CURRICULUM FOR

"BACHELOR OF ARCHITECTURE (B.ARCH.)"

w.e.f. Academic Year 2021-'22

॥ तमसो मा ज्योतिर्गमय ॥

VISION

To provide equal opportunities for value based global education for creating an Enlightened Society

MISSION

To establish and facilitate educational institutions in the region for providing affordable value based global education to all who aspire to study and to create opportunities to educators, social workers and philanthropists to serve society

SARVAJANIK UNIVERSITY

INCLUSIVE | INTEGRATED | INNOVATIVE

creating an enlightened society...

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Constituent Institute:

INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY (IDPT – SCET)

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CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

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Course Curriculum
Bachelor in Architecture

The Course Curriculum proposed and drafted by **Academic and Curriculum Committee of Architecture under the Faculty of Architecture, Design and Planning** in the meeting held on 10-12-2021 and recommended to **'BOARD OF STUDIES'** for approval.

Prof. Mahesh Nagecha **Chairman, Academic and Curriculum Committee - Architecture**	**Place of the meeting** **Sarvajanik University Office**	**Sign**

The proposed Course Curriculum was approved by **Board of Studies (Architecture, Design & Planning)** under the Faculty of Architecture, Design & Planning in the meeting held on 10-12-2021 and was recommended to the **'FACULTY'** for approval.

Prof. Bhavna Vimawala **Chairman, BOS (Architecture, design & Planning)**	**Place of the meeting** **Sarvajanik University Office**	**Sign**

The Course Curriculum approved by the **Faculty of Architecture, Design & Planning** in the meeting held on 10-12-2021 and was recommended to **'ACADEMIC COUNCIL'** for approval.

Prof. Bhavna Vimawala **Chairman & Dean, Faculty of Architecture Design & Planning**	**Place of the meeting** **Sarvajanik University Office**	**Sign**

The Course Curriculum approved by the **'Academic Council of Sarvajanik University'** in the meeting held on 10-12-2021.

Prof. Persi Engineer **Chairman, Academic Council & Hon'ble Provost, Sarvajanik University**	**Place of the meeting** **Sarvajanik University Office**	**Sign**

- ***The approved curriculum is with effect from the Academic year 2021-22 and to be reviewed before 2024 – '25***

PRELUDE

The Sarvajanik Education Society has a presence for more than 112 years in South Gujarat region. With the formation of Sarvajanik University under the aegis of Sarvajanik Education Society, a greater impact on the educational scenario is expected.

Sarvajanik College of Engineering and Technology along with Faculty of Architecture was instituted in 1995 and was the first self-financed educational institute in the state of Gujarat. Since then, Faculty of Architecture has earned a place at both, national and international level, as one of the premier institutions imparting holistic education for aspiring architects. 22 batches have already graduated from FoA- SCET. The alumni have made remarkable contributions at national and international level both in practice as well as academics. A high percentage of graduates opting for post graduate education is a marker of success for the institute and points to igniting a passion for continued learning.

At the onset when the institute with the new name, Faculty of Architecture, Institute of Design Planning & Technology (IDPT), SCET will have full freedom to formulate and execute its progressive and liberal syllabus, it becomes even more pertinent to plan for syllabus content that is both meaningful and relevant for the undergraduate programme in Architecture. A rich blend of experience and expertise among a strong faculty strength, FoA is all set to start its voyage for the new era by becoming a constituent of the Sarvajanik University.

A student centric choice based approach is the foundation of the formulation of the course alongwith liberal studies education which will become the distinctive attribute that FoA, IDPT, SCET offers its students. Holistic personality development as well as an informed professional in the field of design , sensitive and sensible to issues of sustainability, is ensured through rendering an application and outcome based learning throughout the five-year programme. The module based delivery package is formulated to enable teachers to impart education that ensures synthesis of information and application of knowledge. In a world flooded with data and information the graduate of FoA, IDPT, SCET will be able to synthesise information and convert it to knowledge, through a process rich in critical thinking and appropriate expression.

In keeping with the benevolent and progressive Sarvajanik tradition of Inclusive education, diversity of students, inculcation of respect, civic participation and community inclusivity, shall be seeded in the young minds that meet here.

Guidelines given by Council of Architecture and AICTE have been followed to form the broader framework of the syllabus. The distribution of courses ensures progressive development of student potential. Humanities, Liberal studies and life skills, a plethora of professional and open electives promote trans-disciplinary learning.

An Integrated approach synonymous with trans-disciplinary understanding is crucial to encourage Integrated and critical thinking, to build linkages between diverse academic inputs and practices. Students will utilize varied contradictory perspectives to understand current problems and positions contextually and seek Integrated solutions to build a Happy Society, intrinsic to the stated Vision. Various professional ability and skill enhancement subjects are ensured to build a syllabus that allows all students to chalk out their own roadmap as per interests and emerge as unique and responsible architects with a keen sensibility for societal issues.

Innovation is valued as a catalyst to growth. Through innovative approaches to pedagogy, the transaction of curriculum will be based on the principle of joyful learning thereby achieving better learning outcomes. The aim of the program is to develop each budding architect's metacognitive skills, manage learning strategies and direct the learning processes towards meaningful design solutions.

VISION:

To strive towards creating responsive Built Environment and self-sustainable communities through 'Design Education' for creating a progressive and happy society.

MISSION:

To excel with passion in Teaching-Learning, Research and Consultancy for shaping of innovative and ethical design professionals competent to negotiate and mitigate social complexities, environmental challenges and global concerns

GRADUATE ATTRIBUTES:

1. Socially responsible and environmentally conscientious.
2. Individuals with critical thinking ability and a passion to innovate.
3. To assume a decision-making role in the work sphere and be the agent of change.
4. Adaptable individuals with ability to update and relearn in a fast-changing world.
5. Able to identify and ameliorate social and humanistic concerns through design solutions.

CORE VALUES:

Institution Level	Individual Level
Equality	Passion to Excel
Affordable Education	Adaptability
Learner Centric Approach	Compassion for All
Nurturing creativity & Sensitivity	Integrity
Holistic Development	Team Work
Freedom & Discovery	Social Responsiveness
Interdisciplinary Collaboration	Accountability
Sustainability	

PROGRAMME OUTCOME:

1. To develop an ability to combine knowledge, in-depth analytical skills and critical thinking towards creating a holistic understanding.
2. To create leaders who function effectively both as individuals and team members in multidisciplinary settings.
3. Recognition of Architects as important influencers in city level development and the creation of a just and equitable society.
4. Synthesize the understanding of history, architectural theory, art practice and technology as well as social, political, economic, professional, legal and environmental issues and apply the knowledge creatively to architectural design projects.

GROUP OF SUBJECTS

Distribution of courses is done as per the framework provided by Council of Architecture and All India Council for Technical Education. The 05 broader areas in which the entire curriculum is divided ensure a holistic learning and not only intends to make a creative individual but also a technically skilled, socially responsible and environmentally aware architecture graduate. All the five years are given a theme and based on the same the learning is conducted.

First Year	Socially Responsive
Second Year	Critically Evolved
Third Year	Intellectually Competent
Fourth Year	Professionally Skilled
Final Year	Progressive Citizen.

A) Professional Core Courses

The professional core courses consist of Architectural Design studios and design expression as well as courses such as Urban Design, working drawing, estimation, specifications and finally culminates into final year as research thesis and design thesis. The set of courses are formulated on choice based as well as application-based learning and a module-based system is adopted to expose students to variety of choices based on their inclination and strength. The semester learning will be divided into 02 meticulously detailed modules that will be addressing specific topics to ensure that the student receives an in-depth understanding of the topic.

B) Building Science & Applied Engineering

The technical backbone of design education, the courses as a part of BS&AE consists of Building Material, building construction, Structural design and systems as well as building services, topics such as High-tech structure and building performance analysis are also key topics. The bundling of the three key components is the peculiarity of the course so as to have an integrated learning of these subjects. The semester wise courses are carefully formulated to make modules that gives exposure to students on the theoretical aspects as well as its application in the design studios.

C) Humanities – History, Theory & Culture and Liberal Studies

The two streams of humanities are very crucial to the architecture programme and are essential for developing a socially responsible and culturally aware graduate. The History, Theory and Culture stream specifically takes care of the topics related to History of Architecture and Culture and also about various design theories. While the Liberal studies

and life skill looks at various multidisciplinary topics that are important for a holistic development and education. In liberal studies, 04 modules of 04 week each are identified per semester and the same will be delivered by subject experts identified. Core values such as Integrity, empathy and professional ethics are also included in formal learning to ensure a good character of the individual.

D) Professional Ability & Skill Enhancement Courses

The subjects identified are important to make the students skilful about various representation and communication skills as well as technological advancements such as Building Information Modelling, apart from this the students will also be imparted the required skill set for conducting research. In higher years the professional training, sustainable architecture and professional practice.

E) Professional & Transdisciplinary Open Electives

Elective subjects are offered in a manner so that the student can have a custom roadmap to pursue the area of interest. The professional elective component will have electives related to enhancement of knowledge that is required for architecture discipline along with topics related to art, technology, interior design and conservation. While, the transdisciplinary open electives offers a wide range of electives offered from various institutions so as to give students the exposure to other disciplines. The idea of transdisciplinary open electives takes choice based learning a notch higher.

Credit Distribution:

	Group of Subjects	%
A)	Professional Core Courses	49.63 %
B)	Building Science & Applied Engineering	15.56 %
C)	Humanities & Liberal Studies	9.63 %
D)	Professional Ability & Skill Enhancement Courses	14.81 %
E)	Professional & Transdisciplinary Open Electives	10.37 %

EXAMINATION SCHEME

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination,
UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH I (SEM I)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13101	Basic Design & Visual Arts I	10	-	10	10	500	200	150/ 300	500/ 1000
2	BRAR13102	Graphics & Visual Representation I	4	-	4	4	200	80	60/ 120	200/ 400
3	BRAR12103	Basics of Building Materials, Components and Structure	6	4	2	6	300	120	90/ 180	300/ 600
4	BRAR10104	Society & Culture I	2	2	-	2	100	40	30/ 60	100/ 200
5	BRAR10105	Liberal Studies & Life Skills I	2	2	-	2	100	100	--	100/ 200
6	BRAR16106	Communication Skills I	2	-	2	2	100	40	30/ 60	100/ 200
7	BRAR14107	Professional Elective 1A	2	2	-	2	100	40	30/ 60	100/ 200
8	BRAR18108	Transdisciplinary Open Elective 1B	2	2	-	2	100	100	--	100/ 200
		Total	**30**	**12**	**18**	**30**				**3000**

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH I (SEM II)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	
1	BRAR13201	Basic Design & Visual Arts II	10	-	10	10	500	200	150/ 300	500/ 1000
2	BRAR13202	Graphics & Visual Representation II	4	-	4	4	200	80	60/ 120	200/ 400
3	BRAR12203	Building Materials, Systems & Environmental Science	6	4	2	6	300	120	90/ 180	300/ 600
4	BRAR10204	Society & Culture II	2	2	-	2	100	40	30/ 60	100/200
5	BRAR10205	Liberal Studies & Life Skills II	2	2	-	2	100	100	--	100/200
6	BRAR16206	Communication Skills & Personality Development	2	-	2	2	100	40	30/ 60	100/200
7	BRAR14207	Professional Elective 2A	2	2	-	2	100	40	30/ 60	100/200
8	BRAR18208	Transdisciplinary Open Elective 2B	2	2	-	2	100	100	--	100/200
		Total	**30**	**12**	**18**	**30**				**3000**

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UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH II (SEM III)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13301	Environmental Design Studio	14	-	14	14	700	280	210/ 420	700/ 1400
2	BRAR12302	Building Technology I – Construction, Structure & Services	6	4	2	6	300	120	90/ 180	300/600
3	BRAR10303	History & Theory of Architecture I	2	2	-	2	100	40	30/ 60	100/200
4	BRAR10304	Liberal Studies & Life Skills III	2	2	-	2	100	100	--	100/200
5	BRAR16305	Building Information Modelling -I	2	-	2	2	100	40	30/ 60	100/200
6	BRAR14306	Professional Elective 3A	2	2	-	2	100	40	30/ 60	100/200
7	BRAR18307	Transdisciplinary Open Elective 3B	2	2	-	2	100	100	--	100/200
		Total	**30**	**12**	**18**	**30**				**3000**

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UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH II (SEM IV)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13401	Habitat Design Studio	14	-	14	14	700	280	210/ 420	700/ 1400
2	BRAR12402	Building Technology II – Construction, Structure & Services	6	4	2	6	300	120	90/ 180	300/600
3	BRAR10403	History & Theory of Architecture II	2	2	-	2	100	40	30/ 60	100/200
4	BRAR10404	Liberal Studies & Life Skills IV	2	2	-	2	100	100	--	100/200
5	BRAR16405	Building Information Modelling -II	2	-	2	2	100	40	30/ 60	100/200
6	BRAR14406	Professional Elective 4A	2	2	-	2	100	40	30/ 60	100/200
7	BRAR18407	Transdisciplinary Open Elective 4B	2	2	-	2	100	100	--	100/200
		Total	**30**	**12**	**18**	**30**				**3000**

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH III (SEM V)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13501	Design Realisation Studio	14	-	14	14	700	280	210/ 420	700/ 1400
2	BRAR12502	Building Technology III – Advanced Construction, Structure & Services	6	4	2	6	300	120	90/ 180	300/600
3	BRAR10503	History & Theory of Architecture III	2	2	-	2	100	40	30/ 60	100/200
4	BRAR16504	Site Planning & Landscape	2	-	2	2	100	40	30/ 60	100/200
5	BRAR14505	Professional Elective 5A	2	2	-	2	100	40	30/ 60	100/200
		Total	**26**	**8**	**18**	**26**				**2600**

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination,
UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH III (SEM VI)

Sr. No.	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13601	Master Planning and Architectural Design Studio	14	-	14	14	700	280	210/ 420	700/1400
2	BRAR12602	Building Technology IV – Advanced Construction, Structure & Services	6	4	2	6	300	120	90/ 180	300/600
3	BRAR10603	History & Theory of Architecture IV	2	2	-	2	100	40	30/ 60	100/200
4	BRAR16604	Research Methods	2	-	2	2	100	40	30/ 60	100/200
5	BRAR14605	Professional Elective 6A	2	2	-	2	100	40	30/ 60	100/200
		Total	**26**	**8**	**18**	**26**				**2600**

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH IV (SEM VII)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13701	Advance Architectural Design Studio	14	-	14	14	700	280	210/ 420	700/ 1400
2	BRAR12702	High-Tech Structures & Performance Analysis	6	4	2	6	300	120	90/ 180	300/600
3	BRAR10703	Human Settlement Planning (Housing Theories)	2	2	-	2	100	40	30/ 60	100/200
4	BRAR16704	Research Skills	2	-	2	2	100	40	30/ 60	100/200
5	BRAR14705	Professional Elective 7A	2	2	-	2	100	40	30/ 60	100/200
		Total	26	8	18	26				2600

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UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH IV (SEM VIII)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR16801	Professional Training	18	-	-	-	-	-	900/ 1800	900/1800
2	BRAR14802	Professional Elective 8A	2	-	-	-	-	-	100/ 200	100/200
		Total	20	-	-	-				2000

Imp Note: Professional Elective 8A will have to be taken online by students from online portals such as NPTL, Swayam or any courses as per the prior approval from the course validation committee. The minimum time duration for the courses will have to be 8 weeks.

B. ARCH V (SEM IX)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	
1	BRAR13901	Research Thesis	14	-	14	14	700	280	210/420	700/1400
2	BRAR13902	Urban Design	4	-	4	4	200	80	60/120	200/400
3	BRAR12903	Building Economics & Construction Management	2	2	-	2	100	40	30/60	100/200
4	BRAR16904	Sustainable Architecture	4	-	4	4	200	80	60/120	200/400
5	BRAR14905	Professional Elective 9A	2	2	-	2	100	40	30/60	100/200
		Total	26	4	22	26				2600

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UE- University Exams(Jury/Viva/Theory Exam)

B. ARCH V (SEM X)

Sr. No	Course Code	Course Name	Credits	Teaching Scheme			Examination Scheme			
				L (Hrs)	S/W/T (Hrs)	Total	CIE	University Exam		Grand Total
								SE	TEE	
	1	2	3	4	5	6	7	8	9	10
1	BRAR13001	Design Thesis	18	-	18	18	900	360	270/540	900/1800
2	BRAR12002	Urban Anthropology & Ekistics	2	2	-	2	100	40	30/60	100/200
3	BRAR16003	Professional Practice	4	4	-	4	200	80	60/120	200/400
4	BRAR14004	Professional Elective 10A	2	2	-	2	100	40	30/60	100/200
		Total	26	8	18	26				2600

General Notes:

L= Lecture, S= Studio, W= Workshop T= Tutorial

1. Minimum passing marks are 50% for Column no. 9 & 10
2. It is compulsory to appear in the Term End Examination (TEE) to earn the respective credit for the course.
3. Minimum 16 Credits to be earned per semester to qualify for next semester.
4. If a student is not able to earn credits, the same will have to attempted through remedial examination or in the next semester with special classes allotted during summer term, this will have to be done in guidance of the mentor appointed by the institution.
5. Students are supposed to select any one subject from the list of Electives of each group (Professional & Transdisciplinary Open), these Electives will be offered based on the availability of expert and required no. of students.
6. Related Study Programme (RSP)- Study Tours / Independent Study Programme (Online Courses/ Workshops/Design Competition, etc.) will have to be done by the students in semester/year break as per the academic calendar, this is a pre-requisites for registration in next semester. Necessary prior approval will have to be taken from the course validation committee for the same.
7. Minimum 03 Nos. of Study tours will have to be completed by a student during the entire study duration to become eligible for graduation certificate.
8. Liberal Studies & Transdisciplinary Open Elective Courses are Non-CGPA courses, Earning Credits for the same is mandatory for programme completion but they will not be accounted towards SGPA /CGPA calculations.

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SYLLABUS

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR13101	Course Name		Basic Design & Visual Arts 1			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
10	-	10	10	500	200	150/300	500/1000

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The design studio is an important process, which aims to shape the design sensitivities of students and to develop their communicative abilities as well as their problem-solving skills. In the Foundation Design Studio, first-year architecture, interior and fine arts students are introduced to fundamental design principles, methods, visual judgment, and the creative process. Studio exercises are intended to provide hands-on practice in ordering a design inquiry and structuring conceptual and visual arguments.

Course Outcome

After the completion of the studio the student will be able to develop a set of fundamental skills:

- Visual (seeing, looking, observing);
- Manual (making); and
- Intellectual (comparing, contrasting, abstracting, and assessing).

Students are introduced to a broad range of media and methods to help build confidence in their cognitive, conceptual, and technical skills. A significant component of the studio is dedicated to elements of design.

Content

Students will explore the nature of design. Emphasis is given to the elements and principles of design and visual relationships between them. Students will develop skills in the application of diverse approaches to creative problem solving based on methodologies and conceptual frameworks in contemporary design processes through series of exercises.

Module		Description	Hours
Module I_ Developing Visual Literacy	M1.A	Learning visual language	28
		Outdoor sketching	
		Perspective drawing/ Freehand scaled drawings	
		Exploring various art materials like water colour, ink, pastels,	

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		acrylic etc.	
	M1.B	Warm-up exercise focused on	28
		Disciplined observation,	
		Iterative process, and	
		Critical graphic and verbal interrogation of ideas.	
II Introduction to Design Principle (Foundation)		The fundamental principles of design -- Emphasis, Balance, Alignment, Contrast, Repetition, Rhythm, Proportion, Movement.	14
III Introduction to Composition	M2.A	From Design Perspective- Approach to 3D Composition: The subjects of composition and order should move from two-dimensional considerations of shape, line, surface, and value, to three-dimensional investigations of form, space, light, motion/time, and colours.	12
	M2.A1	From Design Perspective- Approach to 2D Composition: Exploring the basic elements of design and creating 2 D compositions keeping the principles of Design in consideration.	6
IV Composition	M3.A	Adding narratives to composition	36
	M3.A1	Introduction to colour theory- adding colours to composition	6

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1. Broadbent, G., 1973. Design in Architecture - Architecture and Human Science. John Wiley and Sons., New York.
2. Chauhan, P., 2005. Learning Basic Design. Rizvi College of Architecture, Mumbai.
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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR13102	Course Name		Graphics & Visual Representation-I			

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
4	-	4	4	200	80	60/120	200/400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on **"Visual Literacy"** which enables students to represent ideas technically and visually accurate.

This course introduces students to the fundamental techniques of architectural drawing and development of appropriate manual and computer skills for visualization and technical representation of built forms in different types of drawings. The course also acts as a bridge building cognitive and motor skills & qualifies students to understand the importance of scale in representing drawings.

Course Outcome

After completion of this course, the student will be able to develop a set of fundamental skills:

Manual Skills:

- Understand architectural drafting tools and their application
- Understand the concepts of architectural drawing techniques
- Read Architectural drawings (Plan, Section, Elevation)
- Understand scale, proportions and volume

Computer Skills:

- Understand the Software – AutoCAD and its application in the field of design

Content

Architectural Drafting tools, line types, line intensity, Typography - Styles & Characters, Understanding Plans, Sections and Elevations followed by drawing methodology.

Modules	Description	Hours
I Manual Drafting Tools and Techniques	• Introduction to drafting tools and its application. • Introduction to fundamental elements of drawing - lines, line type and intensity. • Developing & exploring various techniques to use typography – styles and character	8
II Scale and Proportions	• Develop sense of scale and proportions of the given object/space/ form. • Develop understanding and applicability of scale in drawings	4

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

III Drawing Literacy	• Develop understanding of Design drawings - Plans, Sections and Elevations. • Drafting technical drawings based on learnings of Module-I & II	20
IV AutoCAD Tools and Techniques	• Introduction to AutoCAD tools and its application • Learning to draw in the AutoCAD software	8
V Drawing and Layering	• Introduction to Drawings – Plan, Section, Elevations • Understanding the layer system, layer manager	20
VI Layouts & Plotting	• Introduction to Layouts – Panel Composition with various scales • Understanding Scales, related line weights	4

References:

1 Francis D. K. Ching, ' Drawing, Space, Form, Expression', John Wiley & Sons, 2015

2 K. Venugopal, 'Engineering Drawing And Graphics + AutoCAD', New Age International, 2007

3 Dennis J. Hall, Nina M. Giglio, 'Architectural Graphic Standards', John Wiley & Sons, 2015

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	I	Version	1.0
Semester	I	Effective From	June 2021
Course Code	BRAR12103	Course Name	Basics of Building Materials, Components & Structures

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis:

The Emphasis of the course is to orient students towards various aspects of "design execution" through hands on workshops, field visits and observation-based exercises. The course introduces basic building materials, components of building assembly and fundamentals of structural systems and analysis. The focus is to familiarise students with commonly known building materials, understand their properties through practical working and learn about their application in building design. The course develops comprehensive understanding about building loads, concepts of load transfer, various structural components and their intrinsic relationships, basic structural systems and elementary structural analysis.

Course Outcome:

After completion of this course, the student will be able to:

- Identify and differentiate types of building materials with its properties & applications.
- Identify building components from sub structure to super structure and understand the role of each building component in overall building assembly and structural system.
- Understand different types of loads on buildings, effects of load on building, load transfer & behaviour of various structural components
- Understand Mechanics of Solids - forces & force systems, its equilibrium, statically determinate beams, Centroid, Moment of inertia & Trusses.
- Analyse a design decision situation in the context of material choice and structural system

Content:

(i) Introduction to basic building materials: Clay/ Cement/ Sand/ Lime/ Bamboo/ Glass/ Plastic/ Metals: their properties, application and manufacturing process

(ii) Introduction to building components (sub structure & superstructure): Foundation (and its types), plinth, wall, openings, sill, lintel, beam, column, slab, staircase (and its types), balcony, canopy, parapet, arch (and its types), vault, dome etc.

(ii) Loads on building- with relevant IS codes, Effects of loads and load transfer actions.

(iii) Fundamentals of statics, Statically determinate beams, Centroid, Moment of Inertia & Trusses.

(v) Introduction to load bearing, frame and composite structure.

