High stress levels observed through students behavioural patterns	Establish support systems for mental health and wellness.