Modules	Description	Hours
I Orientation	(i) Building Basics-1: Understanding "building", its functions and classification, understanding building as an "integrated assembly	4

	of various components", understanding building as "structure", and understanding relationship between nature and structure (ii) Building Basics-2: History and evolution of building design & construction technology, materiality of buildings	
II Introduction To Basic Materials	PALETTE-1: SAND, CLAY, CEMENT, LIME, MORTAR PALETTE:2: BAMBOO, WOOD, STONE PALETTE:3: GLASS, METALS	12
	(i) Classification of Materials: different types of materials-natural/man-made, source of materials, use and application of different materials (ii) Properties of Materials: physical and chemical properties, manufacturing process, various tests to check strength of materials, different grades of materials, use and application of specific material	
III Introduction to Building Components	(i) Components of Building: Concepts of substructure and superstructure, identifying different building components and their role in building assembly: foundation, plinth, beam, column, wall, stairs, openings (door, window, ventilators), sill, lintel, weather shed, parapet, balcony: understanding their interrelationship as a complete system (ii) Load transferring systems: Introduction to load bearing, frame and composite structure (iii) Classification of building components (with their purpose and selection criteria): Introduction to - types of foundations, types of staircases, types of walls, types of openings	16
IV Introduction of Loads on Buildings	(i) Building Loads: Types of loads on building, Effects of loads on building, Various types of load transfer actions. (ii) Structural Components: Various structural components: truss, arch, dome, vault etc & its behaviour under load with reference to various materials.	4
V Mechanics of Solids	(i) Fundamentals of statics: Introduction to Force, its types, Characteristics & Equilibrium. Force systems (Coplanar-concurrent & non-concurrent), it's Resultant, Moments, couple moments. (ii) Statically determinate beams: Concept of Stability & determinacy. Types of loads (concentrated & uniformly distributed), Types of supporting condition & its reactions. Bending moment and shear force diagrams (cantilevered, simply supported, continuous), its importance, Location & magnitude of maximum bending moment & shear force. (iii) Centroid and moment of inertia -of standard & Composite geometry, its importance, radius of gyration. (iv) Trusses – behaviour, usage, advantages & Analysis.	20

All modules shall be supported with relevant labs/market survey/workshops/model making as per the requirement of the content.

References:

1. Ching, Frank (Francis D.K.), 2014.Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey.
2. Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated, patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey.
3. McKay W.B., 2005. Building Construction, Volume 1 to 4, Longman Group Ltd., London.
4. Barry, R, 1999. Building Construction, Volume 1 to 5, Blackwell Science Ltd.
5. Moxley R., 1961. Mitchell's Elementary Building Construction. B. T. Batsford, London.
6. Kumar, Sushil, 2003. Building Construction, 19th Ed. Standard Publishers, Delhi.
7. Sharma S.K., 2019. Civil Engineering construction Materials. Khanna Publishing, New Delhi
8. Rangwala, S. C., 1963. Building Construction: Materials and types of Construction. John Wiley and Sons, New York.
9. Junnarkar,. S.B., 2017. Mechanics of structures Vol.1: Strength of materials.
10. Junnarkar, S.B., 2017. Mechanics of structures Vol.2: Theory and analysis of structures.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR10104	Course Name		Society & Culture I			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course provides an overview of Civilizations, Societies and Cultures from Pre-Historic period to the present stage of development.

Course Outcome : At the end of the course students will be able to

- Analyse historical processes that shape individuals, societies and communities from early societies to Modern period.
- To describe influence of political ideology, social organizations, cultural perceptions and natural environment on events and narratives.
- To develop an understanding of global history
- To place events, persons, developments in space-time continuum

Content

Introduction to Society and Culture;
Overview of development of society and cultures from pre-historic period to modern times; The history of the World in concurrent periods across the World.

Introduction to evolution of architecture in early settlements; Early settlements in terms of scale and complexity through a comparative study of Catalhoyuk, Mehrgarh, Banpo, Skara Brae.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the context of cultural, political and socio-economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References :

1. Head, Tom, 2017. World History 101: From Ancient Mesopotamia and the Viking Conquests to NATO and WikiLeaks, an Essential Primer on World History. Adams Media, Avon, Massachusetts
2. Kubba, Shamil, 1987. Mesopotamian Architecture and Town Planning. B.A.R., Oxford
3. Kuijt, Ian, 2002. Life in Neolithic Farming Communities. Kluwer Academic Publishers, New York
4. Parker,Philip, 2017. World History: From the Ancient World to the Information Age. Eyewitness Companions, Dorling-Kindersley, London
5. Thapar, Romila, 2002. Early India: From the Origins to AD1300. University of California Press, Berkeley
6. Wilson, Peter, 1988. The Domestication of the Human Species. Yale University Press, 1988

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Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR10105	Course Name		Liberal Studies & Life Skills I			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

1. Social & Cultural Etiquette

Social and Cultural etiquette are the codes of behaviour that rule different cultures – in other words, what's acceptable and what isn't in a society. Etiquette is about kindness, it is about being friendly, it is about being polite, it is about integrity, it is about good manners.

Social and Cultural etiquette would help students to know how to behave and conduct themselves in different environments. Social and Cultural etiquette is not about being perfect, or being prim and proper, it's not about your social class, profession or how rich or well educated you are. Social and Cultural etiquette makes people comfortable and at ease, it shows that we value and respect others. Social and Cultural etiquette would promote kindness, consideration, and humility in students.

Social and Cultural etiquette would give students the confidence to deal with different situations in life, it would give them life skills. Social and Cultural etiquette would enhance student's personality; it would help to eliminate discourteous behaviour. Social and Cultural etiquettes would help students to be sensitive to others feelings and rights.

Having good manners is not just about 'please' and 'thank you'. It is about how one presents oneself, how one should behave, how one should speak, how one should treat others and most importantly how one should think.

2. Self-Exploration & Personality Building

The more you understand yourself and your motivations, the more informed and productive your life and career search process will be. Self-exploration is the first step. Start by reflecting on your interests, values, skills, and personality traits, as well as key experiences you've enjoyed. Research shows that people most satisfied in their careers are those who are working in jobs that closely align with these areas. Personality is a combination of qualities that form your distinctive character. These influence how you see, experience, and interact with the world.

Personality development helps you develop an impressive personality and makes you stand apart from the rest. Personality development also plays an essential role in improving one's communication

skills. Individuals ought to master the art of expressing their thoughts and feelings in the most desired way.

3. Maintenance and Repairing

Basic maintenance and repairing skills are necessary for safeguarding your general wellbeing. By inspecting your home and automobiles regularly, cleaning, and repairing it, you will have the assurance that you and your family is safe.

Repair of all electrical issues such as malfunctioning electric appliances and exposed wiring. Performing regular maintenance and handling minor repairs as required will minimize the possibility of expensive repairs. Most appliances, objects of use need to be inspected regularly, cleaned, and changed. Emergency plumbing services are essential for effectively dealing with leaks to prevent flooding and structural damage.

Repairs undertaken helps in emergency situations as well as in daily life when professional technical help is not available right away.

4. Team Building

Team building activities are essential for establishing a good work culture where students enjoy coming to work, collaborate easily and trust each other. Team building is the process of turning a group of students from diverse backgrounds into a cohesive team—a group of people organized to work together to accomplish their purpose and goals.

Note: Four modules of 04 weeks each will be offered for life skill course.

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Faculty	Architecture			Programme	B. Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR16106	Course Name		Communication Skills-I			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/ 60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course emphasis is on developing effective communication skills through improved reading, speaking and listening skills based on interactive exercises and experience based curriculum. The focus is on understanding and applying various techniques and strategies in oral and written contexts for improved skills. The course aims to build confidence in speaking situations, write lucidly using appropriate vocabulary and grammar and to listen for comprehension. It aims to hone both verbal and non-verbal communication.

Course Outcome

After completion of this course, the student will be able to:

- Demonstrate a better understanding of the communication process by identifying, explaining and applying strategies as they relate to a variety of contexts (interpersonal, group, public and professional)
- Display competence in oral, written and visual communication
- Identify ways to constructively manage speaking anxiety and apply methods while presenting in public
- Describe strategies for non-verbal interpretation and expression skills.
- Identify and apply strategies for listening with attention
- Demonstrate the ability to write fluently while making an optimum use of correct vocabulary and grammar
- Demonstrate improved interpersonal skills by identifying and developing a repertoire of strategies in oral and written contexts.

Content

The course focuses on effective communication skills in both verbal & non-verbal forms.

Modules	Description	Hours
Module I_ Speaking Module	• Significance of Communication skills • Communication Process - significant features involved • Personal Introduction • Retention and reproduction of texts • Debates, Public speaking & Questioning skills	7

	• 7 steps to effective messages & other activities	
Module II_ Reading Module	• Reading process - four basic steps • The art of effective reading -its types • Overcome common reading obstacles • Reading for better Comprehension • Building vocabulary	8
Module III_ Listening	• Types of listening & good listening practices • Summary of spoken texts • Writing from oral instructions • Listening games / Activities	7
Module IV_ Writing Module	• Paragraph Writing – Re-order paragraphs and sequential ordering • Creative writing – blogs/movie reviews, letters & paragraphs • Building arguments • Common grammatical mistakes, usage of grammar	8
S Module V_ Non-verbal	• Communicating through Pictorial representations, illustrations, spatial arrangements of words, interpreting gestures, body language, facial expressions • Interactive exercises	2

References:

1. Kumar, Sanjay, Lata Pushp, 2015. Communication Skills. Oxford University Press, New Delhi
2. Suresh Kumar, E, 2012. Communication Skills and Soft skills. Pearson, New Delhi

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Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR14107	Course Name		Professional Elective 1 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

106.1 Origami Kirigami

Origami, from ori meaning "folding", and kami meaning "paper" (kami changes to gami due to rendaku)) is the art of paper folding, which is often associated with Japanese culture. Origami folders often use the Japanese word *kirigami* to refer to designs which use cuts. Main motive for proposing this elective is it engages students and enhances their skills -- including improved spatial perception and logical and sequential thinking. In a nutshell, Origami is good for design students as it develops –

- eye hand co-ordination,
- sequencing skills,
- maths reasoning
- spatial skills,
- memory, but also patience and attention skills
- mental concentration.

All of this combined stimulates the brain – especially when BOTH hands are being used at the same time.

106.2. Print Making

Printmaking elective is designed to amplify a student's artistic interests and understanding of the process, and to support the development of a personal artistic vision. This elective spans both traditional and contemporary techniques including fluid art, etching, relief, lithography, monotype, screen, book arts, photo-processes, and digital printmaking. In this elective, visual representation would be emphasized, and all exercises focus on formal visual issues and resolving visual ideas. Through a coordinated sequence of exercises, students will synthesize their conceptual and technical skills with various mediums and study the application of various printmaking techniques.

106.3. Typography

Typography is the art of manipulating the visual form of language to enrich and control its meaning. It's an essential area of skill and knowledge for graphic designers. Typography predates modern graphic design by around 500 years; it is rich in rules, conventions, and esoteric terminology—but it remains an exciting space for invention and expression.

In this elective, students would learn exploration of basic principles of typography. Emphasis is on interrelationships of letter, word, line, page and the logical evolution of the grid as a structural device. The elective would emphasize techniques and ideas that influence meaning through the visual design of letterforms and words. The structure of type would be explored through series of exercises in two- and three-dimensional media.

106.4. Textiles, Natural Dye & Printing

Nature is an unequalled colour palette, which runs through the entire visible spectrum, from the green of the trees to the blue of the sky. In this elective course, in first part students will learn to dye fibres and fabrics with natural pigments. In this elective, student would start with dyeing skeins and other natural fibres, using plant pigments first, then soil and clays, flowers and, finally, indigo. Student would taught to prepare the fibres for dyeing, separate the samples and capture the information of each of these and other pigments. In second part, student would learn various composition possibilities of coloured textiles done in first part of this elective.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

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Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	I			Effective From	June 2021		
Course Code	BRAR18108	Course Name		Transdisciplinary Open Elective 1 B			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Important Note:

- Refer Annexure for the Transdisciplinary Open electives to be offered by institutes of Sarvajanik University to students of Faculty of Architecture, IDPT. A comprehensive List of the electives will be available on Sarvajanik University Website.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	I	Version	1.0
Semester	II	Effective From	June 2021
Course Code	BRAR13201	Course Name	Basic Design & Visual Arts II

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
10	-	10	10	500	200	150/300	1000/ 2000

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

Emphasis is on two-dimensional representation of three-dimensional forms; development of basic skills in architectural design drawing and 3D modelling. Through experiential hands-on design exercises, this studio will focus on the development of space/composition through the composition of tectonics and stereotomic assemblies. Rumbling between physical models, narrative statements, and drawing explorations, a context inspired design processes will stress on analysis, abstraction, and refinement through peer and self-critique.

Course Outcome

At the end of the course the student will be able to:

- Develop a set of fundamental skills
- To learn to implement, asses, and revise formal organizational strategies within 2D and 3D compositions.
- To learn to assess the impact that various 2D and 3D investigative methods have on intuitive and systems design thinking.
- To learn to develop an appreciation for craftsmanship in 2D and 3D methods of design exploration.

Content

This studio will introduces the five fundamentals of design: space, order, tectonics, site and use, layered and reinforced through a series of design exercises. Fundamental spatial explorations, particularly focused on climate and site will be explored in conjunction with basic topics of scale, proportion, composition, ergonomics, context, approach, arrival, threshold, sequence, flexibility, and circulation through project-based exercises in the design studio.

Modules	Description	Hours
I Introduction to Design Principle (Advanced)	Theoretical inputs in Advanced design Principles. Small hands-on exercises based on it.	28

II Visual Analysis of Form	When given a complex form to analyse, students will be able to construct analytical models and drawings. For that hands-on exercises will be used for developing understanding on Intersection, layering, overlapping of geometric and organic forms. Students will be able to construct a 3D Tectonic models and 2D graphic representation and a defined scale.	56
III Introduction to Anthropometry	Study and documentation of human dimensions in various postures (applied form), their relation to everyday utilities. Critical analysis of ergonomic aspects of space planning.	28
IV Introduction to Measure drawings	This module would introduce students to elements of architecture through understanding of Measured Drawing of existing small human habitat. Importance of contextual factors in Architectural design e.g. orientation, ventilation, adequate protection from rain, dust, insects etc.,	28
V Approach to real scale design	When given an architectural program and contextual information, students will be able to implement a design process circling between exploration, self-critique, and refinement; and entertain various design proposals by challenging the hierarchy of plans, sections, and models.	28

References:

1 Ching, F. D. K. 2012. Architecture: Form, Space and Order, 3rd Ed. Hoboken : John Wiley & Sons.
2 Unwin, S. 2003. Analysing Architecture. Rouledge, London :.
3 Peter, V. M. 1998. Elements of architecture – from form to place. 1st Ed. Routledge, New York.
4 Roth, L. M.,2013. Understanding Architecture: Its Experience History and Meaning, 3rd Ed. West-view press, Philadelphia.
5 Rudolf, A., 1977. The dynamics of architectural form. University of California Press, Berkeley and Los Angeles.
6 Prak, N. L., 1968. The Language of Architecture: A contribution to architectural theory. Mouton & Co., Hague
7 Paul, A. J., 1994. The Theory of Architecture–Concepts & themes. Van Nostrand Reinhold. New York.
8 Pandya, Y., 2007. Elements of Space making. Mapin, Ahmedabad.

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Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR13202	Course Name		Graphics & Visual Representation-II			

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
4	-	4	4	200	80	60/120	200/400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on **"Volumetric Understanding, Rendering and Diagrams"** which enables students to represent ideas in third dimension.

This course introduces students to the fundamental techniques of architectural drawing and develop appropriate manual and computer skills for visualization and technical representation of built forms in different types of drawings. The course also helps in building cognitive and motor coordination skills. The course also enables students to represent designs in 2D and 3D rendered drawings.

Course Outcome

After the completion of this course, the student will be able to:

Manual Skills:

- Draw technically correct Plans, Sections, Elevations
- Understand scale, proportions and volume in detail with respect to Built forms & Buildings
- Understand concept of perspective & sociography in design & architecture
- Understand, explore and apply various rendering techniques

Computer Skills:

- Understand and apply Software – Adobe Illustrator, Sketch Up and its application in the field of design
- Render architectural 2D and 3D drawings as per global standards respecting technicality of drawings along with understanding of panel/sheet composition concepts.
- Generate analytical diagrams like zoning, inter-relationship, connectivity, circulation, site response, etc.

Content:
Understanding space perception and representation techniques along with concept of perspective drawings, sectional volumetric drawings in manual and computer skills. Exploring Sketch Up software for volumetric understanding and shadow analysis. Technical representation of design drawings – plan, sections, elevations.
Rendering Techniques will have Manual Rendering exploring various medium of rendering (Inking, Colours, etc.), rendering techniques like Stippling, Hatching, Scribbling, etc. and digital rendering exploring rendering in Adobe Illustrator.

Modules	Description	Hours
I Space Perception	• Understanding Concepts of perspective, built volume perception • Explore volume/ mass using Sketch Up	8
II Technical Drawing Set	• Drafting plans, sections, elevations. (Manual)	8
III Adobe Illustrator	• Introduction to Adobe Illustrator tools and its application • Explore rendering, diagram making and sheet/panel composition	20
IV Rendering	Manual Rendering: • Exploring various medium of rendering (Inking, Colours, etc.) • Rendering techniques like Stippling, Hatching, Scribbling, etc. Digital Rendering: • Application of Illustrator for rendering	10
Module V_ Google Sketch Up	• Introduction to Google Sketchup tools and its application • Explore 3D modelling • Understanding Shadow analysis, Sociography considering climatic considerations	18

References:

1 Arthur L. Guptill, 2011. 'Rendering in Pen and Ink'. Watson-Guptill Publications.
2 Adobe, 2007. 'Adobe Illustrator Classroom in a Book'
3 Francis D. K. Ching, 2014. Form, Space and Order, John Wiley & Sons
4 Dennis J. Hall, Nina M. Giglio, 2015 Architectural Graphic Standards, John Wiley & Sons

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	I	Version	1.0
Semester	II	Effective From	June 2021
Course Code	BRAR12203	Course Name	Building Materials, Systems & Environmental Science

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	UE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis:

The emphasis of the course is on "material driven design and construction systems." The course introduces Brick, Stone and Wood as primary building construction materials and develops a comprehensive understanding of construction and behaviour of structural components based on material property, size and shape. The focus is on understanding properties of materials, and various technical aspects related to masonry and frame construction and their finishing techniques. The pragmatic relationship between materials and climate is emphasized along with understanding of different climatic zones and its impact on building design and material selections. Concepts of stress, strain and basic structural analysis are to be understood with reference to properties of materials.

Course Outcome:

After completion of this course, the student will be able to:

- Understand different types of bricks, stones and wood, their physical and structural properties and its behaviour as a construction material
- Learn about brick and stone masonry construction technology
- Learn about wood frame construction technology
- Learn about component details in specific material i.e floor system, roof system, openings, staircase etc.
- Understand various parameters of designing climate responsive buildings
- Learn Basics of Structural Analysis: i.e. Understand material properties and stresses induced in various structural components like, beams, columns, trusses etc along with its behaviour

Content:

(i)Introduction to basic building materials: Brick, Stone, Wood: properties and behaviour of materials, Brick Masonry construction, Stone Masonry construction, Wood Frame Construction, Composite construction, joinery and connections.

(ii)Structural Analysis:

-Introduction to simple stress – strain, Stresses in Beams - Flexural stresses & shear stress.

-Introduction to Columns and Struts, its behaviour under axial and eccentric loading.

-Deflection of beams, Introduction to continuous & fixed beam and bending & moment diagram.

(iii)Climate Responsive Building Design: Understanding the relationship between Natural environment and Built environment, effect of climate on habitat, shelter and environment, significance of materials and construction technology for climate responsive design.

Modules	Description	Hours
I BRICKS & BRICK MASONRY CONSTRUCTION	**(i)Brick as a building material:** Types of bricks based on constituent materials and its manufacturing process, physical and chemical properties of different types of bricks **(ii)Brick Masonry Construction:** Sizes of bricks, Types of bricks, bats and closers etc., classification and terminologies, standard bond construction (English & Flemish), significance of mortars, stopped ends, quoins, piers, Junctions, jambs for various thicknesses, methods and techniques of masonry construction Basic principles of load bearing structures, foundation for load bearing walls, openings in load bearing masonry walls, non-load bearing walls, cavity walls **(iii)Finishing details:** Jointing, pointing, plastering, copings. **(iv)Building components in brick:** jack arch roof, brick arches, vaults and domes, reinforced brick roofs and walls, brick piers, brick paving **(v)Exposed brick work:** challenges	8
II STONE & STONE MASONRY CONSTRUCTION	**(i)Natural stone as a building material:** Geological Classification of rocks – stones (granite, laterite, quartzite, marble, slates), uses of stone, deterioration & preservation of stone, availability, properties and application of stones for construction **(ii)Stone Masonry Construction:** Types of stone masonry like Random Rubble, Coursed Rubble, Ashlar, etc., significance of mortars, Basic principles of load bearing structures, foundation for load bearing walls, openings in load bearing masonry walls, non-load bearing walls, cavity walls **(iii)Finishing details:** stone as a cladding material, jointing, pointing and finishing details **(iv)Building components in stone:** construction of floors, arches, vaults and domes, stone coping, stone piers, stone paving	8
III WOOD-TIMBER FRAME CONSTRUCTION	**(i)Timber as Building Material:** its physical properties and uses, defects, decay and preservation, seasoning. Industrial timbers, biproducts of timber such as ply wood, hard board, block board, particle board, etc with their properties and uses. Introduction to timber as described in Indian architectural treatises. **(ii)Timber Frame construction:** Understanding Timber frame construction for structural and non-structural building components: post & beam construction, floors, pitched roofs, partitions, openings (door/window), staircases with joinery and connections details	8
IV STRUCTURAL ANALYSIS	**(i) Simple stresses & Strains:** Basics of stress and strain, Normal/axial stresses & strains-Tensile, compressive & shear. Hooke's law & Modulus of elasticity. Application of stress & strains. **(ii)Stresses in Beams: (a) Flexural stresses** – Theory of simple bending, Assumptions, neutral axis, determination of bending stresses, section modulus of rectangular & circular (solid & hollow), I,T, Angle, channel sections. **(b)Shear stresses** – Shear stress distribution across various beam sections like rectangular, circular, triangular, I, T, angle sections. **(iii) Columns and Struts:** Buckling of columns, different end conditions, effective length, least radius of gyration, Euler's and Rankine's formulae, Behaviour of columns under lateral loading. **Columns subjected to eccentric loads,** middle third rule & its importance (for	24

	columns, retaining walls & dams etc. structures). **(iv) Deflection in beams:** Introduction to deflection of simple beams by basic formulas. **(v) Analysis of continuous & fixed beams:** shear force & bending moment diagram by simple method (moment distribution method).	
MODULE - V (ENVIRONMENT & HABITAT)	**(i)Effect of climate on habitat, shelter and environment.** Introduction to concept of climate, weather & season, elements of climate, study of climatic zones and their effect on building design, understanding Macroclimate and Microclimate **(ii)Climate responsive building design:** building orientation with respect to site, sun path and wind movement, role of materials and construction technology, importance of horizontal and vertical shading devices & directions, built form evolution with respect to climatic considerations, effect of landscape elements on Climate and Architecture.	8

All modules shall be supported with relevant labs/market survey/workshops/model making as per the requirement of the content.

References:

1. Ching, Frank (Francis D.K.), 2014. Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey
2. Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated: patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey
3. Barry, R, 1999. Building Construction, Volume 1 to 5, Blackwell Science Ltd.
4. Moxley R., 1961. Mitchell's Elementary Building Construction. B. T. Batsford, London.
5. Kumar, Sushil, 2003. Building Construction, Standard Publishers, Delhi.
6. Sharma S.K., Civil Engineering construction Materials. Khanna Publishing, New Delhi
7. Junarkar S.B. & Shah H.J., 2012. Mechanics of Structures Vol-I. Charotar publishing house, Anand.
8. Wang C. K., 1982. Intermediate Structural Analysis. Tata McGraw Hill book Company, New Delhi.
9. Ryder G.H, Mcmillan Gere & Timoshenk. Strength of Materials, Mechanics of Materials. CBS Publishers & Distributors, Delhi.
10. Konigsberg, 1975. Manual of Tropical Housing and Building – Part I – Climatic Design. Universities Press,India

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR10204	Course Name		Society & Culture II			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis is on approaching the built environment and space differentiation as critical features located in a broad social and cultural context. It stresses the cultural & political context from which settlement & structure arise. The emphasis is on challenging pre conceptions, developing visual intelligence and learning to read architecture as a shared cultural expression that registers and transcends time & space as all created structures embody a culture's complex aspiration within material creation.

The course will provide introduction to Architectural typologies and terminologies.

Course Outcome : At the end of the course students will be able to

- To compare eras and regions of primary human settlements in order to define enduring issues.
- To understand how communities, places, spatial relationships create historic change.
- To describe influence of social organisation, cultural perception & natural environment on societies and civilization.
- To trace the development and dispersal of religion in the Indian sub-continent with special reference to Buddhism.

Content

Understanding of factors influencing society, culture and resultant architecture; River valley civilizations of Nile & Indus with emphasis on Structures; Mesopotamian society and its creative articulation in architecture. Inception and dispersal of Buddhism; Early Buddhist, Cave & Rock cut architecture in India; Characteristics of Chinese architecture with reference to religion society, natural environment & belief system: study of types like temples, palaces, houses & cities of China.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture i.e. political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References :

1. Jia, Lanpo, 1980. Early Man in China. Foreign Languages Press, Beijing
2. Kostof, Spiro, 1995. A History of Architecture: Settings and Rituals. Oxford University Press, New York
3. Kubba, Shamil, 1987. Mesopotamian Architecture and Town Planning. B.A.R., Oxford
4. Mitra, Debala, 1980. Ajanta. Archaeological Survey of India, New Delhi
5. Oates, Joan, 1979. Babylon Ancient People and Places . Thames &Hudson, London
6. Possehl, Gregory, 1993. Harappan Civilization: A recent perspective. American Institute of Indian Studies, Columbia
7. Sarkar, H., 1966. Studies in Early Buddhist Architecture in India, Munshiram Manoharlal, Mumbai
8. Steinhardt, Nancy Shatzman, 2002. Chinese Architecture. Yale Univ. Press, New Haven CT
9. Thapar, Romila, 2002. Early India : From the Origins to AD1300. University of California Press, Berkeley
10. Trachtenberg, Marvin, 2002. Architecture, From Prehistory to Postmodernity. Abrams, New York

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR10205	Course Name		Liberal Studies & Life Skills II			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

1. Sociology

Various aspects of our behaviour, perceptions, and belief systems are impacted by our society. Studying sociology is beneficial both for the individual and for society. By studying sociology students will learn how to think critically about social issues and problems that confront our society. The module will introduce the social dimension of architecture as an aspirational response to cultural and economic realities of a community.

2. Psychology

The built environment has direct and indirect effects on human psychology. It has an impact on our senses, mood, emotions, motivations, judgments, decisions, health, and participation in physical activity and community life. Having a good built environment is important because it can give better performance, less distraction, and occupants comfort and satisfaction. With the majority of designed spaces being occupied by people, it can be assumed that a key indicator of the success of a design depends on how the space influences the human behaviour within that space. Studying Psychology enriches students by understanding human behaviour much better, with all its social interaction, language, communication, motivation, emotions, and decision making.

3. Voluntary Actions

Volunteering is an essential part of preparing students to "take responsibility as open minded, principled citizens in a global community." While performing such voluntary actions/ services, students have the opportunity to see first-hand just how much their work can have an impact on the world. Students can opt for volunteer services locally at food shelves, animal shelters, in old age homes, differently abled children schools and even at orphanages. They get to interact with people who have vastly different backgrounds, and learn patience and empathy as they develop a global perspective. It will help them to become sensitive to less privileged sections of community.

4. Environmental Awareness

Environmental awareness provides important opportunities for students to become engaged in real world issues that transcend classroom walls. They can see the relevance of their classroom studies to

the complex environmental issues confronting our planet and they can acquire the skills they'll need to be creative problem solvers and powerful advocates.

Environmental awareness is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

Note: Four modules of 04 weeks each will be offered for life skill course.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B. Interior Design		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR16206	Course Name		Communication Skills & Personality Development - II			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on sharpening Communication Skills as an essential soft skill in the professional world and acquiring traits of a positive Personality. This course introduces students to essentials of successful professional communication in varied situations and contexts. The personality domain recognises the importance of developing an integrated sense of personal identity, a positive sense of self and a personal code of ethics.

Course Outcome

After completion of this course, the student will be able to:

- Distinguish among various levels of organisational communication and communication barriers while developing an understanding of the communication process.
- Stimulate critical thinking by developing lucid writing skills
- Identify reasons for perceptual errors and overcome the same
- Demonstrate improved interpersonal skills by identifying and developing a repertoire of strategies for improved communication effectiveness and demonstrate strategies in oral and written contexts.
- Demonstrate positive group communication exchanges
- Apply appropriate communication skills across settings, purposes, and audiences
- Set personal growth targets and meet them using projection techniques
- Build positive self - esteem
- Inculcate qualities of a good team member as well as function as a team leader
- Negotiate complexities of professional and familial environment through improved interpersonal relationships.

Content

The course focuses on both verbal & non-verbal communication skills and personality development through interactive exercises and experience based learning.

Modules	Description	Hours
I **Self-Exploration & Interpersonal Relationships**	• Self-Exploration - Reflecting on interests, values, skills, and personality traits, as well as key experiences • Confidence Building & Credibility • Assertiveness and Self Confidence Training- Master techniques to overcome nervousness and speak with confidence • Emotional Intelligence (EQ) -Articulate emotions using the right language • Recognition and dealing with difficult behaviour in others • Setting achievable goals in-line with personal values • Define and practice self-management, self-awareness, self-regulation, self-motivation and empathy • Forms of Interpersonal Relationships -Building Trust and Credibility	12
II **Group Dynamics & Team Building**	• Types of listening & good listening practices - Summarize Spoken Text / Dictation • Conversations, Dialogues, and Debates • Group Discussions - Leading & Motivating • Relate emotional intelligence to the workplace. Use the concepts and techniques in the workplace	12
III **Communication Skills**	• Active Listening Training • Inter Cultural Communication & Public Speaking - The art of persuasion, situational dialogues & role play. • Non-Verbal Training • Paraphrasing • Effective use of tone & method for speaking on the spot • Creative Writing - Technical proposals, business writings, reports, resumes etc.	8

References:

1. Kumar, Sanjay, Lata Pushp, 2015. Communication Skills. Oxford University Press, New Delhi.
2. Suresh Kumar, E, 2012. Communication Skills and Soft skills. Pearson, New Delhi.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR14207	Course Name		Professional Elective 2 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

206.1 Architectural Photography

All design students could prosper by learning to see light and how light alters the visual impact of built forms. Just as drawing allows students to refine their vision and perspective teaches how we see, the camera allows for yet another discipline to organically create with form and light.

This elective would teach students to create successful images of exterior architecture, interior architectural design, as well as architectural models. The student would become a highly competent creative digital photographic image creator with accurate exposure, proper colour correction, and excellent printing output. They will successfully use specific digital tools for the architectural image to correct distortion and capture mixed lighting with multiple exposures. Students would also learn basic editing for post processing.

206.2. Traditional & Contemporary Crafts

The objective is to impart an all-round and holistic education that will also preserve their own cultural assets, traditions. This elective has been introduced to expose students to learn, practice, and evaluate traditional and contemporary craft techniques.

As part of this elective, students will learn about traditional and contemporary crafts, and produce products that are both functional and decorative. Students will explore the tools and techniques used by local Gujarat cultures, especially folk arts and, tribal contemporary art practices. Students will gain a greater appreciation for craft objects and for the skill and craftsmanship required to produce a variety of crafts.

206.3. Sculpture

Sculpture involves space, materials, techniques, and ideas. It is an art of the extraordinary, as well as the everyday. This elective is an introduction to sculptural concepts and processes. It is focused on hands-on learning and critical thinking. The course is built upon exercises that introduce basic means of producing sculptural art while emphasizing aesthetic choices and critical evaluation. Students will be introduced to a variety of materials, their properties, and characteristics, while developing basic

technical skills and an increased awareness of both aesthetic and conceptual choices as related to understanding of sculpture.

206.4. Wall Murals & Graffiti

This elective is designed to gain a greater understanding of the relationship that exists between the arts and the community. Through presentations, readings, group discussions, site visits, and hands on exercises students will explore the many ways in which the arts impact the community as well as how the community impacts the arts. The main objective of this elective is for students to explore and develop their ideas visually and interrogate the impact of public art in communities, based on context and site specificity.

In terms of skills it will enable students to control scale, colour, elements of form, specific techniques. It will help them develop proposals into actual projects.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

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Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	II			Effective From	June 2021		
Course Code	BRAR18208	Course Name		Transdisciplinary Open Elective 2 B			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Important Note:

- Refer Annexure for the Transdisciplinary Open electives to be offered by institutes of Sarvajanik University to students of Faculty of Architecture, IDPT. A comprehensive List of the electives will be available on Sarvajanik University Website.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR13301	Course Name		Environmental Design Studio			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The studio looks at the inter-relationship of architecture and environment, emphasis is on carrying forward the understanding of vernacular architecture and fundamental principles of climatology in the design of spaces. This may be in continuation with Related Study Programme (RSP) carried out at the end of the previous semester and the emphasis of the design studio will be to respond to the climatic concerns, local material, construction technology and arts and craft. Understanding of local material and construction techniques as well as thorough application of the knowledge of climatology forms the core of the studio. The focus shall be on understanding the variety and significance of traditional architecture, and look at design process as a holistic approach in terms of culture, technology, value systems as well as art integration during the design process. It will also enable the understanding of basic principles of structural systems, Building Materials and Construction Technology, Water Management & Sanitation Facility in the Vernacular Architecture under study.

Course Outcome

At the completion of the course the students will be able to:

- In-depth understanding of climatic analysis and its application in design
- Analyse Vernacular architecture / region based architecture
- Identify local (regional) material their properties and application in building design and construction.
- Integrate regional (Local) Arts and Crafts of the region and application of the knowledge in creating a visually pleasing built environment.

Content

The design exercises will be predominantly divided into two modules, The first module specifically deals with issues of environmental design and understanding basic design responses and analysis of environmental aspects including heat, wind, rains and other natural forces. Climatic analysis will be the driving force for the first module and data collections as well as basic analysis will be introduced to the students to understand the importance of the same in design process. This will then be carried forward to design of a structure with design of various architectural forms and elements in response to the climatic forces. The second module will focus on the understanding of material and its behaviour in a given context and climate as well as how innovative explorations can be done. This will focus on load carrying systems and spatial organization with respect to the material used.

Modules	Description	Hours
I TEMPORAL DESIGN	The Integrated Module shall address the following aspects: • To create a usable or habitable structure, without getting into too much functional complexities. These structures shall be temporary in nature. • It aims at creating an awareness about the environment, and the impact of an architect's intervention on the environment. • Creating a basic understanding about the climate and its impact on the built. • Exploring Films as a great medium to learn the art of narration • First take on sustainable development by learning to reuse commonly available large objects • Learning to use the materials in natural forms, to create spaces and objects of use • Developing awareness about public spaces in a city, by conceptualising a temporary installation in the city.	112
II DESIGNING WITH CLIMATE	The integrated module shall address the following aspects. • Creating a deeper understanding of climatology, and fundamentals of passive architectural design. • Realisation of the importance of Art Appreciation, and using it as a background to develop Aesthetics and Design Philosophy • Developing understanding of Concrete as a construction material and exploring its potential in architectural design • Provide avenues and opportunities for the students to unleash the power of imagination, emerging out of rational and irrational premises and ideas. • Learning about the Vernacular Architecture, and attempting to apply the fundamentals into design	112

References:

1 Bernard Rudofsky,1964. Architecture without Architects. Museum of Modern Art, Newyork.
2 Ching, F. D. K., 2012. Architecture: Form, Space and Order. 3rd Ed. Hoboken: John Wiley & Sons
3 Ian McHarg, 1969. Design with Nature. Natural History Press, Yew York.
4 Alan Hess, Frank Lloyd Wright, 2012. Natural Design-Organic Architecture. Rizzoli
5 Yatin Pandya, 2007. Elements of Spacemaking. Mapin Publishing, Ahmedabad.
6 Arvind Krishnan, Nick Baker, Simos Yannas, S.Szokolay, 2001. Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings. Tata McGraw Hills Education.
7 O.H. Koenigsberger & Others,1974. Manual of Tropical Housing & Building – Climatic Design. Universities Press, London.
8 Mili Majumdar, 2009. Energy Efficient Buildings in India. Ministry of Non-Conventional Energy Sources & TERI, New Delhi.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	I			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR12302	Course Name		Building Technology-I (Construction, Structure & Services)			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis:

This course introduces "concrete" as a versatile construction material and develops a comprehensive understanding of its multiple application in building design and construction. The emphasis is **"to learn to design with concrete"** by knowing its physical and structural properties, its design and behavior as an independent structural component of an assembly as well as a complete structural system, parameters affecting strength of Concrete and Design of RCC slab, beam, column & footing, along with steel detailing. Understanding of RCC grids along with its construction methods and technology. The course also focuses on understanding various aspects of plumbing and sanitation as basic service system of the building.

Course Outcome:

After completion of this course, the student will be able to:

- Understand properties of concrete (and reinforced concrete) as building material and relate its use and application in building design
- Understand different concrete components, their types and casting methods.
- Understand concrete structural systems, RCC grids, strategic location of beams-columns.
- Understand IS codes required for concrete, design loads and load combinations.
- Understand different methods of RCC design, and design of RCC structural components – slabs, beam, column & footing (Isolated) by limit state method.
- Investigate the challenges related to designing with concrete
- Recognize the significance of integrating plumbing and sanitation services in design
- Apply the knowledge gained through this course in design studio projects

Content

(i) Concrete as a Building Material: Materiality of concrete, Concrete mix and properties, Factors affecting strength of concrete, Tests and methods for checking the strength, Curing & its importance.

(ii) Reinforced Cement Concrete: Introduction to Reinforced Cement Concrete, I.S. Code provision, Methods of casting concrete, Types of concrete components and concrete structural systems, equipment and technologies for concrete construction, explorations and challenges.

(iii) RCC Design: Design Philosophies for Reinforced Concrete, Different design methods, loads and load combinations, Design of Beams, Slabs, Columns, and Footing by Limit state method for Flexure & Shear.

(iv) Introduction to Building services: Plumbing and Sanitation: basic knowledge of components of plumbing and sanitation systems, its execution and integration in design layouts.

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

Modules	Description	Hours
I CONCRETE: A DYNAMIC BUILDING MATERIAL	**(i)Concrete:** Introduction to concrete as a heterogeneous building material, physical & structural properties of concrete, Characteristic strength of concrete, Factors affecting strength of concrete, mainly water cement ratio, Curing & its importance, IS code for concrete, tests for concrete, Casting of concrete, Grades of concrete mix as per Indian Standard Code, Cast in situ & and ready-mix concrete, **(ii)RCC:** Introduction to RCC, Role of reinforcement and Materials used for it. Types of steel reinforcements, Characteristic strength, Cover etc.	8
II CONSTRUCTION WITH CONCRETE	**(i) Concrete construction:** Methods of casting concrete: Cast in situ and precast, stages of casting the concrete, significance of formwork, stages of construction for RCC frame structure, role of each component in structural assembly: footings, column, beam, slab, types of slabs and floor systems in concrete, construction of staircase in concrete, damp proofing in concrete slabs, precast concrete components and their connections, modularity of precast construction: use and application.	12
III RCC DESIGN	**(i) Design Philosophies for Reinforced Concrete** - Working stress Method, Ultimate Load Method, Limit State Method. **(ii)Limit state design of RC elements:** Limit state of collapse & serviceability, partial safety factors for material & loading. **(iii)Design for Flexure & Shear:** Stress-strain characteristics of concrete & reinforcing steel, Type of section-under reinforced, over reinforced & balance section, Neutral Axis depth, Moment of Resistance for singly reinforced, doubly reinforced sections. Bond & Anchorage, Development length, splices. •**Design of Beams:** Simply supported, cantilever •**Design of Slabs:** One-way, two-ways simply supported. •**Design of Columns:** Classifications, Assumptions, Design of Short Columns under axial load. •**Design of Foundations**: Design of isolated slopped footing under axial load, Intro to combined & raft footing	16
IV CONCRETE ARCHITECTURE	**(i) Explorations with concrete:** understanding potential of concrete for design creativity, exposed concrete structures, monolithic structures, roof structures, innovations in concrete, designing details in concrete structures	4
V PLUMBING AND SANTITATION DESIGN	**(i) Introduction to plumbing and sanitation:** General Introduction about subject, plumbing & sanitation, City level water supply, treatment, storage & distribution, Building level water supply, treatment, storage & distribution, Rural level water supply, treatment, storage & distribution **(ii) Plumbing and sanitation in buildings:** Various types of Building plumbing & drainage system, Various types of plumbing & drainage materials (pipes & valves), accessories (traps, faucets, bends, sanitary wares), Understanding of various installation & fixing of plumbing & drainage system in different building materials **(iv) Preparing service layouts**: Understanding of Toilet/kitchen & its layout, service ducts, fittings and fixtures, preparing overall service layouts for buildings, **(v) Water efficient design:** Water saving techniques, Rain water harvesting	16

All modules shall be supported with relevant labs/market survey/workshops/model making as per the requirement of the content.

References:

1 Ching, Frank (Francis D.K.), 2014. Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey

2 Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated: patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey

3 Edward Allen,1999. Fundamentals of Building Construction. John Wiley and Sons Incorporation, New York.

4 Dr. H.J. Shah, 2016. Reinforced concrete Vol-I. Charotar Pub., Anand.

5 Shah & Karve. Limit State Theory & Design of Reinforced Concrete. Structure Pub., Pune.

6 IS: 456 - Code of practice for plain and reinforced concrete.

7 IS: 875 (Part I to V) - Code of practice for structural safety of Buildings Loading standards.

8 Bureau of Indian standards,2000. National Building code of India.

9 Nelson Gordon, 1995. Architecture of Building services. B.T.Batsford,.

10 K.N.Dugaal K.N., 1995, Elements of Public Health Engineering. S.Chand & Company, Delhi.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR10303	Course Name		History & Theory of Architecture I			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course objective is to gain knowledge about development of Architecture in the Ancient World and the cultural & contextual determinants that produce the architecture. The course examines Greece & Rome as cultures of major significance in the consciousness of Western civilization and the socio cultural forces that have shaped its artistic & intellectual traditions in ancient & modern eras.

Course Outcome : At the end of the course students will be able

- To understand political, socio-cultural, religious & economic structures that shape Classical period.
- To analyse the formal theoretical, material, pragmatic & conceptual aspects of Classical architecture in relation to cultural context.
- To identify Classical styles and their historical origins.
- To recognize salient features of Classical architecture and corresponding design elements.
- To understand the progression of architectural response to new problems and technologies.

Content

Survey of development and major artistic & technical achievements of Greece & Rome; Survey of societal forces that shaped Greek & Roman world; Introduction to buildings and engineering marvels of the Classical world with emphasis on individual monuments & cityscapes.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References :

1. Copplestone, T. & Lloyd, S., 1971. World Architecture: An Illustrated History. Verona Printed, London
2. Crouch, Dora P., 1985. History of Architecture: Stonehenge to Skyscrapers. McGraw Hill, London
3. Fazio Michael, Moffet Marian, 2008. A World History of Architecture. Laurence King Publishing, London
4. Grant, Michael, 1976. Cities of Vesuvius. Penguin, Harmondsworth
5. Lawrence, Arnold Walter, 1996. Greek Architecture. Yale University Press, New Haven CT
6. Martin, Thomas, 2013. Ancient Greece: 2nd edition: From Pre historic to Hellenistic Times, Yale University Press, New Haven CT
7. Watkin, David, 2005. A History of Western Architecture, 4th Edition, Laurence King, London

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR10304	Course Name		Liberal Studies & Life Skills III			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

1. History of Arts

History of Art means the visual arts which may be defined as any activity or product made by humans in a visual form for aesthetical or communicative purposes, expressing ideas, emotions or, in general, a worldview. This elective course emphasizes a deep conceptual understanding of art historical concepts. Students will develop the essential skills of visual and contextual analysis. By examining works of art from diverse cultures and the relationships among these works, students develop an understanding of global artistic traditions. This elective would cover.

- Understanding of the basic terms, facts, and concepts in art history
- Comprehension of the progress of art as fluid development of a series of styles and trends that overlap and react to each other as well as to historical events
- Recognition of the basic concepts inherent in each style, and the outstanding exemplars of each.

2. Traditional Indian Arts

Indian folk artistry is uniquely recognized all over the world not only for richness of aesthetics but also as indicators of age-old habitual belief. Different religions, sects and beliefs have co-existed throughout Indian traditional life. The rural society's needs for art and craft objects are supplied by the local artists and craftsmen which are mainly of three types viz ritualistic, utilitarian and individualistic.

There are many kinds of ritualistic traditional art like Patachitra, Pichvai, Alpana, Kolam etc. Decorative wood carving, embroidery, basket work, earthen ware etc. are among the typical utilitarian folk art. These are made by rural artists without any formal training, and most of these designs are repeated generation after generation. After studying this elective, the learners will be able to:

- Describe the background and region of Traditional Arts of India.
- Identify the different regional traditional arts forms of India.
- Explain the medium, techniques and styles of these traditional arts.
- State the designs and motifs used in folk art.

3. Art Appreciation

The purpose of Introduction to Art appreciation is to provide students with an understanding of the diverse ways in which cultures construct and represent their realities. Through thematic examination of both historical and contemporary art, students will acquire formal analysis skills to describe works of art and techniques of art production. Further building upon formal analysis, students will critically interpret and contextualize visual art forms.

Through this course, students would learn how to understand art by analysing it from several points of view. Subjects and symbolism, historic and cultural context (the "what" of a work), materials and techniques, elements and design principles (the "how" of a work), all come into play. Considering the "whys" behind works of art, however, may further enrich their appreciation of art.

4. Film Appreciation

This course would provide an introduction to the narrative and stylistic techniques used in filmmaking in order to more fully understand how meaning is constructed, conveyed, and interpreted in film. In a participatory interactive format, students would critically explore thought-provoking films and the creative approaches behind them, actively engaging with each work and developing their informed perspective through sessions, facilitated discussion, readings, movie screening and activities, and online blogs. Students will also explore areas and aspects of film criticism like genre studies, mythic structures and some of landmark modern and postmodern examples of world cinema.

Note: Four modules of 04 weeks each will be offered for life skill course.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR16305	Course Name		Building Information Modelling -I			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on "3D Modelling and Building Information Modelling" which enables students to represent ideas in third dimension and study Building Simulation.

This course introduces students to the fundamental techniques of creating 3D model with all relevant technical data. The course also enables students to analyse technical data, understand estimation, energy consumption, wind analysis, etc. The course develops appropriate computer aided skills for visualization and technical representation of built forms in different types of drawings.

Course Outcome

After completion of this course, the student will be able to:

- Visualise and explore architecture in volume, built mass, materiality simultaneously.
- Understand life cycle of a building/project from planning, design, construction to operations.
- Generate technical drawings – Working drawings.

Content:

Revit Architecture Basics with exploring the User Interface, Revit Elements and Families, Fundamental of Massing Studies and Creating / Modifying Topographic surface.

Basics of the Building Modelling including creating and modifying levels and modifying grids, adding Structural System, Creating a Basic Floor Plan, learning Editing Tools and Using pre-loaded families and generating-modifying families.

Generating Estimation and Working Drawing along with block cost estimate and understanding printing layouts, sheets, etc.

Rendering along with modifying model and setting up views for Rendering along with animation and understanding basics of building Simulation.

Modules	Description	Hours
I **Exploring Software**	• Understanding applicability of software • Learning tools and its application • Learn to analyse site features like topography, generate topographical site model, etc.	6
II **Building modelling**	• Learning to create floor plans with all required technical inputs like material, structural system, and all	10

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

	building elements. • Understand volumetric explorations, massing considering architectural design.	
III Technical Output	• Learn to extract technical data like estimation, material quantity, construction phases, etc. • Learn to generate working drawings • Learn to set sheets, panels in different scales	6
IV Rendering	• Learn to set views • Learn to render animation	4
V Building Simulation	• Introduction various building simulations like Performing Energy Analysis, Analytical Assessment of Building envelope and other building elements.	6

References:

1 Lance Kirby,2017. Eddy Krygiel, Marcus Kim, 'Mastering Autodesk Revit', Wiley, Newyork.

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR14306	Course Name		Professional Elective 3 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

306.1 Basics of Animation

Basic Animation is an elective course for traditional animation. This elective would provide students the fundamental skills to produce traditional animation and the knowledge of the principles of animation to be built upon in subsequent courses leading up to the Portfolio course. Students can also apply skills learned in this class in other areas including motion graphics, stop motion and computer generated animation. This elective is based around examination of concepts, characters and storyboards for basic animation production with major emphasis on creating movement and expression utilizing traditional or electronically generated image sequences. This elective would include design, storyboarding, stop-motion and character animation. Gives students a working knowledge of animation techniques necessary to design animation sequences.

306.2 Pottery

This elective would introduce students to experiment with pottery craft. Emphasis will be placed on the design elements; line, shape, texture, and color. Focus will be on the hand building techniques; pinch, coil and slabs. Functional as well as sculptural applications will be explored. Introduction to traditional and historical pottery and ceramic arts will be incorporated into the studio experiences. Students will be introduced to the craft of wheel thrown pottery on a limited basis. Various glaze and decoration techniques for finishing work will be introduced in later classes.

306.3 Earthen Architecture

One third of the world's population is believed to be living in structures that are at least in part made of earth and the techniques used to build them are extremely varied. They include raw adobe bricks,

compressed mud blocks, wattle and daub and more. Structures partially or wholly constructed with earth—some of them are erected and maintained by entire communities drawing on ancestral knowledge systems. Studying and maintaining earthen architecture is important for the safeguarding of heritage sites but earthen architecture also offers attractive solutions for environmentally friendly buildings in the modern context. This elective course would give exposure to students about traditional and contemporary practices associated with the Earthen Architecture.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR18307	Course Name		Transdisciplinary Open Elective 3 B			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Important Note:

- Refer Annexure for the Transdisciplinary Open electives to be offered by institutes of Sarvajanik University to students of Faculty of Architecture, IDPT. A comprehensive List of the electives will be available on Sarvajanik University Website.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	IV			Effective From	June 2021		
Course Code	BRAR13401	Course Name		Habitat Design Studio			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis is on learning architecture with an emphasis on social behaviour, culture, and the varying needs of institutionalising places for society at large. It aims to promote research and analysis of societal values and culture; along with understanding traditional and emerging typologies of house and housing along with creating an understanding from making choices for typology or evolving new ones. It focuses on exploration of the sensitive socio-cultural issues that need institutional and organisational solutions and study of traditional and contemporary settlements to understand the basis of formation of settlement and study various social and cultural systems prevalent in the community. It examines community and culture as an important aspect of habitat studies and introduction to the terms like typology, prototype and community spaces to understand various attributes of settlement pattern.

Course Outcome

On the completion of the course the student will be ableto:

- Acquire an in-depth understanding of theories behind evolution of housing typology and their transformation.
- Develop an understanding for design of 'A House' as a basic module of architecture.
- Develop skills for documentation and analysis of settlements and decoding its patterns.
- To explore housing design as an act of dealing with multiple units as a resultant of variety of issues including socio-culture, economics, community and regional siting.

Content

The primary content of the studio will deal with two specific issues of architecture design, starting from the basic module of 'A house' and then culminating into housing design in the second half of the semester. Both the modules will be inter-related but designed in a manner so as to derive learnings as a 'part to whole' and 'whole to part' process. It is envisaged to give variety of conditions to students including various attributes of physical context, community, economic conditions and technology to encourage comparative learning. Special focus will be given to design of community open spaces as an important element of housing design. Understanding of development control regulations and the implications of the same on design will also be introduced to the students as a part of the process.

Modules	Description	Hours
I DESIGNING	The Integrated Module shall address the following aspects: • Developing an overall understanding about designing an individual	112

A HOUSE	house. • To learn the process of developing design brief, site analysis, climate study, and space planning. • Understand the history of Modern Architecture, and seek inspiration from the master architects in their individual design. 4. Developing understanding of Steel as a construction material and exploring its potential in architectural design • Provide avenues and opportunities for the students to communicate their ideas through speech, writing and graphics. • Learning basics of Electrification and Lighting, and create opportunities for students to exhibit this learning • Basic understanding about the rules and laws governing design of the house	
II FROM HOUSE TO HOUSES	The integrated module shall address the following aspects. • Developing an overall understanding about designing a cluster of houses (about 20-50 units). • To learn the process of developing design brief, site analysis and climate study. • Understanding the fundamentals of Site Planning, Landscape, Open Space Network, Circulation Movement, Parking and Pedestrian-Automobile Segregation. • Learn about the two way relationship between the Dwelling Unit Design and the Master Plan Design. • Learning about good mass housing from the Modern Architecture history, and applying those ideas/ principles into the design. • Developing understanding of Steel as a construction material and exploring its potential in architectural design • Provide avenues and opportunities for the students to communicate their ideas through speech, writing and graphics. • Learning basics of Electrification and Lighting, and create opportunities for students to exhibit this learning • 9. Basic understanding about the rules and laws governing design of the house	112

References:

1 Amos Rapoport,1969. House Form & Culture. Foundations of Cultural Geography Series.
2 Charles Correa, 1999. Housing & Urbanisation. Thames & Hudson, Newyork.
3 Christian Norberg Shulz,1993. The concept of Dwellings. Rizzoli Intln. Inc, Newyork.
4 Amos Rapoport,2005. Culture Architecture & Design. Locke Science Publishing Co., Chicago.
5 Gautam Bhatia,1991. Laurie Baker – Life Works & Writings. Penguin Books, India.
6 Claude Bluderlein & Others, 1994. Shigeru Ban-Humanitarian Architecture. Aspen Art Press/D.A.P., LA

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	II	Version	1.0
Semester	IV	Effective From	June 2021
Course Code	BRAR12402	Course Name	Building Technology: II (Construction, Structure & Services)

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course introduces "steel" as a popular construction material and develops a comprehensive understanding of its multiple application in building design and construction. The emphasis is "to learn to design with steel" by knowing its physical and structural properties, its design and behavior as an independent structural component of an assembly as well as a complete structural system, connections details of components and methods and technology of execution. Along with steel construction, the course also focuses upon understanding electrification as an important service system of the building.

Course Outcome

After completion of this course, the student will be able to:

- Understand properties of steel as building construction material as well as finishing material and relate its use and application in building design
- Understand different steel sections, components, their types, joinery-connections and construction methods and relevant I.S. codes.
- Understand steel structural systems and design components of steel structures – truss members, beam, column & footing
- Investigate the challenges related to designing with steel frame construction
- Recognize the significance of integrating electrification services in design and execution
- Apply and integrate the knowledge gained through this course in design studio projects

Content

(i)Steel construction: Materiality of steel, structural steel and configurations, strength and behavior of the material, different steel sections & its analysis, structural planning and systems in steel, steel trusses & its selection, loads on trusses, components of steel frame: Column, beam ,slab : their types, joinery-connections and integrity, insulation needs, steel floor systems, steel wall systems, steel roof systems, composite panels, Façade details in steel frame system, insulation systems, steel system as prefab-modular construction, container structures, sustainability with steel construction: reuse and recycle

(ii)Steel Design: Philosophy of Limit state design, Design of member (single & built-up sections) subjected to axial force -Tension members & Compression members, elastic buckling of slender member, lacing & battening. Design of laterally restrained beams, Design of steel footing (slab based, gusseted based), Connections in steel structures.

(iii)Building services: Understanding electrification as an integral design service including technical knowhow about types of wires, cables, lights, electrical layout and its execution.

Modules	Description	Hours
I STEEL: A POPULAR BUILDING MATERIAL	(i) Properties of steel: Introduction to steel as a structural building material, properties of steel, strength of steel, grades of steel, relevant IS Codes for specifications of structural steel (ii) Steel as a construction material: Manufacturing of steel components, Introduction to various sections, use and application in building construction, versatility of steel, potential of reuse and recycle-sustainability aspects, aadvantages & disadvantages of steel construction.	4
II CONSTRUCTION WITH STEEL	(i) Building construction with steel: Steel frame construction method, prefabrication of steel components, process of manufacturing, on site assembly and integration, execution and construction technologies (ii) Building components in steel: steel wall systems, steel floor systems, steel roof systems, integration of services in steel frame construction, composite panels, Façade details in steel frame system, insulation systems, steel system as prefab-modular construction, container structures, design details in steel	12
III STEEL DESIGN	(i) Philosophy of Limit state design: Limit state of collapse & serviceability, partial safety factor for material and loading, Type & behavior of sections – Plastic, compact, semi-compact, slender. (ii) Design of member subjected to axial force: (a) Tension member: types of members, behavior, modes of failure, Design of tension member. (b) Compression member: types of members, behavior, classification of sections, possible modes of failure, elastic buckling of slender member, design of compression member having single & built-up section, lacing & battening. (iii) Design for Beams: Type of sections, classification, Design strength of laterally restrained beams, shear strength, deflection, web buckling & crippling, Design of simply supported beam. (iv) Design of steel footing: slab based, gusseted base foundation (v) Connections in steel structures: truss joints, Beam column connection & Column –Footing connection.	28
IV ELECTRIFICATION	(i) Introduction to Electrical Services: General Introduction about electrification as an important design service, Understanding components and accessories like wires, cables, switches, DBs, MCBs etc. with materials (ii) Electrical Layout: Preparation of electrical layout and parameters to design that, execution of electrical layout, installation systems and materials for that, importance of service duct, electrical room (iii) Lighting Design: Natural & Artificial lighting, importance of lighting in architecture, Types of lights & lighting system, (iv) Sustainability parameters: Energy efficient lighting, building automation, Electrical energy generation through various ways	20

References:

1 Ching, Frank (Francis D.K.), 2014. Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey

2 Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated: patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey

3 Schultz Helmut C, 2000. Steel Construction Manual. Birkhauser

4 Lecuyer Annette,2003. Steel and beyond, New Strategies for Metals in Architecture. Birkhauser Verlag AG

5 Hall Fred, 2009. Building Service Handbook, Elsevier.

6 Uppal, S L., 1996. Electrical Wiring, Estimating and Costing, Khanna Publishers, New Delhi

7 Ramamrutham S. & Narayanan R., 1986. Design of Steel Structures. Dhanpatrai & Sons, Delhi.

8 IS: 800 – 2007, Code of practice for General Construction in steel

9 IS: 875 - (Part I to V) - Code of practice for structural safety of building loading standards

10 SP: 6(1) - Structural steel section

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR10403	Course Name		History & Theory of Architecture II			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis is on gaining knowledge of development of architectural form as a complex dialogue between needs of the period, forms of the past, styles, technology, climate & cultural aspirations. The course also examines religion as a major force in structures of Europe & India.

Course Outcome : At the end of the course students will be able to

- To identify key events which express / define change over the time period c500 – c1500 in Europe.
- To analyse cause & effect relationships and multiple causation in historical events.
- To trace the development & dispersal of Christianity.
- To identify features & characteristics of Christian church architecture in the medieval period.
- To trace the development of early Hindu temple form.

Content

Key political, economic, social & cultural concepts & activities of medieval period in Europe; Christianity as a determinative aspect in architecture, visual arts & society of medieval period; Overview of Christian architecture of Europe during early Christian, Byzantine, Romanesque & Gothic periods; Inception & development of Hindu temple form with respect to planning principles & design elements, development of regional styles and manifestations thereof.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References :

1. Brown, Percy, 2010. Indian Architecture : Buddhist and Hindu Period. DB Taraporevala & Sons
2. Ching, Francis, 1943. A Global History of Architecture. John Wiley & Sons, New Jersey
3. Erland-Brandenburg, Alain, 1995. Cathedrals and Castles: Building in the Middle Ages. Abrams, New York
4. Fletcher, Sir Banister, 2012. A History of Architecture. Cruikshank, D., Ed, CBS Publishers, New Delhi
5. Grover, Satish, 2003. Buddhist and Hindu Architecture in India. CBS Publishers, New Delhi
6. Kramrisch, Stella, 1976. The Hindu Temple. Motilal Banarassidas Publishers, New Delhi
7. Overy, Richard, 2009. Complete History of the World. HarperCollins Publishers, London

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	IV			Effective From	June 2021		
Course Code	BRAR10404	Course Name		Liberal Studies & Life Skills IV			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

1. Public Speaking

This course would be an introduction to speech communication which emphasizes on the practical skill of public speaking, including techniques to lessen speaker anxiety, and critical skills to enhance speaker presentations. Its goal is to prepare students for success in typical public speaking situations and to provide them with the basic principles of organization and research needed for effective speeches. This course should cover following aspects of public speaking.

- Plan and prepare speeches that inform, persuade, or fulfil the needs of a special occasion and juries.
- How to outline speeches in a logical and thorough fashion.
- Analysis of audience and design of speeches accordingly.
- Evaluate speeches based on a variety of verbal and non-verbal criteria;
- Understand and explain the communication process.

2. Communication Design

Communication Design course includes the latest knowledge and technology focused on the future direction of visual communication and its diverse practices. This course will touch upon basics of graphic design, advertising, corporate branding, product packaging, publishing, web design. Students will gain basic understanding of communication design across a broad range of media. Students will gain exposure for the communication imperative in a commercial environment and learn how to respond confidently to design problems.

3. Branding and Marketing

In today's market scenario, almost any product can be transformed into a commodity with the aid of branding, replication, and marketing it for success. In this course, students will learn basics of branding and marketing. Effective Case studies will be used to develop analytical and brand management skills. Lectures and discussions on change management will provide requisite skills to

implement brand marketing initiatives. By the conclusion of the course, participants will understand the key variables to successful Branding and marketing.

4. Creative writing, Journalism and Mass communication.

This course is intended to equip students with the essential skills needed for creative writing, Journalism and mass communication.

- The course seeks to equip students for creative writings, journalism and mass communication through a hands-on approach to data gathering, editing and the design aspects of production.
- The course aims to provide students with a grounding in local/national/global realities with a view to enriching their competence/readiness for the field, and to enable them to be responsible, socially-aware practitioners of knowledge and provide students with a thorough grounding in the expressive possibilities of the language.

Note: Four modules of 04 weeks each will be offered for life skill course.

SARVAJANIK UNIVERSITY			
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	II	Version	1.0
Semester	IV	Effective From	June 2021
Course Code	BRAR16405	Course Name	Building Information Modelling -II

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on "Parametric and Computational Design" which enables students to represent complex forms and ideas in third dimension.

This course introduces students to the fundamental techniques of creating complex 3D models with all relevant technical data and convert ideas into reality to execute the building. This course enables students to overcome limitations in representing fluid or parametric architecture.

Course Outcome

After completion of this course, the student will be able to:

- Understand parametric architecture
- Explore complex forms in design through Rhinoceros and Grasshopper
- Understand Inspection and analysis of design

Content:

The course consists of 3D Model Creation Tools, Editing of elements, Rendering and Presentation, Drafting tools- Layout management, scaling, lettering, rendering, etc. in Rhinoceros. In addition to basic tools introduction to Digital fabrication, Mesh Tools, Inspection and analysis of Design will be done. The semester will conclude with introduction to Grasshopper and its applicability.

Modules	Description	Hours
I **Exploring Software**	The module focuses on exploration, understanding potential and applicability of Rhinoceros (latest version). Understanding user interface, tools and its application in developing complex 3D model and its complex form.	6
II **Building modelling**	The module focuses on developing 3D model through small exercise(s). Understanding of editing tools, its applicability in modifying the model. 3D model focuses on resolving complex structural systems in accordance of materials.	10
III **Technical Output**	Design relies on technical illustration and 2D drawing to concisely communicate ideas, specifications, and instructions to people in design, development, and fabrication. Goal to learn Rhino is to make it easier to create 2D drawings and	6

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

	illustrations for every discipline in every notation system and visual style used around the world. Annotation objects include arrows, dots, dimensions, text, dimensions and notes.	
IV Rendering	The module focuses on output of the model generated in rendered manner. Setting up views, scaling of materials according to scale of drawings, setting up layouts and render animation as outcome.	4
V Inspection and Analysis	This module focuses on inspecting and analysing form, geometry and its stability. Rhino & Grasshopper has a highly optimized plug-in for day lighting and energy modelling. Various plug-ins allow users to carry out a series of environmental performance evaluations of individual buildings and urban landscapes. Introduction to Grasshopper and is application with Rhino.	6

References:

1 Handbook of Rhinoceros website

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	IV			Effective From	June 2021		
Course Code	BRAR14406	Course Name		Professional Elective 4 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

406.1 Film Making & Editing

This elective course serves as an introduction to the art of film making and post-production. Students would be exposed to the theory and practice of various editing styles in order to gain a better understanding of how stories are constructed in the editing room. Through demonstrations and hands-on experience, students learn advanced editing techniques. To further enhance projects, students would create small documentaries. Strong emphasis is placed on post-production techniques that improve the sound and image quality of the videos. Footage is provided for all exercises and projects. However, students are given the option to shoot new material for their final projects if desired.

406.2 Synergy between Structure, Form & Architecture

This elective course will provide introduction to structure as an integral part of architecture.

The course examines relationship between Structure, Form and architecture, basics of structural forms, their properties, material used, pros & cons to make decision to select appropriate form. This elective will cover the following topics: Synthesis of structure in architecture towards space planning, Structural transformation in Architectural history; Evolution of structural systems; Basic structural properties; Basic structural typologies & Structural Arrangements.

Students will explore the relationship between Structure & Architecture to create a synergy between them and to make the space creation structurally strong, stable, and functionally optimised and aesthetically pleasing through design exercises and case studies.

406.3 Bamboo Architecture

Bamboo architecture elective course will provide students with a foundation in Bamboo construction to inform their work as designers and environmental advocates. This elective would cover botany, traditional craftsmanship, engineering, biophilic design, and the fundamentals of sustainable bamboo architecture. Every topic is supported by theoretical lectures and practical workshops. Participants will also have the opportunity to meet and engage with bamboo innovators, entrepreneurs, and designers.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	IV			Effective From	June 2021		
Course Code	BRAR18407	Course Name		Transdisciplinary Open Elective 4 B			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	100	--	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Important Note:

- Refer Annexure for the Transdisciplinary Open electives to be offered by institutes of Sarvajanik University to students of Faculty of Architecture, IDPT. A comprehensive List of the electives will be available on Sarvajanik University Website.

SARVAJANIK UNIVERSITY			
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	III	Version	1.0
Semester	V	Effective From	June 2021
Course Code	BRAR13501	Course Name	Design Realisation Studio

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis of the studio is on developing an understanding in students for handling complex nature of programme and to analyse behaviour and performance of buildings. It is intended to introduce students to the concepts of looking at various technological tools available to make buildings more efficient in their performance by the use of passive as well as active techniques. Specific emphasis will be on understanding advanced structural systems and services and their integration into architectural design.

Course Outcome

On completion of the course the student will be able to;

- Create and detail of complex programme and requirement to initiate a project.
- Develop a thorough understanding of design and performance analysis of utility and multi-functional programmes.
- Integrate Services and System integration in architectural design
- Understand daylight analysis, consumption of resources and optimisation for the same as per a given rating system (GRIHA, LEEDS-IGBC, etc.)
- Calculate quantity and will be able to mention the specifications for design and construction.

Content

The content of the studio will predominantly cover two major aspects of architectural design such as formulating a complex programme and detailing the requirement. The architectural programme shall be of some public infra project which supports the city functioning and involves systems integration for students to understand the aspects of incorporating building services and advanced technologies while designing. Understanding of the role of the automobile and its impact on the design of public buildings is also an important aspect for the studio. Fundamentals of high-rise building design with respect to the structure, materials, services, vertical circulation, climate, architectural expression & functionality and the structure & shell behaviour with respect to seismic and wind forces will also be included in the project formulation.

Modules	Description	Hours
I BEYOND HABITAT	The Integrated Module shall address the following aspects: • Discovering the various types of non-residential buildings which are needed by the civilisation. • Attempting to quickly design these small scale structures (preferably not exceeding 2000 sq m) of various kinds - Public	112

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

	Utility Structures, Offices, Boutique Hotels, Amusement Centres, Small Auditoriums. • Learning to resolve Facades, and to plan for services like Plumbing, Electrification, Vertical Transport and HVAC, in these buildings. • Most of these places being public places, learning to address the issues of mass circulation, parking provisions and behavioural patterns. • Learning to adhere to the applicable building byelaws and rules of the land. • Keeping in mind the buildability of the buildings being designed in terms of structure, fenestration, and services.	
II CONSTRUCTION DETAILING	The integrated module shall address the following aspects. • The prime objective is to understand the transition of a design from concept design to the actual construction detailing, so as to make the student aware about the practical aspects • To understand the relation between the material and its suitability for the building function and the building expression. • Understand how a building comes together in terms of its construction and utilities • Experience a process and sequence of breaking down the building into steps so as to create samples of construction drawings and details. 5. Provide practical experience about the kind of issues that arise at the site while realising the designed building • Learning to resolve and validate the structural member system and size appropriate for the building being detailed out.	112

References:

1 Koolhas, Rem & Bruce Mau, 1995. S,M,L, XL. The Monacelli Press, Newyork.
2 Ingels, Bjarke 2015. Hot & Cold. Taschen, Germany.
3 Ashuhano, Yoshinobu, 1981. Exterior design in architecture, Van Nostrand Reinhold, Newyork.
4 Sarkisian, Mark, 2016. Designing Tall Buildings. Routledge, Oxford.
5 Edward Allen, Patrick Rand, 2016. Architectural Detailing: Function, Constructability, Aesthetics. Wiley, New York
6 Aksamija, Ajla,2013. Sustainable Facades: Design Methods for High Performance Building Envelopes. Wiley, New York.
7 Stitt, Fredd A, 1990. Architects detail library. Van Nostrand Reinhold / Wiley, New York.
8 Rangwala, S.C., 2017(17th Edition) – Estimating, Costing & Valuation. Charotar Publishing House, India.

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Faculty	Architecture	Programme	B.Arch.
Year	III	Version	1.0
Semester	V	Effective From	June 2021
Course Code	BRAR12502	Course Name	Building Technology-III (Advanced Construction, Structure & Services)

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course introduces systems for designing tall structures, significance of lateral stability and fundamental concepts for designing earthquake and wind resistant buildings. The emphasis is "to learn to design tall structures with distinct structural systems" and "to understand the significance of integrated design decisions for successful performance of building against different challenging conditions". Understanding of Vertical Transportation and HVAC systems as an integral service component of design decision is emphasized. Along with this, the course also explains challenges of constructing specialized projects like designing underground, designing in flood prone zones, designing on reclaimed land, designing waterfront structures etc. and technological and structural considerations to address that.

Course Outcome: After completion of this course, the student will be able to:

- Understand different concepts, systems and technology for designing tall structures
- Understand lateral loads (Wind and Earthquake), its impact on buildings and behavior of components as well as whole building
- Understand fundamental concepts, systems and technology for designing earthquake resistant and wind resistant buildings.
- Know systems of vertical transportation and HVAC, its working principles, technical requirements, components, execution and integration in building design
- Apply the knowledge gained through this course in design studio projects

Content

(i)Tall Structures: Understanding Tall structures/Skyscrapers, Different types of structural systems for designing tall structures, Interior Structures & Exterior Structures, materials and construction technology for tall structures

(ii) Lateral Loads on Buildings: Understanding Lateral Loads, Effect of lateral load on Buildings, Guidelines for building Orientation, Form, Aspect ratio,

(iii) Earthquake Resistant Design: Understanding fundamentals of earthquakes, behavior of various structural & nonstructural elements during earthquakes, Seismic Design Philosophy, Ductile detailing & Various Indian standard Seismic Codes Concept of damping systems.

(iv) Designing for specific concerns: underground, underwater, reclaimed land, flood prone zones

(v) Building Services: Design of vertical transportation and HVAC for building and its integration strategies.

Modules	Description	Hours
I Design Of Tall Structures	(i)Tall Structures – Skyscrapers: Evolution, Need, History, Challenges, Loads on Tall structures: Gravity and Lateral Loads, Effects of loads with reference to orientation, form, aspect ratio, components, materials. (ii)Structural System for tall structures – Shear Frames, Interacting Systems, Partial Tubular Systems, Tubular Systems. Classification of Structural System- Interior Structures &Exterior Structures. (a)Interior Structures -Braced Hinged Frames, Rigid Frames, Shear Wall Hinged Frames, Shear Truss- Frame Interaction System, Outrigger Structures. (b)Exterior Structures – Tube System, Diagrid System, Space Truss Structures, Super frames Structure. (iv) Design aspects for Lateral Force Resistance: Building Form -plan & elevation, orientation of building, aspect ratio, damping systems.	16
II Tall Structures _Construction Technology	(i) Construction technology for tall structures: Introduction to tall structures, history and evolution of tall structures in the context of material innovation and technological inventions, challenges in execution, role of foundations/substructures, specialized equipment, methods, technology	4
III Specialized Construction	(i)Specialized Construction: Introduction to projects of special situations like designing underground, designing in flood prone zones, designing on reclaimed land areas, designing waterfront structures etc., challenges in execution of such specialized projects and technological and structural considerations to address that.	4
IV Earthquake Resistant Design	(i)Earthquakes: Causes of Earthquakes, Ground shaking, Magnitude and Intensity, Seismic Zones in India (ii)Effects of Earthquake: Seismic Effects on Structural components and Architectural Features, twisting of Buildings during Earthquakes. (iii)Seismic Design Philosophy: Building Ductility-Flexibility and its effect on buildings, Indian Seismic Codes. (iv)Non-Engineered Construction under earthquakes: Behaviour of earthen buildings and, brick-stone masonry buildings during earthquakes. (v)RC buildings under earthquakes: Behaviour of RC structures and its vulnerable components during earthquakes, Risky Seismic Performance of Reinforced Concrete Frame Buildings with Masonry Infill Walls. (vi)Non-structural Elements: Behaviour & Protection of Non-structural Elements against Earthquakes.	16
V Vertical Transportation	(i)Introduction: Understanding Vertical Transportation, its importance in architectural planning, Historical background, present scenario & future of vertical transportation, (ii)Technical Understanding: Various Types of lifts, escalators & travelators, Technical knowledge to install lifts, escalators & travelators, advanced vertical transportation system, service core, Understanding NBC & DCR to install Fire Safety requirements, understanding of preparing vertical transportation layout	10
VI HVAC In Buildings	(i)Introduction: Importance of HVAC in architectural planning, Historical background, present scenario & future of HVAC, (ii)Technical knowhow: Active & Passive cooling and heating techniques, General understanding of cooling, AC working & calculating capacity, Various types of AC systems, Technical knowledge to install various Acs, Understanding of Service & AC duct, Advanced systems, understanding for preparing HVAC layout, Design, structures and services Integration strategies	10

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination,
UE- University Exams(Jury/Viva/Theory Exam)

References:

1 Ching, Frank (Francis D.K.), 2014. Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey

2 Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated: patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey

3 Terranova, Antonino,2008. New Urban Giants: The Ulti mate Skyscrapers. White Star

4 C.V.R.Murty, March 2005. Earthquake Tips: Learning Earthquake Design and Construction. National Information Center of Earthquake Engineering, (NICEE), Indian Institute of Technology, Kanpur.

5 Guidelines for earthquake resistant non-engineered construction, International Association for Earthquake Engineering (IAEE), National Information Center of Earthquake Engineering (NICEE), Indian Institute of Technology, Kanpur.

6 Hall Frederick E., 2016. Building Services and Equipment Vol.- 1,2,3, Routledge.

7 Goetz, Alisa A., 2003. Up Down Across: Elevators, Escalators and Moving Sidewalks. Merrell.

8 Hordeski Michael F., 2001. HVAC Controls in the New Millennium. The Fairmont Press.

9 Bureau of Indian standards, 2000. National Building code of India.

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Faculty	Architecture			Programme	B.Arch.		
Year	II			Version	1.0		
Semester	III			Effective From	June 2021		
Course Code	BRAR10503	Course Name		History & Theory of Architecture III			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis is on architectural movements and buildings central to the periods of European Renaissance and Enlightenment, formulation of new typologies, architects' response to new materials & technology as well as personal aspiration. It also covers developments in visual arts with respect to changes in regimes of representation and media. The course examines the advent of Islam.

The theory course introduces critical thinking about architecture through the studies of architectural theories.

Course Outcome : At the end of the course students will be able to

- To understand the overall chronological & stylistic progression within European architectural tradition during Renaissance & Enlightenment.
- To recognize salient features due to changing perception and personal visions of Architects and artists.
- To understand social, political & cultural factors involved in the production of built environment.
- To understand the art world of the period and contribution of outstanding artists.
- *Theory – to develop ability to research critically assess discuss and document theoretical concepts & tenets against a general framework of architectural theories*
- *To develop their own personal approach towards architectural design theory.*

Content

The Renaissance in Italy and Age of Enlightenment with focus on High Renaissance, Baroque, Rococo in sacred & secular buildings through study of selected examples; Influence of Islam on world polities and Islamic period of expansion; Survey of sacred, commemorative, secular architecture in the Islamic world with special focus on India during Sultanate & Mughal periods.

Theory – History of Architectural theories from Vitruvius to early 20th century and some major tenants & concepts running through architectural discourse.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the

context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References:

1. Asher, Catherine, 2001. Architecture of Mughal India. Cambridge Univ. Press
2. Grover, Satish, 2002. Islamic Architecture in India. CBS publishers, New Delhi.
3. Juneja, Monica, ed.2001. Architecture in Medieval India: Forms, Contexts and Histories. Permanenet Black, New Delhi.
4. Mallgrave, H.F.(ed), Architectural Theory Vol 1: An Anthology from Vitruvius to 1870. Blackwell Publishing, Victoria
5. Murray, P., 1971. Renaissance Architecture. Abrams, New York
6. Norberg-Schulz, 1965. Intentions in Architecture. MIT Press, Cambridge
7. Norberg-Schulz,1971. Baroque Architecture. Abrams, New York

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	III			Version	1.0		
Semester	V			Effective From	June 2021		
Course Code	BRAR16504	Course Name		Site Planning & Landscape			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course primarily aims to develop understanding of site condition, nature of soil, topography, natural and manmade features and complexity related to it. Site planning involves arranging structures on the land and shaping spaces between them; it creates link between architecture and landscape. The site plan locates built spaces, unbuilt spaces and activities on the site. Understanding of site context, responding to site's context and cultural aspects would be developed.

The course also focuses on integrating landscape with the architecture. Understanding elements of master planning and developing a sensibility towards elements would be the outcome of the course.

Course Outcome

After completion of this course, the student will be able to:

- Classify and analyse site related data.
- Understand site and its context, opportunities offered by the site context and incorporate site features into master plan.
- Understand site development process by analysing natural and human factors affecting the architecture and its expression.
- Understand landscape as one of the major element of masterplan.
- Synthesise the analytical understanding of site and the project.

Content

The course consists of fundamentals of site analysis and its impact on master planning. The course focuses on various methods of site analysis, its representation and converting opportunities into architecture. Introduction to elements of master planning and landscape. Understanding interrelation between architecture and landscape through various modules.

The course opens horizons of landscape architecture with basic knowledge of principles of designing landscape. The course also gives exposure of various materials, vegetation and their applications.

Modules	Description	Hours
I	This module shall focus on understanding site, its features and	6

Site Analysis	methods to analyse the site. The learnings shall be represented through diagrams, statistical data and charts. The analysis shall create base to design master plan and architecture, which is apt for the site context.	
II Elements of Master Plan	The module shall focus on understanding master plan and its elements. Detailed understanding of elements and their role in designing master plan. Understanding interrelation of all elements.	8
III Landscape and its elements	The module shall focus on understanding landscape and its elements. Detailed understanding of various materials, plants, installations, etc. Understand relevance of built – unbuilt spaces and establish connection between built and open spaces.	8
IV Synthesising Masterplan	The module focuses on developing basics of siting the built-unbuilt spaces and establishing dialogues between architecture and site. The module shall give opportunity to synthesize master planning based on learnings of previous modules.	10

References:

1 Thomas H. Russ, 2009. RLA, Site Planning and Design Handbook, Aesthetics, MC Graw Hill.
2 Tim Waterman, 1987. The Fundamentals of Landscape Architecture, Bloomsbury Academic.
3 Grant W. Reid, 1987. Landscape Graphics.
4 Norman Booth, 2011. Foundations of Landscape Architecture: Integrating Form and Space Using the Language of Site Design. Wiley, New York.
5 Pradip Krishen, 2006. Trees of Delhi: A Field Guide. Penguin, India.

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Faculty	Architecture			Programme	B.Arch.		
Year	III			Version	1.0		
Semester	V			Effective From	June 2021		
Course Code	BRAR14505	Course Name		Professional Elective 5 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

506.1 Product & Furniture Design

This elective aims at providing the basic concepts of Product and furniture design, their features and development so that student can have a basic knowledge in the common features of product and furniture manufacturing and how to incorporate them suitably in design.

After completion of the course, the student is expected to have a basic understanding of:

- Implementing knowledge in furniture and product design with regard to construction, materials and production.
- Understanding relationships between furniture – function – space, and product – function. Considering different materials, such as wood and metal, other new materials, and relating these to their own design.
- Finding a personal approach in creative processes.
- Communicating through their drawings and sketches.

506.2 Biomimicry In Architecture

This elective will introduce the interdisciplinary field of biomimicry. Students will learn essential concepts of biomimicry using multiple perspectives including biology, design and engineering. Biomimicry is the process of learning about and from nature in order to transfer that knowledge and propose innovative solutions to human-related problems. That same process also helps advance knowledge creation in biology and the other supporting fields. Interdisciplinary approach to this elective will make use of examples highlighting convergent themes in biology, design, business and engineering including form-function relationships, waste reduction, life cycles and sustainability. Thus, knowledge obtained in the elective can be used as a framework for students interested in pursuing deeper study in biomimicry as well as a foundation for application to other fields of interest.

506.3 Building Envelope Design

Building envelope design is a specialized area of architectural and engineering practice that draws from all areas of building science and indoor climate control. Technical influences in the design of building envelope, include the control of heat flow, air and moisture penetration, building movements, and deterioration. The elective course would cover brief historical introduction to

building envelopes and evolution of the building envelope in terms of: the functions it performs; atmospheric conditions it mediates between, its relationship to other building-perimeter systems, and the principles of physics and properties of materials employed to perform its functions.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

SARVAJANIK UNIVERSITY			
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	III	Version	1.0
Semester	VI	Effective From	June 2021
Course Code	BRAR13601 Course Name	Master Planning & Architectural Design Studio	

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The focus is on developing a sensibility in the student to build large institution in an existing urban or historical context. On one hand the objective is to learn how to organise large institution, on the other hand, equal focus is on the design of the interphase of the project with the context. The emphasis is also to make students understand the role of formal institution in shaping the city as well as their role in triggering the development for the selected area.

The focus is also to create an understanding regarding the role of institutions as a symbolic landmarks and inculcating knowledge of building making as an Edifice. A major focus of the studio shall be on the skill of developing architectural language of the project as a formal response to a given programme and situation.

Course Outcome

On completion of the course the student will be able to;

- Demonstrate a formal response to create an architectural design with response to context
- Deliver a sensitive response to a situation or issue concerning the humanitarian aspects of design.
- Identify and demonstrate architectural language by the use of various form based, massing based and technology based tools.

Content

The primary goal of this subject is to cover a study of large number and types of institutional architecture, be it through talks, documentaries, books or visits. The importance of architectural building language and vocabulary needs to be dwelled upon and discussed in great detail keeping the masters works in the background. The studio will provide opportunities for the student to improve upon his/her awareness about personal sensitivity, since it would be an important component of the design process. Small modules encompassing inputs in design brief preparation, role of landscape in sustainable development, architectural journalism, role of art in architecture, climatic response related to the location of the site, understanding about local materials, communication ideas and skills, etc would become important part of the studio.

Modules	Description	Hours
I MASTER PLANNING	• The Integrated Module shall address the following aspects: • Learning to deal with large parcels of land, and carry out the Master Planning while dealing with the aspects like Zoning,	112

	Movement, Orientation, Climate, etc. • Fundamentals of Sustainable Design with respect to land utilisation, utilities planning, water management, etc. • Developing understanding about the critical role of Landscape Design in Master Planning. In the process, learn about various aspects of landscape viz. horticulture, irrigation systems, hardscape materials, etc • Exploring the ideas to conceptualise the project by linking it to the philosophical as well as economical aspects. • Getting the grip on the Scale while planning large scale complexes. • Learning to design urban design elements like street furniture, street lighting, signages, gate design and compound wall design.	
II BUILDING EXPRESSION	The Integrated Module shall address the following aspects: • Understanding the relationship between the Intent and the Architectural Expression of the Building • Learning various materials, and technologies, related to the Architectural Expression of the building • Learning to design facades and forms, keeping in mind the climatic performance of the building • Discovering how the building can express Scale, Proportion, Balance, and other visual fundamentals of architectural design through an appropriate Architectural Language. • Learning to use large span structural systems like Folded Plates, Space Frames, etc to obtain the desired form and a logical structural system. • Explore innovative and advanced digital and sustainability technologies and integrating them with the building expression	112

References:

1 Hertzberger, Herman, 2001. Lessons for Students in Architecture. 010 Uitgeverij, Rotterdam.
2 Raskin, Eugene, 1997. Architecturally Speaking. Block Publication Co.
3 Zumthor, Peter,2010. Thinking Architecture. Birkhauser, Basel.
4 Kahn, Louis I.,2011. Conversations with Students. Princeton Architectural Press.
5 Mehrotra, Rahul, 2011. Architecture in India Since 1990. Imprint, Mumbai.
6 Rasmusen, S.E., 1957. Experiencing Architecture. MIT Press, Chicago.
7 Pallasma, Juhani, 1996. Architecture of Senses - The Eyes of the Skin. John Wiley & Sons., England.
8. Chhaya, Neelkanth, 2014. Harnessing the Intangibles-Collected Essays on the works of B.V.Doshi. NIASA, New Delhi.
9 Tillotson G.H.R., 1997. Paradigms of Indian Architecture, Space and Time in representation and Design. Routledge.
10 Venturi, Robert, 1966. Complexities and Contradictions in Architecture. Thames & Hudson, Newyork.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	III			Version	1.0		
Semester	VI			Effective From	June 2021		
Course Code	BRAR12602	Course Name		Building Technology-IV (Advanced Construction, Structure & Services)			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course introduces concept of "large span structures" with its design and construction aspects. The emphasis is "to learn various specialized structural systems that can become the primary determinant of architectural form" and "to understand the significance of structure and architecture as an integrated assembly". In the aspects of Building services, the course focuses on introducing fire safety measures as an intricate part of building design along with its types, technical aspects, and execution methods. Further the course also introduces fundamentals of "Acoustics" including details of materials, installation techniques and performance.

Course Outcome

After completion of this course, the student will be able to:

- Understand different concepts, systems and technology for designing large span structures
- Understand different types of large span structural systems, its relationship with form generation and application of materials for creating structural frames as well as for building skin/envelope or covering
- Understand construction technology for different types of large span structures
- Learn about different measures required for fire safety in buildings and its execution methods as an integral part of design.
- Learn about basics of acoustical details and its application.
- Apply the knowledge gained through this course in design studio projects

Content

- Introduction of large span structures, Classification based on form geometry, structural requirements, structural arrangements, & typology.
- Study of load transfer mechanism, behaviour & stability of various large spans systems along with design, structural and construction issues and technology for execution.
- Understanding of fire safety needs in buildings, different types of fire safety system, technical aspects and execution details, preparation of drawings,
- Understanding "acoustics" for buildings, principles, technical requirements, materials, methods and application of acoustical treatments in buildings, preparing detailed drawings.

Modules	Description	Hours
I Large Span Structures: Introduction, Types, Behaviour, Structural Components, Grids,	(i)Introduction: Concept of large span structures, need, advantages, different types based on material, form & span (ii)Classification: of large span structure based on form geometry, structural requirements, structural arrangements, & typology. (iii)Structural aspects: Study of load transfer mechanism, behaviour & stability of various large span structures like, Plate Girder, castellated girder, Trusses and Space Frames, latticed truss, arches, domes, shells, cable stayed structures.	32
II Covering Materials And Construction Of Large Span Structures	(i)Materials: Different materials used as roof covering, building skin for large span structure, properties, joinery and fixing aspects, sizes, modules and feasibility, material selection criteria, technical issues, (ii)Construction aspects: Execution challenges, Construction Technology, systems and techniques	8
III Fire Safety	(i)Introduction: Importance of fire safety in architecture planning, various types of fires, possible causes for fire, spread and intensity, Role and responsibility of an architect for fire safety (ii)Materials: Detail study about fire sensitive and retardant materials (iii)Technical Knowhow: Understanding of Technical knowledge about firefighting mechanisms, understanding of fire detection, prevention, extinguishers, Various firefighting, retarding, safety equipment & systems and its application, Fire Prevention & safety through planning, NBC & DCR rules regarding Fire safety, understanding of preparing fire escape route layout	12
IV Acoustics	(i)Introduction: Importance of acoustics in architecture, understanding of technical knowledge about sound, its travel pattern and role of acoustic, principles of acoustics, (ii)Acoustical Materials: Study of various acoustical materials, their properties, mode of availability and execution systems. (iii)Design Integration: Points to be consider for Acoustics design through architectural planning, understanding of preparing acoustic layout	12

References:

1 Ching, Frank (Francis D.K.), 2014. Building Construction Illustrated. John Wiley & Sons, Inc. Hoboken, New Jersey
2 Ching, Frank (Francis D.K.), Barry S. Onouye, Douglas Zuberburhler, 2009. Building Structures Illustrated: patterns, systems, and design. John Wiley & Sons, Inc., Hoboken, New Jersey
3 Isabel Kühl, Florian Heine, 2015. The buildings that Revolutionized Architecture. Prestel.
4 Hall Fred, 2009. Building Service Handbook. Elsevier.
5 Nelson Gordon, 1995. Architecture of Building services. B.T.Batsford.
6 Jain V.K., 1996. Fire Safety in Building, New Age. International pubg.
7 Bureau of Indian standards,2000. National Building code of India.
8 Grehant, Bernard., 1996. Acoustics in Buildings. Thomas Telford.
9 Cowan, James., 2000. Architectural Acoustics Design guide. McGraw hill.
10 Crocker, Malcoln J., 1998. Hand Book of Acoustics. John wiley & Sons.

SARVAJANIK UNIVERSITY				
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY				
Faculty	Architecture		Programme	B.Arch.
Year	III		Version	1.0
Semester	VI		Effective From	June 2021
Course Code	BRAR10603	Course Name	History & Theory of Architecture IV	

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis is on overviewing developments in Europe & Asia from mid-18th century to mid-20th century and to relate contemporary problems of the world to their historical antecedents. Further emphasis will be given on understanding the process of colonisation and imperialism with its architecture "of power" in the context of India.

The theory course will give an introduction to key elements of contemporary architectural theories (Post 20th Century)

Course Outcome : At the end of the course students will be able to

- To understand salient developments in the modern world in a historical context.
- To understand growth of political domination and its consequences on economy and polity.
- To summarise changes in Architectural Thought and styles marking the advent of modernism.
- To elaborate changes in idiom of Indian Architecture with the advent of colonial powers.
- *Theory – To differentiate between key contemporary architectural theories and their application to architectural design.*
- *To critique the application of theory in works of contemporary architectural practices.*

Content

Political, social & economic consequences of rapid Industrialisation in the world; Growth of Imperialism with its resultant power struggles and World Wars; Modern movements in architecture – Art & Craft, Art Nouveau, Art Deco, Bauhaus, Chicago School, Prairie School, De'Stijl; Colonial architecture in India with special emphasis on Company Style, Indo – Saracenic Revival through study of selected examples; Study of some canonical Modern architects' works.

Theory-Selected post 20th century contemporary architectural theories and their key elements as applied to architectural design.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy of spaces, building elements, building materials, construction technologies, ornamentation in the

context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local resources, social stratification, religion and religious belief systems, architectural systems, urban planning, cities, visual arts, philosophy and dominant thought will be covered in adequate detail.

References :

1. Desai Madhavi, Lang Jon, 1997. The Search for Identity-India 1880-1980 Architecture and Independence. Oxford Univ. Press
2. Fiske, & Edgell, G.H., 2012. A History of Architecture. Harper & Brothers, New York.
3. Frampton, Kenneth,1994. Modern Architecture: A Critical History. Thames & Hudson, London
4. Tadgell, Christopher, 1994. The History of Architecture in India. Phaidon Press, London.
5. Tillotson, G.H.R, 1989. The Tradition of Indian Architecture: Continuity, Change and the Politics of style since 1850. Yale University Press
6. Tschumi, Bernard, 1994. Architecture and Disjunction. MIT Press, Cambridge Mass.
7. Unwin, Simon,2017. Twenty Buildings Every Architect Should Understand. Routledge, New York
8. Venturi, Robert, 1966. Complexity and Contradiction in Architecture. MOMA, New York

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	III			Version	1.0		
Semester	VI			Effective From	June 2021		
Course Code	BRAR16604	Course Name		Research Methods			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course introduces students to the research process through critical exploration of published research, relevant to their field of interest. The course provides the understanding and use of research terminology and integrates the elements of the research process within quantitative, qualitative, and mixed scientific methods approaches.

Course Outcome

After successful completion of the course, the student will be able to:

- Employ qualitative, quantitative, and mixed research methodologies to conduct research in architecture.
- Apply the research process to problems in architectural design and planning.
- Master the literature in students' particular area of interest.
- Design a research study using relevant approach and methods.
- Critically read, interpret, and evaluate research proposals and publications.

Content

Modules	Description	Hours
I	Introduction to Research and Academic Writing	2
II	Writing a Critical Review - Structure of a Critical Review	2
III	Research Structure - Content of the Scientific Work	4
IV	Developing the Research Problem Statement - Elaboration of Topic-Question-Working Hypothesis	4
V	Elaboration of Research Statement - Research Questions and Hypotheses	2
VI	Critical Review of a Scientific Article	4
VII	Writing the Literature Review	4
VIII	Methods in Scientific Research	2
IX	Developing the Research Proposal - Preparing the Proposal Draft	4
X	Writing a Scientific Research Article	4

References:

1 Kate L. Turabian, 2007. A Manual for Writers of Research Papers, Theses, and Dissertations. Chicago Style for Student and Researchers, 7th edition. The University of Chicago Press.

2 Steven R. Terrell, 2016. Writing A Proposal for your Dissertation. Guidelines and Examples. The Guilford Press.

3 Linda Groat, David Wang, 2013. Architectural Research Methods. Second Edition. Wiley.

4 Margaret Cargill, Patrick O'Connor, 2009. Writing Scientific Research Articles. Strategy and Steps. Wiley Blackwell.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	III			Version	1.0		
Semester	VI			Effective From	June 2021		
Course Code	BRAR14605	Course Name		Professional Elective 6 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

606.1 Visual Culture of Contemporary South Asia

This elective would sets out to explore the field of visual cultures across South Asia, as it has developed at the intersections of disciplinary domains of history, art history, cultural and visual anthropology, film and media studies and heritage studies. It will examine the shifting nature and function of visual imagery in the modern and contemporary era, the changing technologies of production and reproduction, and the different circuits of reception, dissemination and circulation of images. Interdisciplinary in its appeal and content, the elective would introduce students to a wide range of cultural production ranging from painting, photography and popular prints to maps, archaeological relics, religious icons, public architecture and monumental statuary; from sites of display and spectatorship in museums and exhibitions to temples and urban spaces; from worlds of scholarship to those of devotion and tourism; from celluloid images of films and television to the interactive domain of the world wide web. Placing these visual forms and practices within the particular historical and political contexts of colonialism, decolonization, state building and globalization, the course will address broader theoretical concerns about the centrality of nationalism, class, ethnicity, diaspora, religion, gender and sexualities in the constitution of modern and contemporary South Asian public spheres.

606.2 Vernacular Architecture

Vernacular architecture is an architecture style that is built to meet the present needs, keeping in mind the local climate, culture, and materials. But its presence appeared a long time back when the need for "a shelter" had risen, which pushed humans to use indigenous techniques and materials to formulate an optimum solution for themselves. It is evolving because the local conditions proportionally evolve and dispersed because it is purely regional and its diverse nature makes it difficult to be propounded into a singular style with a name. Thus, understanding Vernacular Architecture and its characteristics are very important for architecture students, as it can help regulate the problem of environmental degradation. This elective would create a proper approach for the induction of these vernacular values in architecture students.

606.3 Lighting Design

Lighting design is an intersection of art and technology. The space being illuminated or lighted may be commercial or residential. Other fields of endeavour, such as design, also come into play. Of course, so do physics, engineering and the psychological and physiological effects of light. This elective is focused on all these aspects associated with lighting design. Architectural spaces are designed for a specific purpose, and are sometimes constructed through a specific theme to create such experiences. This elective course would cover following topics;

Introduction: Quantitative vs Qualitative aspects of lighting design.

- Experiencing Architecture: Fundamentals and factors that shape spatial experiences ranging from emotion, memory, imagination, aesthetics, culture etc.
- Seeing Form-Space Relationships in developing lighting strategies.
- A primer to Place-Making through light in architecture.
- Light in Architecture – Conceptual proposal of lighting design for an architectural space using Perception Based Approach.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	IV			Version	1.0		
Semester	VII			Effective From	June 2021		
Course Code	BRAR13701	Course Name		Advanced Architectural Design Studio			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The studio focusses on redeveloping large parcels in a city so as to make them relevant and useful for the city's changing needs. Discussions and building up understanding on the issue of 'Quest for Identity' and 'Sense of Place' in rapidly transforming cities would become an important objective of the studio. Urban study as an important component of contextual studio with a detailed understanding of various urban components that make a city will form an important part of the studio for understanding the impact of architectural intervention on any given site / situation. Large scale development and understanding of Master Planning as an important tool will have a major emphasis in the studio with an understanding of topography, ecological factors, various types of movements, and infrastructural planning.

Course Outcome

On completion of the course the student will be able to;

- Design Master Plans with various aspects including entry, accessibility, positioning and orientation of built form, landscape elements, etc.
- Design with response to the context without remaining limited to the site in isolation.
- Demonstrate an understanding of working whole to part and part to whole and transcending scales

Content

This course would make an in-depth study of the evolution of the city in various cultures. This journey would encompass a journey through the planning logic and large urban surgeries in the history. The impact of industrialisation on the design of the cities, and the endeavours in design of the cities with development of faster modes of commuting as integral to understanding settlement patterns of the city. Projects such as Mass Housing, Urban inserts and large scale redevelopment projects should be taken as a part of the studio for students to be able to handle complex situations. A knowhow of prevalent byelaws, norms and project feasibility should also be imparted to the student.

Modules	Description	Hours
I ARCHITECTURAL CHALLENGE - Part 1	The integrated module shall address the following aspects. • Dealing with large scale and complex diverse projects which require multi-dimensional architectural solution • Offering studio options that enable the student to choose focus area as per individual strength, and dive deep into the subjects	112

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

	like Digital Architecture, Sustainable Design, Real Estate Challenge and Innovative Construction Technologies • The projects can range from Mix use Developments, Large Campus Design, Large Span Structures, Mass Housing, Urban Insert, Large Office Complex, etc • Dealing with possibilities of application of theories about Human Settlement Patterns • Accurate understanding about development norms and rules of the land governing the development • Understanding about building performance and abilities to demonstrate the same in Studio project design	
II ARCHITECTURAL CHALLENGE - Part 2	The integrated module shall address the following aspects. • Dealing with large scale and complex diverse projects which require multi-dimensional architectural solution • Offering studio options that enable the student to choose focus area as per individual strength, and dive deep into the subjects like Digital Architecture, Sustainable Design, Real Estate Challenge and Innovative Construction Technologies • The projects can range from Mix use Developments, Large Campus Design, Large Span Structures, Mass Housing, Urban Insert, Large Office Complex, etc • Dealing with possibilities of application of theories about Human Settlement Patterns • Accurate understanding about development norms and rules of the land governing the development • Understanding about building performance and abilities to demonstrate the same in Studio project design	112

References:

1 Jacobs, Jane, 1961. Death & Life of Great American Cities.Random House, Newyork.
2 Tschumi, Bernard,2005. Event Cities 3 – Concept vs. Context vs. Content. The MIT Press., Cambridge,MA.
3 Koolhas, Rem & Mau, Bruce, 1997. S,M,L, XL. The Monacelli Press, Newyork.
4 Koolhas, Rem, 1978. Delirious New York. Oxford University Press.
5 Rossi, Aldo, 1966. The Architecture of the City. The MIT Press, Cambridge,MA.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	IV	Version	1.0
Semester	VII	Effective From	June 2021
Course Code	BRAR12702 Course Name	High-Tech Structures And Performance Analysis	

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
6	4	2	6	300	120	90/180	300/600

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis:

This course emphasizes understanding of advanced materials and construction technologies with respect to current global trends in building industry. The course also focuses on detailed study of sustainable Building Systems, material sciences and technological knowhow. The intention is to study futuristic concepts of built environments with respect to innovation in material applications. The course will also concentrate on Computational design technologies and structural systems to achieve a variety of complex structures for different functions. Greater emphasis shall be given on building performance systems and services in accordance to Green Building Ratings.

Course Outcome:

After completion of this course, the student will be able to:

- Explore advanced materials, understand its properties and application in building construction.
- Explore advanced construction technology with their respective structural complexities and behavior.
- Explore computational design technology followed by construction and structural systems.
- Understand concepts of Energy Efficiency building parameters and strategies in accordance with various Green building rating systems
- Integrate advanced materials and construction technology to analyze Building Performance with respect to climate, structure, construction challenges, application of appropriate materials and life cycle assessment.
- Software based energy simulations for understanding building performance.

Content:

(i) Current trends in Advanced Materials for construction: -Translucent concrete, Bendable concrete, Concrete canvas, Bio-concrete, Self-Repairing cement/Concrete, Transparent wood, Electrified wood products, Paper insulations, Sensi-Tile flooring systems, Liquid Granite, Carbon Fibre, Low-E glass/films, Transparent aluminium, Solar shingles, ETFE, Glass fibre reinforced concrete panels, Recycled Materials and futuristic materials.

(ii)Advanced Construction Technology: 3D printing and systems for buildings, Lift slab construction, Top-down construction, slip form work construction, Computational design, construction and structural behaviour, Alternative modes of construction using recycled materials (Plastics, glass bottles, sand bags, rubber tyres, e-waste, scrap etc.). Futuristic building envelope design based on simulations.

(iii)Building Performance Analysis: Understanding Software Application to analyse Building performance

Modules	Description	Hours
I ADVANCED BUILDING MATERIAL	(i) Innovations in concrete: Introduction to concrete based high-tech materials and applications. (Translucent concrete, Bendable concrete, Concrete canvas, Bio-concrete, Self-Repairing cement/Concrete) (ii) Hi-Tech Materials: Understanding and application of advanced building materials like Transparent wood, Electrified wood products, Paper insulations, Sensi-Tile flooring systems, Liquid Granite, Carbon Fibre, Low-E glass/films, Transparent aluminium, Solar shingles, ETFE, Glass fibre reinforced concrete panels (ii)Material resource efficiency: Analysing the methods and techniques of up scaling recyclable materials in to building construction.	12
II ADVANCED CONSTRUCTION TECHNOLOGY	(i)Advanced Construction Technology and application: Introduction to construction methods like Lift slab, Top down and slip formwork. (ii)software-based computation design systems: understanding concepts and application of digital fabrication, parametric design, and 3D printing technology. (iii)Green construction techniques with alternative /low-cost/energy efficient materials	12
III DESIGN OF SPECIALISED STRUCTURES	Specialized Construction Technology: (i)Developing understanding of parametric forms and structure with respect to various techniques and materials (ii)Understanding the concept of digital fabrication with respect to core and shell to emphasize on structural behaviour and performances. (iii)Learning behaviour of pneumatic structures/air inflated structures.	16
IV BUILDING PERFORMANCE AND SERVICES	Building Performance Analysis: (i)Understanding the concept of building performance through Building Management System and CCMS (ii)Intelligent building systems, smart buildings concept and working principles. (iii)Understanding factors affecting the performance of building envelope design (iv)Parameters for saving, producing and optimisation of energy in a building. (v)Computational methods of energy simulations in building performance and analysis.	16

References:

1 Fardis Michael N. , 2011. Innovative Materials and Techniques in Concrete Construction: ACES Workshop.

2 Fernandez John, 2006. Material Architecture. Routledge.

3 Sinopoli James M , 2009. Smart Buildings Systems for Architects, Owners and Builders. Butterworth-Heinemann.

4 Ian Beausoleil-Morrison, 2020. Fundamentals of Building Performance Simulation. Routledge.

5 Arun Kumar, V.S.K.V. Harish, 2019. Green Building Energy Simulation and Modelling. Butterworth-Heinemann.

6 Robert Francis Woodbury, 2010.Elements of Parametric Design. Routledge.

7 Luca Caneparo, 2013.Digital Fabrication in Architecture, Engineering and Construction. Springer Nature.

8 Virginia San Fratello, Ronald Rael, 2018. Printing Architecture: Innovative Recipes for 3D Printing. Princeton Architectural Press.

9 Liu Yu Tung,2005, Demonstrating Digital Architecture. Birkhauser Verlag AG.

10 Zellner Peter, 1999. Hybird New Forms in Digital Architecture Space. Rizzoli International Publications.

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	IV			Version	1.0		
Semester	VII			Effective From	June 2021		
Course Code	BRAR10703	Course Name		Human Settlement Planning (Housing Theories)			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The emphasis of the course is on major architectural movements and buildings central to the development of Modern & Post Modern architecture with design principles and analysis. Canonical architects, buildings and movements will be studied in detail.

The housing theory course will give an introduction to theoretical perspective on housing architecture and housing cultures. Premises for modern housing production and strategic role of housing in societal development will be discussed.

Course Outcome

At the end of the course students will be able to

- Identify common threads and differing conceptions of modern architecture around the globe.
- Communicate effectively personal ideas in studio projects by building a larger visual vocabulary.
- Discuss housing theory issues of architectural development of housing environments and societal conditions.
- Develop ability to navigate, use and critically discuss theory & research relevant for housing architecture.
- Critically reflect on the role of architecture and the architectural profession in housing development.

Content

Thought and articulation in architecture of Post Modern movements like Metabolism, Deconstructivism, Critical Regionalism, Historicism, Memphis Movement; Study of Selected works of canonical architects around the globe;

Theory- Premises for modern housing production; Theoretical perspective on housing architecture & housing culture; Housing environment & societal conditions for housing development.

The course will be divided between understanding of historical narrative and history of architecture not chronologically but depending on topics. It is necessary and justified to add sufficient flexibility, to include or exclude sub topics but the benefit of the learner is always the nucleus to the process. The content introduces learners to a broad yet detailed interdisciplinary approach towards analysis of selected historical structures/spaces and typologies in terms of form, functions, plans, hierarchy

of spaces, building elements, building materials, construction technologies, ornamentation in the context of cultural, political and socio economic factors. With reference to civilizations and cultures, material culture and non-material culture ie political narrative, geography, climatic conditions, local

References :

1. Curtis, William J.R.,1996. Modern Architecture Since 1900. Phaidon Press, London
2. Giedion, Sigfried, 1980. Space, Time and Architecture. Harvard University Press, Cambridge Mass
3. Jencks, Chris, 1985. Modern Movements in Architecture. Penguin, New York
4. Klotz, H., 1988. The History of Post-Modern Architecture. MIT Press, Cambridge
5. Pavesner, Nicholas, 1975. Pioneers of Modern Design. Penguin, Harmondsworth
6. The Phaidon Atlas of Contemporary Architecture, 2004. Phaidon Press, London

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	IV	Version	1.0
Semester	VII	Effective From	June 2021
Course Code	BRAR16704	Course Name	Research Skills

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

In this course, students will learn essential skills to conduct design research starting from research planning, methods to use, interviewing skills, synthesizing data and reporting.

Course Outcome

After completion of the course, the student will be able to:

- Formulate hypothesis
- Plan Research methods
- Gather information through visual research
- Prepare & conduct interview
- Learn how to give and receive constructive feedback
- Synthesize the data gathered
- Prepare and present the insight report

Content

Modules	Description	Hours
I	How to formulate Hypothesis & Research Questions	2
II	How to formulate Research Objectives	4
III	Formulation of Research Plan & how to give and receive constructive feedback	4
IV	Define & recruit users	2
V	Creating stimuli out of assumptions	4
VI	Creating discussion guide & conducting interview	4
VII	Synthesize Data & Creating Framework	2
VIII	Presenting Insights & Craft Your Storytelling & Output & Deliverables	4
IX	Synopsis writing	4

References:

1 Kate L. Turabian. 2007. A Manual for Writers of Research Papers, Theses, and Dissertations. Chicago Style for Student and Researchers, 7th edition. The University of Chicago Press.

2 Steven R. Terrell. 2016. Writing A Proposal for your Dissertation. Guidelines and Examples. The Guilford Press.

3 Linda Groat, David Wang. 2013. Architectural Research Methods. Second Edition. Wiley.

4 Margaret Cargill, Patrick O'Connor. 2009. Writing Scientific Research Articles. Strategy and Steps. Wiley Blackwell.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	IV			Version	1.0		
Semester	VII			Effective From	June 2021		
Course Code	BRAR14705	Course Name		Professional Elective 7 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

706.1 Green Building & Rating System

This elective is an attempt to train students for green building concepts and inculcate required skills for understanding of different aspect and parameters related to green building certification process. The teaching methodology is based upon basic understanding of green building, followed by GRIHA, LEED, TERI requirements and processes of obtaining the certification added with other green building related research activities.

706.2 Earthquake Resistant Design & Technology

This elective will provide introduction and guidelines for Earthquake Resistant design of buildings, Basic principles, concept and application in architectural design. The course will cover aspects of earthquake resistant architecture; the behaviour (Mode shapes) of building when excitation is developed due to earthquake, the IS Code provisions for earthquake resistant design of structures as per Indian Standard code of practice and introduction to topics like; Seismic Joints, Seismic Isolation , and Energy Dissipation Devices. Students will carry out an earthquake resistant architectural design with proper structural system and will calculate its preliminary Earthquake resistant capacity, with the help of software "RESIST"-designed for architects.

706.3 Universal design

This elective would provide a detailed introduction to the Universal Design philosophy and a theoretical understanding of design tools and techniques. In a growing and aging society, where the need for sustainable (both social and environmental) design solutions is critical, Universal Design has been accepted globally as a means of meeting existing and future needs. More than a set of practical design rules or prescriptive design guidelines, Universal Design is a way of thinking, requiring the designer to consider the consequences of design, and placing the needs of all people at the very heart of the process.

The background will include an overview of the Seven Principles of Universal Design, the rationale for Universal Design will include social, economic, legislative and business cases. Recent advancements and developments taken from related fields (including ergonomics, usability engineering, user

centred design, health and safety research, software engineering, etc.) will provide a more practical understanding of the evolving design approach.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	IV			Version	1.0		
Semester	VIII			Effective From	June 2021		
Course Code	BRAR16801	Course Name		Professional Training			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
18	-	-	-	--	--	900/ 1800	900/1800

Emphasis

The student shall undergo practical training in the office of an Architect or an organization operating in an allied field of practice or research, duly approved by the institution, under the mentorship of an architect having experience of at least 5 years. During this internship of 18 weeks student will engage with work in an architectural practice/government architectural department and train under architects registered with COA or equivalently registered in foreign countries (Training in foreign country shall be approved and monitored by committee includes Head of the Institute). Submission of 18 weeks work shall be in the form of compilation of weekly report & a portfolio which is mandatory along with a completion certificate from firm at the end of training, along with this, stage wise examination will be conducted for assessment of practical exposure given to the student.

Course Outcome

With the successful completion of the training student will be able to:

- Understand the way architecture design process evolves considering building byelaws, structural & services issues to create final output.
- Understand interrelationship between the working system of an office & site correspondence, through drawings preparation at office and its execution at site.
- Get exposure in the field & will understand the way design projects are carried out in offices.
- Enhance the skills of office & project management and team work to enhance their capability and employability.

Content

Student will involve in the chosen office for various aspects of work mentioned below:

- Designing and detailing of the project including discussions with the project team, clients, consultants & suppliers.
- Office experience includes preparation of presentation/approval/execution drawings along with specification, tender, estimations and research work.
- Digital skills for compilation, documentation, record keeping & office management work etc.
- Periodic site visits should include enhancing the skills of observation, coordination with various agencies & supervision of on-going project at site.

EVALUATION MODULES

(Will be subdivided into examination sessions)

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

Submission of 18 weeks work shall be in form of compilation of weekly report & a portfolio is mandatory along with a completion certificate from firm at the end of training. Along with this, three-stage evaluation will be done through 18 hours (6 hours X 3 Days) examination.

Modules	Description	Hours
I	Preparation of design drawings through Conceptual process with understanding of program and presentation drawings.	6
II	Preparation of approval / execution drawing will be evaluated to show their understanding on building design along with structural and services of the building.	6
III	Preparation of various elements / components detail drawings will be evaluated by detailing along with its finishes, specification, estimation & application etc.	6

SARVAJANIK UNIVERSITY							
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	IV			Version	1.0		
Semester	VIII			Effective From	June 2021		
Course Code	BRAR14802	Course Name		Professional Open Course 8A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	--	--	100/ 200	100/200

Imp Note: Open Courses will have to be taken online by students from online portals such as NPTEL, Swayam or any courses with prior approval of the course validation committee. The time duration of such courses will be 8 weeks or more.

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination,
UE- University Exams(Jury/Viva/Theory Exam)

SARVAJANIK UNIVERSITY			
INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	V	Version	1.0
Semester	IX	Effective From	June 2021
Course Code	BRAR13901	Course Name	Research Thesis

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
14	-	14	14	700	280	210/420	700/1400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic

Emphasis:

This course aims to develop a research attitude and critical thinking through intensive reading-writing-travelling. The emphasis to make students acquainted with the terms, principles and methods of conducting architectural research, to make them familiar with different types of research and research methodology and thus inculcate skills of architectural writing. The course is focused on the process of writing a research thesis on a chosen topic.

This process is conducted by both the student and her/his supervisor from the initial phase of determining a research question to the completion of the entire research thesis report. Improvement of certain abilities such as building up research strategies, developing a critical understanding of sources and findings, choosing appropriate methods of research and establishing an ethical manner in writing is as important as the final product.

Course Outcome:

1. After the successful completion of this course, the students shall be able to

- Understand reading-writing-travelling as an important aspect of architectural learning
- Cultivate a habit of intense reading
- Generate curiosity to learn about their subject of interest through multiples sources
- Enable them to conduct research through appropriate methodology
- Identify and understand authentic resources and database
- Develop the ability of critical thinking
- Enhance their analytical skills
- Draw the conclusions from the conducted research for the purpose of enhancement of knowledge
- Learn to present their research in a structured way.

Content:

Introduction to architectural research, research types , ways to conduct research-research methodology, framing up a research question, designing research, use of primary and secondary sources of research data, analytical methods for research data, drawing up conclusions from the research, preparing draft research report with chapterisation, use of software for writing research report, preparing final research report, converting research in different format: preparing research poster, research presentation, research paper

Evaluation

Stage	MODULE	Hours
I	Identifying and Refining a Researchable Topic or Question, Gathering Primary and Secondary Sources, defining methodology and deriving final research proposal (synopsis)	42
II	Creating an outline of research, collecting necessary information (literature study/case study/inventory/survey/data mapping etc.) and establishing database and record	42
III	Analysing the data and establishing discussion for the research question/inquiry and deriving results/conclusions	56
IV	Preparing first draft of the entire research (organizing everything in a given sequential format: Front Matter, Main body and End Matter)	42
V	Preparing second draft by rewriting the thesis with language and structure refinements	28
VI	Writing the final thesis as per the prescribed format and technical requirements and presentation for review	42

References:

1 Kate L. Turabian, 2007. A Manual for Writers of Research Papers, Theses, and Dissertations. Chicago Style for Student and Researchers, 7th edition. The University of Chicago Press.

2 Steven R. Terrell, 2016. Writing A Proposal for your Dissertation. Guidelines and Examples. The Guilford Press.

3 Linda Groat, David Wang, 2013. Architectural Research Methods. Second Edition. Wiley.

4 Margaret Cargill, Patrick O'Connor, 2009. Writing Scientific Research Articles. Strategy and Steps. Wiley Blackwell.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	IX			Effective From	June 2021		
Course Code	BRAR13902	Course Name		Urban Design			

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
4	-	4	4	200	80	60/120	200/400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course focuses on reading the city and understanding urban issues, by developing critical thinking and reading up on various urban design theories. The course emphasises on developing sensitivity towards built and unbuilt environment in an urban set up. The course leads to understanding various urban design concepts, prevailing urban design practices and their impact on city. Aim of the course is also to understand various factors affecting urban growth, urban design projects, urban economics, urban housing, public realm, etc. Taking the Public realm further as an important platform for culture, art and people to come together.

Course Outcome

After completion of this course, the student will be able to:

- Understand Urban Design as a stream of specialization
- Read city in depth and understand various factors affecting city's growth
- Develop sensitivity towards city's built and unbuilt environment
- Comprehend need of various urban scale projects based on critical analysis of the city
- Study prevailing urban design practices with respect to Indian context

Content:

Introduction to Terminologies (Tissue, Block, Grains, Porosity, Typology, District, Landmarks, Streets, Nodes, etc.) to understand city as entity. Various Sessions on reading the city and develop sensitivity toward urban issues and ways to deal with it. Discussions and debates will be conducted to instigate thinking process for city's need of various urban projects and develop understanding towards inter-relation of Architecture and Urban Design. The course will focus on importance of urban housing, public realm, understanding urban economics as major components.

Modules	Description	Hours
I Urban Terminology	The module focuses on developing base to understand the city as an entity and definition of "urban". Introduction to Urban Terminologies like Tissue, Block, Grains, Porosity, Typology, District, Landmarks, Streets, Nodes, Morphology, Voids, etc. through theories, examples and readings.	8
II City Reading	The module enables students to read various layers, complex interrelation between various aspects of the city like elements, culture, arts and people. This module enables students to understand city level issues and various perceptions to deal with it.	10

III Critical Thinking (Discussion, Debate & Narratives)	This module focuses on developing critical thinking through various discussions and debates on topics like: City and People, City and public spaces, need of public spaces in a city, Politics and Urban Development, Rethink the City: New Approaches to Global and Local Urban Challenges, Resilient cities, etc. The discussion and debates can be concluded by writing an article as part of urban narratives.	10
IV Thinking beyond the plot boundary	This module focuses on understanding built and unbuilt environment in a city or urban area, importance of Architecture (Built) in cityscape and its positive or negative impacts. Students will be taught ways of contributing beyond plot boundary and its impact in the city.	10
V Prevailing Urban Design Practices	The focus of the module is to make students aware about large-scale urban interventions with respect to global and Indian perspective. The module enables students to generate urban design project based on need of the city or urban area. This module shall expose students about Sustainable Urban Design projects through global urban design practices.	10
VI Public Realm	Public realm is one of the elements, which makes city live and vibrant. This module enables students to understand importance of public spaces in the city, its role in making city liveable and vibrant. Students will be able to understand design principles through various studies, readings and discussions.	16

References:

1 Lynch, Kevin,1960. Image of the City, MIT Press.
2 Alexander, Christopher, 1977. A Pattern Language. Oxford University Press.
3 Jacobs, Jane, 1961. Life & Death of Great American Cities, Random House, Newyork.
4 Spreiregen, Paul, 2016. Architecture of Town & Cities, Mcgraw-hill Inc.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	V	Version	1.0
Semester	IX	Effective From	June 2021
Course Code	BRAR10903	Course Name	Building Economics & Construction Management

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

Architectural projects are a combination of creation and order, the famous dialogue between form and function. The knowledge obtained in such a way is very important in managing a project. Introducing techniques of controlling time, costs, risks, communication, integration, etc. is the perfect addition to the creative and technical preparation achieved during the years of the architectural career. We no longer build buildings like we used to nor do we pay for them in the same way. Buildings today are no longer only shelter but are also life support systems, communication terminals, data manufacturing centres, and much more. Buildings are incredibly expensive tools that must be constantly adjusted to function efficiently. The Management of construction, economics of building has become as complex as its design and requires a thorough understanding.

Course Outcome

At the end of the course the student will be able to:

- Understand the role of architect as project co-ordinator / Manager.
- Prepare bar charts, CPM charts and manage construction process efficiently.
- Time Cost Optimisation and understanding value engineering.
- Understand the importance of entrepreneurship skills in innovatively approaching the projects to benefit the client.

Content

(A) Building Economics

- Demand and Supply of built spaces, Market analysis, choice of consumer and building activity as an industry.

(B) Construction Management

Definition of the term 'Management', and understanding Planning, Programming in advanced and timely execution thereof. Site Management and Job Layout, Reshaping, rescheduling of work as per the site conditions and prevailing circumstances.

Office Management and its structure with the criteria's for decision making, relevancy of decision-making and responsibilities therefore. Methods of Planning of execution of work considering various factors like availability of design, details, material, labour, etc. and comparison of planning and actual execution of work. Labour welfare laws and other laws related to the construction industry. Various methods for planning and programming for Project management – Various Schedules, Network Techniques (CPM, PERT), Bar charts, etc. Introduction to basic software related to Project Management.

References:

1 A to Z practical building construction and its management. Mantri Institute.

2 Stevens, James. D., 1989. Techniques for Construction Networking Scheduling. McGraw Hills, US.

3 Stonier, Aldred W. & Hague, Dauglen C., 1972. A textbook of economic theory. The English language books SC & Longuian Group Ltd.

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Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	IX			Effective From	June 2021		
Course Code	BRAR16904	Course Name		Sustainable Architecture			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
4	-	4	4	200	80	60/120	200/400

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

This course primarily aim to develop understanding of sustainability as a concept in the field of architecture. Developing Sustainability concerns as an integral part of architectural design strategy. The course focusses on understanding and exploring various strategies of sustainable design and development. The thrust of the course shall be imbibe concepts related to reduce the environmental impact of buildings by energy efficiency and moderation in the use of materials benefitting the ecology at large. Sustainable architecture uses a conscious approach to energy and ecological conservation in the design of the built environment. The course emphasises to understand various green building rating systems related to principles of sustainable architecture.

Course Outcome

After completion of this course, the student will be able to:

- Understand the fundamentals of climate responsive design in built spaces.
- Understand various passive and active design principles to achieve sustainability.
- In-depth understanding of energy optimization through various sustainable strategies.
- Understand various sustainable/green building materials and its application.
- Relate and understand terminologies like Net zero energy building, Carbon neutral building, urban heat island effects etc.
- Apply various energy simulation techniques through digital media.
- Understand various rating systems and its application.

Content:

The course consists of fundamentals of sustainable architecture and design principles related to sustainability. The course offers wide horizon to explore materials along with various passive and active energy efficient design principles. The course shall include modules, which will sensitize a designer towards practical aspects of sustainable built environments through various design strategies, component design and built in mechanisms to reduce ill effects on the environments.
The course will also develop understanding of building performances and various energy simulations. Understanding building performances through various rating systems like IGBC, GRIHA, LEED and similar. The course also gives exposure of various digital platforms for quick energy calculations.

Modules	Description	Hours
I Sense and Sensitivity	This module shall focus on inculcating sensitivity towards environment with respect to building industry. The module	12

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

	shall make students aware about impacts of building materials on the surroundings and thereby on the environment. The module shall develop sense of designing the building using passive solar principles.	
II Design Principles	The module shall focus on understanding various design principles through vernacular architecture. Understanding passive solar architecture and its various techniques based on different climate zones.	16
III Material Sense and Application	The module shall focus on exploring local and advanced materials their application and impact on environment. Resource optimization and conservation as one of the major learnings of the module.	16
IV Rating Systems	To rate sustainability achieved in design, various rating systems would be introduced. The module provides technical clarity to students regarding various rating systems like LEED, IGBC, GRIHA and similar systems. The module also refers to quick energy simulation techniques through various digital platforms keeping in mind criteria of GRIHA, LEED and IGBC.	20

References:

1 Majumdar Mili (ed), 2009. Energy Efficient Buildings in India. TERI Press.
2 TERI, 2013. Compendium of Energy Efficiency and Renewable Energy in Leading Indian Corporates. TERI Press.
3 Nayak, J.K., Prajapati, J.A., 2006. Handbook on Energy Conscious Buildings. IIT- Bombay.
4 IGBC, 2014. IGBC Green New Building Rating System, IGBC.
5 LEED, 2002. Green Building Rating System For New Construction & Major Renovations (LEED-NC).
6 2010. GRIHA Manual: Introduction to National Rating System . TERI Press.

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Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	IX			Effective From	June 2021		
Course Code	BRAR14905	Course Name		Professional Elective 9 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

906.1 Digital / Parametric Design

This elective is an introduction to digital/ parametric architectural design, introducing digital skill sets and parametric thinking through drawing, modelling, and prototyping. It would be based on the exercises progressing from two-dimensional drawings and graphic compositions, to three-dimensional spatial studies, to physical and material investigations. At each step, computational design tools and digital information are used to generate, analyze, prototype architectural design propositions. The exercises can be performed with an array of software, however the course demonstrations make use of Rhino3D and Adobe.

906.2 Tensile Structures

A tensile structure is a structure element carrying only tension and no compression or bending. A tensile membrane structure is most often used as large span structures. Identify the forms and uses of fabric structure design. This elective would give students fundamental knowledge of tensile structures. It will cover following topics;

1. Examine available materials, components, and hardware used in tensile architecture.
2. Assess the fabrication and installation processes of fabric structures.
3. Review case studies of different PTFE and PVC tension structures.

906.3 Healthcare Architecture

This elective course would give students a complete overview of the various aspects of sound healthcare infrastructure design and planning. From a very macro level approach of healthcare delivery systems in a country to the departmental planning and detail at the micro level, this course is all inclusive. This course would also focus on service oriented design for hospital planning.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute..

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	X			Effective From	June 2021		
Course Code	BRAR13001	Course Name		Design Thesis			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	SE	UE	Total
18	-	18	18	900	360	540	900/1800

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

The course demonstrates students' ability of synthesizing learnings of architecture, building systems, applied engineering, liberal studies and humanities through a capstone project, which displays creative and critical thinking abilities and skills developed through the course.

Developing design brief, proposal and justifying the project involves research, analysis and clarity in thought process. Architectural Design thesis focuses on handling complexities of the projects through research outcomes and thinking critically to achieve architectural resolution. The course demands design development with clarity of spatial arrangements, volumetric explorations, building envelope design, structural systems, services, material explorations, innovative construction details, etc.

Course Outcome

After completion of this course, the student will be able to:

- Develop an appropriate project premise.
- Develop project brief and proposal, functional programme.
- Develop Architectural sense to respect need of the project.
- Develop design philosophy, critical thinking and ability to synthesize smaller aspects of the project.
- Deliver sensible architectural expression through various architectural interventions.

References:

Sr. No.	Description
1	Makstutis, Geoffrey, 2011. Design Process in Architecture: From Concept to Completion. Laurence King.
2	Plowright, Philip D., 2014. Revealing Architectural Design - Methods, Frameworks and Tools. Routledge.
3	Ching, Francis D. K., 2010, Design Drawing, John Wiley & Sons, UK.
4	Baker, Geoffrey H., 1997. Design Strategies in Architecture. Taylor & Francis.

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Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	X			Effective From	June 2021		
Course Code	BRAR10002	Course Name		Urban Anthropology & Ekistics			

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis

As more of the world's population settles in cities, anthropologists have increasingly shifted their sites of study from rural to urban settings. Our goal in this module is to explore how anthropological insights and methods might contribute to our understandings of urban phenomena.

Ekistics being the science of human settlements includes a thorough and all-inclusive facet across the multiple disciplines ranging from the study of settlements and society, demographics, land economics, sociology , environment, legislations, transportation and networks and regional planning.

Course Outcome

At the end of the course the students will be able to:

Urban Anthropology

- Apply an anthropological approach to the analysis of local, national, and global urban issues.
- Analyse ways in which the built environment both shapes and is shaped by sociocultural, political, & economic processes.
- Trace the development of theoretical interest in the city and critically evaluate theoretical approaches to understanding urban problems

Ekistics

- The holistic understanding of our complex old and new city fabrics across the disciplines.
- Emergence and scope of ekistics and its need in shaping the Human Settlements.
- Ekistics as a science dealing with Human settlements in totality.

Modules:		
URBAN ANTHROPOLOGY		
Modules	Description	Hours
I	Thinking the City	2
II	Methods Workshop I – Going to the Field	2
III	The politics of space	2
IV	Urban Distinctions: Debating the "Ethnic Community"	4
V	Urban Distinctions: Politics of Style	2
VI	Place & Non-Place	2

CIE- Continuous Internal Evaluation, SE-Summative Evaluation(Jury/Viva/Theory Exam), TEE-Term End Examination, UE- University Exams(Jury/Viva/Theory Exam)

EKISTICS		
Modules	Description	Hours
I	Origin and development of Ekistics as lead discipline for Human Settlement.	2
II	C.A. Dioxides as the pioneer of Ekistics	2
III	Elements of Ekistics	2
IV	Ekistics Matrix	4
V	Ekistics Units and Ekistics Grid	2
VI	Ekistics Synthesis of Structure and Form	2

References:

1 C.A. Doxiadis, 1968. Ekistics: An introduction to the Science of Human Settlements. Oxford University Press, London.

2 C.A. Doxiadis, 1969. The future of human settlements", speech delivered at the 14th Nobel Symposium, Stockholm, Sweden, September. John Wiley & Sons., New York.

3 C.A. Doxiadis, 1966. Between Dystopia and Utopia. Trinity College Press, Hartford, Conn.

4 C.A. Doxiadis, 1967. Emergence and Growth of an Urban Region, vol. 2, Future Alternatives. Detroit Edison Company, Detroit.

6 Basham, Richard, 1978. Urban Anthropology. The Cross-Cultural Study of Complex Societies". Mayfield Publishing Company.

7 Fox, Richard G., 1977. "Urban Anthropology. Cities in their Cultural Settings", Prentice-Hall.

8 Eames, Edwin. Anthropology of the City, An Introduction to Urban Anthropology. Englewood Cliffs, Prentice-Hall, NJ

9 Low, Setha. 2005. Theorizing the City: The New Urban Anthropology Reader. Rutgers University Press.

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY			
Faculty	Architecture	Programme	B.Arch.
Year	V	Version	1.0
Semester	X	Effective From	June 2021
Course Code	BRAR16004 Course Name	Professional Practice	

Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

Emphasis :

This subject discusses the nature of professional practice for architects. It examines the roles of participants in the delivery of architectural projects, their responsibilities and the dynamic relationship among stakeholders. The subject will examine the theoretical framework of the architect's role in society and how this is realized in the practical world of managing a practice and delivering architectural projects. Topics will include the structure of the profession, regulation and self-governance, ethics, project management, office administration, industry trends, liability exposure, project control cost analysis, cost control during design and construction, and modes of project delivery.

The nature of architectural practice is changing and evolving. And yet in this context of change, the architect remains the key overseer of the design, communication, documentation, and the delivery of architectural projects. To facilitate success in the conception of architecture and design excellence, the architect needs to possess key tools and methodologies in order to engage with and successfully advocate for a broad spectrum of stakeholders including Owners, User Groups, and Authorities-having Jurisdiction. This subject is structured to provide students exposure to these key tools and methodologies

Course Outcome :

With the successful completion of the course the student will be able to:

- Understand the various tools and methodologies used during design, approval, documentation and construction phases of a project.
- Understand the legal and legislative underpinnings of the profession and also aware about many rules and contexts in which architect operate
- Understand the principles and procedures for the management of projects and the ability to apply cost control techniques.
- Develop an awareness of the issues and challenges facing contemporary professional practice.
- Develop an appreciation for the key role of collaborative thinking and teamwork in the profession.

Content:

The subject will introduce the Architectural profession. Subject will emphasize on understanding legal responsibilities, modes of practice, professional conduct and project management

Modules	Description	Hours
I Introduction-	• Introduction of subject • Organizational Setup (Architect's office, its	10

The Architectural Professional	structure & management) • Architect's Act 1972 and it's regulation • Role of Regulatory bodies	
II Ethical & Legal Responsibilities	• Legal responsibilities under the laws, codes, regulations • Contracts common to practice of architecture • Role of advocacy in relation to environmental, social and cultural issue	10
III Modes of Practice	• Types of practice, organization • Financial management and business planning / accounting • -Income tax liabilities • - Financial institution • (a)for Investment • (b) for better life in future • - GST • Marketing • Negotiation • Project management • Risk Mitigation • Understanding of trends that affects the practice	16
IV Professional contracts	• Various types of contract • Condition of agreements	6
V Project Management	• Understanding of relation among key stakeholders in design process • Method of selecting consultants and assembling team • Building economics and cost control strategies • Development of work plans and project schedule • Project delivery method	14

References:

1 Dr. Namavati, Roshan H. Professional Practice. Lakhani book depot
2 Council of Architecture, COA regulation-2020, The gazette of India, 2020
3 Council of Architecture, Handbook on Professional Documents, COA, 2020
4 The Indian Institute of Architects, Handbook on Professional Practice, IIA,1987

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INSTITUTE OF DESIGN, PLANNING & TECHNOLOGY							
Faculty	Architecture			Programme	B.Arch.		
Year	V			Version	1.0		
Semester	X			Effective From	June 2021		
Course Code	BRAR14005	Course Name		Professional Elective 10 A			
Teaching Scheme				Examination Scheme			
Credits	Lecture	S/W/T	Total	CIE	UE		Total
					SE	TEE	
2	2	-	2	100	40	30/60	100/200

Note: Continuous Internal Evaluation shall be divided into A. 20% -Attendance B. 80% -Periodic Evaluation

1006.1 Urban Arts and Graphics

Every day we are impacted by visual communication: advertisements, sculptures, signage, graffiti, murals, and monuments. Sometimes used in explicitly political ways and other times operating more subtly. These images are crucial vehicles for public communication. Given that more and more people live in urban spaces, and the street has been a key mechanism for public communication, it is important to understand how public visual communication uses urban space to create a message, and to generate a sense of community. This elective course analyses various forms of urban art and graphics, to analyse how these various public art genres functions as a form of public communication about different models of community.

1006.2 Architectural Conservation

This elective is intended to sensitize students to the architecture of built heritage comprising historic buildings, areas, cities and cultural landscapes. It aims at training students in tackling conservation issues in planning level, interpreting history in a modern context, dealing with structural issues and documentation of cultural and historic heritage buildings. Aspirants learn how to encounter and overcome the development issues while being tactful to social responsibilities, sustainability, and urban modernizations. The elective focuses on theoretical and practical aspects and Principles Techniques in an academic discipline such as the introduction of Conservation, Structural Conservation (Material & Techniques), Architectural History, Computer Application and Visual Communication, Structural Conservation Management.

1006.3 Climate change & Resilient Cities

Climate change (CC) constitutes one of the most urgent issues of our time. It has worldwide implications -from the exacerbation of poverty, to the loss of environmental, political, economic and social security-. Climate change threatens both industrialized and less industrialized world regions. Vulnerable social groups in precarious positions bear the burden of phenomenon like: displacement,

interethnic and social conflicts, alteration of food production patterns and livelihoods, and spread of diseases among others. This elective explores the vulnerability of urban populations making emphasis on context specific impacts in Indian context. This elective would use case studies based approach to analyze how climate change impacts different social groups in our cities, identifying adaptation and mitigation strategies being currently implemented.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

ANNEXURE - I

LIBERAL STUDIES & LIFE SKILLS ADDITIONAL TOPICS

(Can be offered from Time to Time by the institute)

1. Gandhian Philosophy

This module on Gandhian Philosophy would cover the concepts primarily concentrated on different aspects of Gandhi's life, work and philosophy. It is the study of fundamental and general problems associated with matters such as mind, reason, values, existence, knowledge and language. It includes Gandhi's views and perceptions on economic, social, gender, political, environmental and sustainable development, critiques and evaluation of Gandhian concepts and their relevance in the contemporary world.

2. Indian Ethos and Vedic Lifestyle

This module has been designed to create an exposure to Indian ethos and Vedic lifestyle on mind-set and value system of the students. The Vedas are comprehensive knowledge system of Indian ethos and lifestyle. The Vedas impacted every aspect of man's life. In Indian ethos module aspects of the Indian socio-political environment, Indian work ethos, Indian heritage in production and consumption, Indian perspective of values, Secular and Spiritual values would be covered. Module of Vedic lifestyle would cover the aspect of sense of responsibility and duty, personal empowerment, sustainable lifestyle adoption, respect for sentient beings.

3. Yoga Meditation and Health

Yoga is one of the ancient subjects of Wellness. It is a methodical effort towards self-perfection through developing one's latent potential in the physical, intellectual and spiritual levels. The origin of yoga have been speculated to date back to pre-Vedic Indian period according to Rig Veda. Meditation will deepen the personal insight and awareness; and will exist beyond vibratory creation. The module aims to introduce beginners to Tools and techniques of yoga, secrets of visualization and to understand the qualities of thought which govern higher energy transformation. This course is aimed to give exposure to young students about practices and benefits of Yoga Meditation and Health.

4. Sanskrit Language

Sanskrit is an ancient and classical language of India and a source of later languages and literature across the world. The first ever book of the world Rigveda was compiled in Sanskrit. The body of Sanskrit literature encompasses a rich tradition of poetry and drama as well as scientific, technical, philosophical and religious texts. Sanskrit continues to be widely used as a ceremonial language in Hindu religious rituals and Buddhist practice in the form of hymns and chants. Sanskrit is a language with logical grammar and syntax. This course is aimed to introduce students to this Indian Legacy.

5. Participatory Planning and awareness

Participatory planning is a process by which a community undertakes to reach a given socio-economic goal by consciously diagnosing its problems and charting a course of action to resolve those problems.

Experts are needed, but only as facilitators. This course would provide students the opportunity to learn skills and techniques of participatory planning, the practice of engaging diverse people and groups for collecting information, mapping, taking feedback and making decisions. This course is aimed to equip students with following skills;

- How to use participatory planning techniques with community members to co-generate knowledge for social change?
- What are the appropriate methods for doing this?
- How to map and analyse indigenous knowledge by fusing it with information technology?

6. Organizational Behaviour

The field of organizational behaviour is about understanding how people and groups in organizations behave, react, and interpret events. It also describes the role of organizational systems, structures, and processes in shaping behaviour, and explains how organizations really work. It explains how organizations work from individual motivation to team dynamics to organizational structure. Knowing about it is essential to being effective at all organizational levels. This Course will provide opportunities to :

- Understand how organizations work and why people behave as they do in work settings.
- Improve students' ability to analyse and understand organizational situations.
- Improve students' skills in reacting appropriately to organizational situations using Organization behaviour concepts.
- Improve ability to create and maintain healthy and productive work environment.

7. Disaster Mitigation and First Aid

This course enables students to have a better understanding and develop skills in handling disasters giving First Aid treatment in Emergencies in either the home or at the community level.

With knowledge of this course student will be able to demonstrate skill in providing First Aid treatment in emergencies that may be encountered in any settings. The following are the objectives of the course

- Comprehend the ways to manage incidents of disaster.
- Understand the scope of First Aid and role of First Aid.
- Describe the techniques and equipment for First Aid
- Demonstrate the techniques of assessing a casualty.
- Describe the life saving measures for an unconscious casualty.
- Provide First Aid for emergency conditions.
- Identify and give First Aid treatment in community emergencies and natural disasters.

8. Climate Change and Resilient city

This module is intended to provide an understanding of the challenges cities in the developing world face and may face in future given climate variability and change, and the urgency of taking action

against the impacts of climate change. The module investigates the projected long-term impacts of climate change on cities; the contribution cities make to climate change and principles for how to measure GHG emissions; the vulnerability of cities in the developing world to climate variability and change given the already severe development challenges; an introduction to risk and vulnerability assessments; some broad-ranging, general adaptation and mitigation measures; what this all means for urban planning and sustainable development.

9. Indian Constitution

This module would introduce students to the Constitution of India. It begins by providing a brief overview of the history of the making of Indian Constitution. Than it would discuss the preamble and the basic structures of the Constitution. The fundamental rights, duties and the directive principles of state policy will be discussed thoroughly, followed by a discussion of the legislature. Some of the important sections of the Constitution that have influenced the history of India since independence will also be taken up for study. These include emergency powers and special provisions. There will also be a study of the important amendments to the Constitution like the 42nd and 44th amendments and other amendments like those related to the right to information, education, panchayati raj and so on.

10. Indian Judiciary

The module is designed to give an outline of the Judicial System in India. It covers various aspects of Supreme Court, High Courts, Constitutional Law, Civil Justice System, Criminal Justice System, Special Courts and Tribunals. It helps the student to learn the significance of legal aid in the path to achieve justice. Further, the course focuses on fundamental needs related to civil rights and processes associated with police, law and justice.

11. Fundamental rights and RTI

This module is designated to cover two important aspects;

1) Fundamental Rights; This would give an outline of the protection of fundamental rights. It is represented by international and national conventions, instruments, documents, case law, etc used to protect human rights at international, regional and national levels. It has become the minimum standard of protection in most countries.

This sub-module on fundamental rights will examine such rights through their protection by international human rights law and its procedures. It will include a detailed consideration of global, regional, and national mechanisms for the protection of fundamental rights. It looks at the substantive and procedural aspects as well as selected topics. The course is designed to provide an overview to international human rights laws, mechanisms, and practices.

2)RTI; Transparency and Access to Information, is pivotal to the functioning of a democracy. In the Information Age, access to data, reports, documents, etc are sine qua non of every Individual. This course seeks to provide a comprehensive learning on the Right to Information, dealing with its

multiple facets from a constitutional perspective to be a Statutory right, and thereby its evolution as an executory right through administrative and judicial process.

12. Democracy in India and issues

In this module students will engage in historical institutional analysis about the conditions that have brought the Indian State into existence. To explain Indian democracy they will look at various institutional mechanisms, elite bargaining, and the deployment of force, accommodation of regional leaders and their political aspirations, economic development and the constant reconfiguration of caste, party and religious alliances. After successfully completing this course, students will be able to

- Describe and explain how institutions are set up to govern deeply diverse societies.
- Explore the interaction between democratic institutions and India's varied religious interests.
- Analyse the issues behind religious extremism, poverty, insurgencies and armed conflicts.
- Recognize political parties and evaluate how party politics and elections create and impact India's democratic institutions.

13. Banking Insurance and Investment

Banking is defined as the business of dealing in money while insurance is the protection against possible loss and investment is related to securing future. Basics of banking, insurance mechanism, claims examination, financial investment planning and policy processing are some fields that come under this. Banking is the backbone of all activities, because every transaction where money is involved, the bank is the main character. Insurance and investment business is one of the prominent financial services in modern times. This course has made an attempt to offer to students a fundamental tool which will enhance their understanding of these three essential sectors of modern economy.

14. Basics of Valuation

From a quantitative perspective, investing in land and real estate is most popular and conventional way of investment. It is vital for students to have the knowledge of how to value the property and make a calculative guess on what the expected return on the investment would be. This accuracy of information will help them as an investor or advisor to make better decisions. As part of this module students would learn following topics

- Cost, Price and Value
- Basic elements of Value - Marketability, Utility, Scarcity, and Transferability
- Factors affecting Valuation-Physical, Economic, Legal and Social
- Real Property: Rights and Interests in Real Estate, Types of ownerships and Types of occupancy in Real Estate

15. Taxation

Understanding taxation greatly reduces the likelihood of making mistakes of ignorance. Plus, having a good basic knowledge helps students and future professionals not only avoid difficulties, but also increase saving and investment opportunities. This module would impart students with theoretical and practical knowledge of Direct & Indirect Taxes.

- An overview of the direct taxation system of India
- Knowledge of computation of income tax
- Idea on various avenues for tax planning and tax management
- Awareness on the compliance of tax laws

16. E- Business

In this module students would get an overview about e-business. Some of the topics pertaining to e-business are Service Marketing & Customer Relationship Management, On-line marketing, Internet and web designing, Business models for E-commerce etc.

17. Professional Ethics

It is essential for professionals in any field to have an understanding of the ethical problems and principles in their field. But anyone, no matter what their job, must deal with many other professions as well. Part of professional ethics is the understanding of the ethics of other professions: how they interact and what can be expected from them as correct ethical behaviour. In turn, any professional will benefit from a critical scrutiny of their own ethics by those from other professions. The general principles of professional ethics will be examined, as well as the distinctive problems of the different fields. The course is taught in four sub modules, covering the topics of: Business Ethics, Media Ethics, Legal Ethics, and Research Ethics.

18. Technical communication

The goal of this module is to prepare students with skills of individual and collaborative technical writing, presentation, and research necessary to be effective technical communicators in academic and professional environments.

19. Interview Skills

This module will help students to showcase their knowledge, skills, abilities, strengths, and interests to potential employers during a professional job interview. This module would introduce the students to the objective of the interview, the necessary preparation before attending the interview, interviewer's mentality and purpose, different types of interview questions and the effect of applicant's image, behaviour and body language during the interview. Essential interview skills such as communication skills, effective listening skills, how to handle salary questions, responding to common interview questions, reducing anxiety and making the best impression are also covered in the course. Effective tactics and strategies accompany examples in every stage and enhance the process of learning new techniques.

20. Entrepreneurship Skills

The goal of this module is to inform students and help them imbibe an entrepreneurial mind-set. The students will learn what entrepreneurship is and how it has impacted the world and their country. They will be introduced to key traits of an entrepreneur, and be given an opportunity to assess their own strengths and identify gaps that need to be addressed to become a successful entrepreneur. The module would comprise several short lectures, each focusing on a specific entrepreneurial knowledge

or skill requirement such as creative thinking, communication, risk taking, and resilience and helping them become career ready, whether it is entrepreneurship or any other career

ANNEXURE II

TRANSDISCIPLINARY OPEN ELECTIVES OFFERED BY B.ARCH., IDPT-SCET.

(Can be offered from Time to Time by the institute)

107.1. Recycling & Upcycling

Activities related to Recycling and Upcycling are driven by science and technology. By learning this elective, Students can consider recycling and upcycling as an example of how science has moral implications in how it is applied. They can also learn recycling and upcycling in the context of how human activity uses energy and natural resources, and how these affect local and global environments, including their effect on global patterns of climate change. This elective would be composed of a series of interdisciplinary lessons and activities through hich students learn the importance of reducing, reusing, recycling and upcycling.

107.2. Renewable energy & Technology

This open elective course will provide students with a basic understanding of the key renewable energy generation technologies and the factors which influence their exploitation. It would also provide the foundations necessary to understand the principles of solar, wind and marine energy technologies and also the knowledge required to understand: the efficient distribution of renewables; their integration into usage into zero carbon built infrastructure and to determine the economic and climate issues affecting the choice of renewable.

107.3. Urban Farming

In this elective students will learn about the role of urban agriculture in the community building process. A series of case studies and dynamic conversations with figures from various components of the urban agriculture structure make up the core of the course. Through conversations and brainstorming sessions with visits to farm sites, students learn about aspects of urban agriculture and community building from top down organizations and bottom up organizations. Students will learn how to effectively use their vast networks and community individuals to gain perspectives of their role in the world. This course is geared towards students who want to get hands-on experience working with communities of individuals who don't have access to fresh food.

107.4. Permaculture

Permaculture is a creative design process based on whole-systems thinking. It guides designers to mimic patterns and relationships found in nature. Gaining in popularity, permaculture is a design theory that tailors toward many people's desire for more sustainable living. This theory offers a unique set of design principles that are very implementable into the design process and could be of great interest to architecture and design students. It can be applied to all aspects of human habitation, from agriculture to ecological building, from neighbourhood to single dwelling scale. The purpose of this elective is to educate and prepare architecture students about using permaculture design principles (PDP's) within their personal design process.

207.1. Indoor Gardening

Plants improve our health. We might exercise regularly and have a balanced diet but plants in our home and workplace not only improve air quality but also have a positive psychological effect. Many scientific Studies revealed that indoor gardening can eliminate many harmful air toxins, reduce stress and improve our moods. In this elective, students would be exposed about how to choose, grow and maintain the most suitable indoor plants, to add appeal to the environment and increase your sense of well-being.

207.2. Organic Farming

This elective will cover topics ranging from Principles and practices of organic farming; farms as ecological systems; the certification process and agencies; organic matter management to support the soil food web and nutrient availability; managing biodiversity, crop rotations, plant competition, ground cover, and plant health; integrating crops and animals; organic animal husbandry practices and crop systems studies. This elective is intended to sensitize students about importance and prospects of Organic farming.

207.3. Public Art

This elective will give opportunity to students about study of theoretical aspects of public art, students will be engaged in an extended, historically-based examination of the development of public art across the India and west in the contemporary landscape. Not only will students read seminal and important works that have shaped public art history, but students will take part in the construction of a piece of public art on the campus of Sarvajanik University. Additionally, students are going to research public art organizations and spaces to see different types of opportunities to pursue public projects.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

207.4. Art, Crafts and indigenous practices from Gujarat: Chartering Identities

The elective course will focus on critically examining trajectories in artisanal and performative practices from the region of Gujarat in post-Independence India. The agro climatic zones of Gujarat state will form the domain of discussions. The course will acquaint students with case histories of practitioners, to trace trajectories of transformation. It will engage with questions of caste and community, agency and selfhood to understand the shaping of art forms and their contexts as well as well as the role and modes of interventions in these practices, including the work of anthropologists, scholars, museums, institutions, and the market. Students will critically engage with discourses surrounding the representation of these forms, including the binaries of art versus craft, or the categories of folk and tribal.

307.1. Cinema Appreciation

The purpose of this elective is to examine the origins and growth of the motion picture from the beginnings in the latter 19th century to the present day. Focus includes film history and key developments in film technology; dramatic aspects of the narrative film; cinematography, film aesthetics, genres, and auteur study; sociological ramifications of film; and the general growth of the business of the motion pictures industry. Supervised film viewing sessions are required. Course provides an emphasis on the analysis of the visual and aural aspects of selected motion pictures, historical growth and sociological effect of film as an art. This course empowers students to explore realities, relationships, and ideas of world culture through the study of cinema. Students analyse the basic elements of cinematic form as seen through essential properties of the medium including editing, cinematography, production design, and sound design and gain an appreciation of film history and for the impact of culture and technology on the development of the cinema.

307.2. Art Appreciation

In this elective students will gain experience in looking at, understanding and analysing works of art. Students will study works of art against the backdrop of history and will gain an understanding of the role the arts play in reflecting man's thinking throughout time. Students will learn a vocabulary appropriate for describing and analysing of works of art and will become familiar with the tools, techniques, and media used to produce works of art. A class visit to a museum/ art gallery will be a required component of this class. Students will learn presentation skills and will actively participate in class discussions and in teaching the class.

307.3. Street Art

This elective examines the diversity of artists, materials and political impulses that drive street art and graffiti and its shift from an illicit subculture to a mainstream practice. Using examples from indian cities and other key Asian and western cities such as New York, Rome and Berlin, the subject investigates how the meaning and impact of street art derive from spatial and social contexts and how street art can provide new ways of understanding a city, as well as broader debates about art, public space and urban development. Students undertaking this elective will develop skills in identifying, mapping and designing street art in Sarvajanik University's Campus.

407.1. Streets for People- Pedestrian friendly city

Walking and cycling are becoming increasingly important in efforts to promote health, sustainability, and liveability in cities across the globe. Planning for pedestrian and bicycle transportation is complex: these modes of travel are influenced by micro-scale environmental characteristics such as sidewalks, bike lanes, traffic safety, and urban design, and by macro-scale conditions such as regional land use patterns. Supporting pedestrian and bicycle transportation therefore requires collaboration across multiple disciplines, including urban planning, civil engineering, design, public health, and others. This elective would introduce key concepts and methods that will help this collaboration to take place in support of healthier, more sustainable communities.

407.2. Child friendly city

A child-friendly city (CFC) is a city, town, community or any system of local governance committed to improving the lives of children within their jurisdiction by realizing their rights as articulated in the UN Convention on the Rights of the Child. This elective focuses on policy, design and governance level aspects through expert talks and case studies of best practices pertaining to Child Friendly City charter.

407.3. Participation, Advocacy, and Equity Planning

Theoreticians and practitioners of urban planning engages in participation, advocacy and equity planning. The Advocacy Planning model highlights the importance of citizens' participation in decision-making processes. It also sticks out the validation of public action through participatory planning approach of public opinion. In this context the model of equity planning is a different terminology to talk about the importance of fighting inequality and segregation in cities. It gives exposure to students about democratic planning to achieve improvement of quality of life of citizens.

507.1.Disaster Mitigation

This elective course is intended to provide a general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on concepts of disaster preparedness, response and recovery. The main aim of this subject is to expose students to Disaster Risk Reduction and to enhance their knowledge by providing existing models in risk reduction strategies to prevent major casualties during disaster.

507.2 Design for healthy living

This elective is intended to sensitize students about relationship of health and wellbeing in the built environment and the positive and negative effects of people-environment interactions. Understanding the role of the environment, particularly the built environment, and its effect on human health and wellbeing, can help to improve people's quality of life and provide a sustainable approach to the design and management of our environments. This elective would adopt an interdisciplinary approach and the content would try to cover necessary aspects from environmental psychology, epidemiology, and town planning, architecture, and community psychology. The main objective of this elective would be development of research capacity among students to assess the implications of designed and engineered environments on people's experiences and subsequent health and wellbeing.

507.3 Civic culture & public places

Making places, as opposed to making buildings is best conceived as a public process of civic culture. This elective course will give opportunities to students to examine the nature of place, the qualities of public and representatives spaces—and the processes through which these places are negotiated and designed. They would learn about involving the public in place-making through understandings of civic culture engagements, and about the challenges and limits of civic culture. Examination of a few case studies and site visits—including the development of new public spaces in Surat, and the design of a few civic and cultural institutions will help students to learn from projects' successes and failures.

Ultimately, students will apply these concepts as development proposals to present to the University and Municipal corporation for making Sarvajanik University, into a responsive, responsible, and engaging public place for new age civic culture.

607. 1. Essential building services

Building services are the essential services provided in the buildings for improving functioning of the buildings in efficient manner for the desired use of the building. The electrical services, mechanical services such as air conditioning, lighting, ventilation, fire protection, acoustics and sound insulations, elevators, escalators, as well as civil engineering services such as water supply, sanitary services, etc. have become most essential services for residential, commercial, industrial, high rise and recreational building typologies. This elective course attempts to teach students about basic fundamentals of these services.

607. 2. Smart homes

Home automation is a part of building automation for a house, also called as smart home. It mainly handles the control and automation of heating, ventilation, air conditioning (HVAC), lighting, security, and home appliances. Looking ahead to the next few years, smart home technology will continue to prevail in society. This will inevitably lead to an increased demand for installation professionals who are able to install smart home systems and who are connected cohesively. This elective course is intended to provide a general overview, technological and futuristic prospects of smart home technology.

607. 3. Building economics

This elective aims to provide a broad overview of the Building economics in the Indian context. It shall expose the students to the basic concepts, policies, laws, processes and practices relating to the real estate development sector in urban India. The course would be structured under five modules: Module 1 is an introductory module that outlines the concepts relating to the real estate sector. Module 2 covers the policies and laws of real estate and related sectors. Module 3 focuses on the aspects of transactions and investment. Module 4 addresses the critical aspects related to the development of real estate projects and Module 5 focuses on asset management.

707.1. Scientific Vastu & Fengshui

Vaastu Shastra and Feng Shui are ancient science which makes the individual to live in balance and harmony with the *panch tatva*. They instruct us how to maintain best equilibrium of these five elements in a building and make best use of them to energize mental and physical energies of inhabitants to the maximum extent. But in recent years due to lack of scientific teaching both are practiced as mere superstition. This elective would expose student to scientific aspects of *Vaastu Shastra* and *Feng Shui* so in future they could use the real essence of both ancient science.

707.2. Urban forestry

This elective course, framed by a social-ecological systems perspective, explores the theory and practice of sustainable urban forestry for resilient cities. Urban trees and their associated vegetation provide a myriad of ecological, social, and economic benefits to communities. Arguably, some aspects of urban forests are said to produce disservices, as well. In either case, urban trees impact people. Likewise, people impact trees; human decision-making and actions – active and passive ones – help to structure the urban forest. This course will cover both the theory and practice underpinning urban forest management. This course is designed to equip each student with the knowledge and skill sets to successfully evaluate the sustainability of urban forests through a holistic, social-ecological lens.

707.3. Water harvesting & Recycling

Rain Water harvesting and waste water recycling are major issues in a highly populated country like India. Sound knowledge and skill is very essential for proper water harvesting and recycling, both are prerequisite for meeting the problem effectively. The message involved in the proposed elective course could be spread to the public at large by through the learners.

This elective is divided into a theoretical part, as well as practical case studies and an overview of the technological innovations in the field of Rain water harvesting and waste water recycling.

Note: The above electives are suggestive and alternative or additional electives can be offered from time to time by the institute.

907. 1. Impacts of technological advancements on Building sciences

This elective would systematically and comprehensively evaluate and summarize the development process of advancement of building sciences, determine the key points of the evolution of building technology, and combine a large number of historical examples and relevant case studies to analyze the causes of the evolution of building science, which include the natural environment, science and technology, building system and concept consciousness. Based on this, this elective would give knowledge about advancement of three main aspects— building materials, structural system and construction process—and seeks for a reasonable understanding of building sciences.

907.2. Gandhian philosophy and Rural development

Mahatma Gandhi and his philosophy have great relevance in this era of Globalisation. Violent conflict, rising inequalities and instability disrupt markets and societies. A peaceful environment is a pre requisite for better human development. Inclusive Rural development is necessary for sustainable development. This elective course is designed to inculcate strong values in students and sensitise the youth to the problems of the marginalized. It aims at training the students in the art of inclusive methods of rural development based on Gandhian philosophy. Through an interesting and well-planned mix of lectures, presentations, skits, films, social outreach programmes and other activities it aims at developing the overall personality of students by helping them discover their latent talents and instilling leadership qualities.

907.3. Sustainable communities

This elective course explores the range of planning and development processes associated with creating sustainable communities prevents misuse of natural resources that are accessible to all citizens, and that ensure a high quality of life for current and future residents. The use of sustainable community planning in this context ranges in scale from individual buildings, to collections of buildings and spaces within neighbourhoods or larger collections of neighbourhoods, as well as planning at the city and regional levels. The course will examine the various components of sustainable community planning, such as land use, transportation, ecological planning, green design in the built environment, resource utilization in the critical areas of water and energy consumption, climatic factors that influence sustainable community planning, and how sustainable community planning contributes to liveability and economic resilience. The intent of the course is to demonstrate that sustainability must be approached from a systems perspective, where the interaction between the built and natural environments create opportunities to advance the quality of urban and community life.

1007.1. Humanizing Cities

The course aims to expose the students to human aspects in settlements leading to an understanding of cultural dimensions of transformation in the built environment. The course brings in the discourse of space and place and how people and their meanings and culture are critical in the way spaces are understood and built. It seeks to acquaint the students with the social, economic, political and environmental influences on the contemporary city by focussing on the ideas of globalization, transnational and post-colonial identity, gender and slum politics, gated urbanism and post-metropolis. By stressing on important theoretical ideas developed by urbanises like Sasskia Sassen, Edward Soja, Manuel Castells, the course also seeks to highlight new patterns of social groupings and movements in and across cities and nations. It aims to make students look beyond the physical aspects of traditional city forms.

1007.2. Cultural Anthropology

Cultural Anthropology introduces the student to a holistic study of culture. The major elements of human social behaviour, material culture, and cultural diversity are studied as adaptations to social and environmental change--past and present. Introduction to Cultural Anthropology is designed to provide students with an understanding of the interaction of culture and biology as it bears on the evolution of hominid and cultural diversity. This course will allow students to apply general anthropological knowledge and skills to everyday life and their chosen careers.

1007.3. Smart Cities

A smart city is one where the needs of society meet the needs of environmental sustainability. The balance between the social and environmental issues is governed by Information and Communication Technologies (ICT) that power a smart city infrastructure. In this elective course, students will learn about the influence of urban networks, smart city urban planning, energy as a catalyst of sustainable development, smart city infrastructure, sustainable transportation, flow of information and

communications, smart grids, digital infrastructure and the role of data and information technology. This course would also give exposure to students about smart technologies and its relevance including quality of life, citizen governance, and discuss issues that go towards the making of a future smart city.

SARVAJANIK UNIVERSITY

B.ARCH., INSTITUTE OF DESIGN PLANNING & TECHNOLOGY (IDPT)-SCET

SUBJECT CODE	CODE SUFFIX	GROUP	YEAR 1 (Foundations) SOCIALLY RESPONSIVE	Credits		YEAR 2 (Exploration) CRITICALLY EVOLVED	Credits		YEAR 3 (Exploration) INTELLECTUALLY COMPETENT	Credits			YEAR 4 (Synthesis) PROFESSIONALLY SKILLED	Credits		YEAR 5 (Synthesis) PROGRESSIVE CITIZEN	Credits	
			SEM 1		SEM 2		SEM 3		SEM 4		SEM 5		SEM 6		SEM 7		SEM 8		SEM 9		SEM 10	
Professional Core Courses (AR-PC)	-01	Architectural Design	01 A - Basic Design & Visual Arts - I (10) 1. Visual Literacy 2. Expression Skills	14	01 A - Basic Design & Visual Arts - II (10) 1. Complex Structure in Nature 2. Understanding Space Making elements & Volumetric explorations	14	Environmental Design Studio 1. Environmental Design I (Climatology) 2. Rural / Vernacular Architecture 3. Material Studio	14	Habitat Design Studio 1. Individual House Design 2. Community Housing 3. DDR	14	Design Realisation Studio 1. Multifunctional Space / Utility Facility 2. Working Drawing 3. Estimation & Specifications	14	Master Planning & Architecture Design Studio 1. Master Planning 2. Architectural Language making 3. Institutional Architecture	14	Advanced Architectural Design Studio 1. Urban Insert 2. Precinct Redevelopment 3. Mass Housing	14			01 A - Research Thesis	18	Design Thesis	18
		Design Expressions	01-B Graphics & Visual Representation I (4)		01 B - Graphics & Visual Representation II (4)														01 B - Urban Design (4)			
Building Science & Applied Engineering (AR-BA)	-02	Building Materials & Construction Technology	Basics of Building Materials, Components & Structures BUILDING MATERIALS I: Introduction to basic building materials: Clay/Cement/Sand/ Lime/ Wood/Glass/Steel/Metals. Understanding properties and application BUILDING CONSTRUCTION - I: Introduction to building components: Foundation (and its types),Plinth, Wall, Openings, Sill, Lintel Beam,Column, Slab, Sillcill,sloe (and its types), Balcony, Canopy, Parapet) LAB AND WORKSHOP: Lab testing for checking strength of materials. Hands on workshop for familiarization with materials. (Clay/Ceramic/Wood)	6	Building Materials, Systems & Environmental science BUILDING MATERIALS II: Introduction to basic building materials: Brick,Stone,Wood (Understanding properties,behavior and application) BUILDING CONSTRUCTION II: -Masonry construction. -Timber Frame Construction (Elements, Methods and Technology) ENVIRONMENTAL SCIENCE LAB AND WORKSHOP: Workshop for masonry construction/timber frame construction/ thermal/ dome construction	6	Building Technology - I (Construction,Structure & Services) BUILDING MATERIALS III: Introduction to Concrete (Understanding properties,behavior and application) BUILDING CONSTRUCTION III: Concrete construction (Understanding different concrete components and their types, its role in building system, its construction technology) LAB AND WORKSHOP: Laboratory test for checking strength of Concrete	6	Building Technology - II (Construction,Structure & Services) BUILDING MATERIALS IV: Introduction to Steel (Understanding properties,behavior and application) BUILDING CONSTRUCTION IV: Steel construction (Understanding different steel components and their types, its role in building system, its construction technology) LAB AND WORKSHOP: Structural analysis through model making	6	Building Technology - III (Advanced Construction, Structure & Services) SPECIALISED CONSTRUCTION: Underground construction, underwater construction, Blast resistant construction LAB AND WORKSHOP: Design analysis through case study and model making	6	Building Technology - IV (Advanced Construction, Structure & Services) CONSTRUCTION OF LARGE SPAN STRUCTURES: Introduction, Concept and Application Different types of Large span structures (Folded Plates, Space Frame Structures, Tensile Structures,Shell Structure) LAB AND WORKSHOP: Design analysis through case study and model making	6	High-Tech Structures & Performance Analysis ADVANCED BUILDING MATERIALS: Research on new and advanced materials and understanding Application	6						
		Structural Systems & Design	BASICS OF STRUCTURES I: Stregth of Materials. Types of loads on buildings. Load Transfering systems		BASICS OF STRUCTURES II: Behavior of Building Elements (Foundation,beam/column/ slab/lintel/arch/vault/dome)		DESIGN WITH CONCRETE: Structural systems in RCC. Design of concrete elements		DESIGN WITH STEEL: Structural components, systems and patterns for steel frame construction, planning with regular grids(regular grid)		DESIGN OF SHELL STRUCTURES: Structural design and systems for rod structures -Lateral stability(Wind and Earthquake) in rod structures EARTHQUAKE RESISTANT ARCHITECTURE: Understanding fundamentals of Earthquake Resistant Architecture		DESIGN OF LARGE SPAN STRUCTURES: Systems for Folded Plates, Space Frame structures, Tensile structures, Shell Structures. Concepts of prestressing/post tensioning for large spans (Examples, Components,Envelope/Covering materials, Jointing)		ADVANCED BUILDING SYSTEMS: Digital, Parametric and Pneumatic Structures (Concept,systems and application)							
		Building Services									BUILDING SERVICES III: Vertical Transport and HVAC		BUILDING SERVICES IV: Fire Safety in Buildings. Building Acoustics		BUILDING PERFORMANCE ANALYSIS: Energy Efficiency in Buildings (Building Envelope Design, Performance Analysis through use of advanced software's)							
Humanities (AR-HU)	-03	History, Theory & Culture	Society & Culture I	2	Society & Culture II	2	History and Theory of Architecture I	2	History and Theory of Architecture II	2	History and Theory of Architecture III	2	History and Theory of Architecture IV	2	Human Settlement Planning (Housing Theories)	2			Building Const Mgmt., Economics	2	Urban Anthropology & Ethnics	2
	-04	Liberal Studies & Life Skills (4 Weeks Module for each topic)	1. Social & Cultural Etiquettes 2. Self Expression & Personality Building 3. Maintenance & Repairing 4. Team Building	2	1. Sociology 2. Psychology 3. Voluntary Actions 4. Environmental Awareness	2	1. History of Arts 2. Traditional Indian Arts 3. Art Appreciation 4. Film Appreciation	2	1. Public Speaking 2. Communication Design 3. Branding & Marketing 4. Creative Writing, Journalism & Mass Communication	2												
Professional Ability & Skill Enhancement Courses (AR-PA)	-05	Professional Ability & Skill Enhancement	Communication Skills (I)	2	Communication Skills & Personality Development	2	SIM (Computer Studies)	2	SIM (Computer Studies)	2	Geo Planning & Landscape	2	Research Methods	2	Research Skills	2	Professional Training	10	Professional Practice	4	Professional Practice	4
ELECTIVE (AR-EP) (AR-EO)	-06	Professional Elective	Elective - 1 A 1. Origami & Kirigami 2. Print Making 3. Typography 4. Textiles, Natural Dye & Printing	2	Elective - 2 A 1. Architectural Photography 2. Traditional & Contemporary Crafts 3. Sculpture 4. Wall Murals	2	Elective - 3 A 1. Basics of Animation 2. Pottery 3. Earthen Architecture	2	Elective - 4 A 1. Film Making & Editing 2. Structure, Form & Architecture - The Synergy 3. Bamboo Architecture	2	Elective - 5 A 1. Product & Furniture Design 2. Biomimicry in Architecture 3. Building Envelope Design	2	Elective - 6 A 1. Visual Culture of Contemporary South Asia 2. Vernacular Architecture 3. Lighting Design	2	Elective - 7 A 1. Green Building & Rating System 2. Earthquake Resistant Design & Technology 3. Universal design	2	Elective -8 A (Open	2	Elective - 9 A 1. Digital / Parametric Design 2. Tensile Structures 3. Healthcare Architecture	2	Elective - 10 A 1. Urban Arts & Graphics 2. Architectural Conservation 3. Climate Change & Resilient Cities	2
	-07	Transdisciplinary Open Elective (Max 30 students per elective. Programme has to offer minimum elective at the base of Total no. of Students/30)	Elective - 1 B 1. Recycling & Upcycling 2. Renewable energy & Technology 3. Urban Farming 4. Permaculture	2	Elective - 2 B 1. Indoor Gardening 2. Organic Farming 3. Rubber Art 4. Art, Crafts and indigenous practices from Gujarat Chartering travelers	2	Elective - 3 B 1. World Cinema 2. Art Appreciation 3. Street Art	2	Elective - 4 B 1. Streets for People- Pedestrian friendly city 2. Child friendly city 3. Participatory Planning	2												
Credits / Contact Hours				30		30		30		30		28		28		30		26		26		
No. of Subjects			7		7		7		7		5		5		5		2		4		4	

EXIT