B.ARCH
SYLLABUS 2021-22

SCHOOL OF ARCHITECTURE AND PLANNING

Bachelor of Architecture

Programme Code: SAP0102

Duration- 5 Years Full Time

PROGRAM STRUCTURE

AND

CURRICULUM & SCHEME OF EXAMINATION

2021-22

1.1 Vision, Mission and Core Values of the University

Vision of the University

To serve the society by being a global University of higher learning in pursuit of academic excellence, innovation and nurturing entrepreneurship.

Mission of the University

Transformative educational experience
Enrichment by educational initiatives that encourage global outlook
Develop research, support disruptive innovations and accelerate entrepreneurship
Seeking beyond boundaries

Core Values

Integrity
Leadership
Diversity
Community

1.2 Vision and Mission of the School of Architecture and Planning

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Vision of the School

To be amongst the top institutes in India imparting quality education and professional skills to the students to emerge as architects of global caliber and thus the society in large.

Mission of the School

To create and sustain a stimulating and responsive academic inclusive environment.
To regularly enhance the teaching contents & techniques in keeping with current and future trends.
To provide a competitive and career oriented programme.
To encourage students to be socially responsive and responsible architects.

Core Values

Critical Thinking and Observation
Analytical Skills
Creativity
Integrity to uphold authentic building traditions and architecture principles

1.3.1 Programme Educational Objectives (PEO)

PEO1 Students shall be able to define architectural designs that satisfy both aesthetics and technical requirements with the adequate acquired knowledge of the history and related fields. They shall be able to appraise the physical problems, technologies and functions of buildings and summarize so as to provide justified internal conditions of comfort and protection against the climate.

PEO2 Students shall have an understanding of the relationship between people and buildings, and distinguish between buildings and the environment, thus being able to able to analyze the methods of investigation and illustrate the preparation of the brief for a design project.

PEO3 Students shall demonstrate an understanding of the profession of architecture and the role of an architect in society and at the same time have the ability to display sensitivity towards concerns for environmental and energy issues.

PEO4 Students shall be able to appraise themselves with the design skill necessary to meet building users' requirements within the constraints imposed through adequate knowledge of the industries, organizations, regulations, and procedures.

1.3.3 Program Outcomes (PO's)

Program Outcomes (PO's)

PO – 1: **Architectural knowledge** : Apply the knowledge of design, science, engineering fundamentals, and architectural specialisations to the solution of complex architectural problems.
PO – 2: **Problem analysis**: Identify, formulate, review research literature, and analyze complex architectural problems reaching substantiated conclusions using principles of design and architecture
PO – 3: **Design/development of solutions**: Design solutions for complex architectural problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO – 4: **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO – 5: **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern architecture and IT tools including prediction and modelling to complex architectural activities with an understanding of the limitations.
PO – 6: **The architect and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional architectural practice.
PO – 7: **Environment and sustainability**: Understand the impact of the professional architectural solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO – 8**: Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the architectural practice.
PO – 9: **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
PO – 10: **Communication**: Communicate effectively on complex architectural activities with the architecture community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO – 11: **Project management and finance**: Demonstrate knowledge and understanding of the architecture and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO- 12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program: BACHELOR OF ARCHITECTURE

Semester: I (2101)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ARP 101	Communicative English - I	1	2	0	2	Old
2	ART 151	Construction Material & Methods -I	0	0	5	5	New
3	ART 152	Human Values, Ethics & Constitutional Values	2	0	0	2	New
Jury Subjects							
4	ARJ151	Architectural Design-I	0	0	8	8	New
5	ARJ152	Architectural Visual Representation and Design-I	0	0	5	5	New
6	ARJ153	Digital Design Fabrication-I	0	0	3	3	New
7	ARJ154	Model Making and Carpentry Workshop	0	0	3	3	New
Practical Subjects							
	VAC 001	VAC-I(Orientation Workshop)	-	-	-	Non-CGPA credit	Not shown in Mark sheet
					Total Credits	**28**	

Program: BACHELOR OF ARCHITECTURE

Semester: II (2102)

Session: 2021-22

S. No.	Subject Code	Subjects	Teaching Load			Credits	Remarks (if any)
			L	P	S		
Theory Subjects							
1.	ART	History, Theory & Criticism-I	2	0	0	2	New
2	ART	Environment, Sustainability and Services I	2	0	0	2	New
3	ARP	Communicative English-2	1	2	0	2	New
4	ART	Construction Material & Methods-II	0	0	5	5	New
Jury Subjects							
5	ARJ	Architectural Design-II	0	0	8	8	New
6.	ARJ	Architectural Visual Representation and Design-II	0	0	4	4	New
7.	ARJ	Digital Design Fabrication -II	0	0	3	3	New
Practical Subjects							
8.		University Elective	0	2	0	2	
					TOTAL	**28**	

Program: BACHELOR OF ARCHITECTURE

Semester: III (2101)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 208	History, Theory & Criticism –III	2	0	0	2	Old
2	ART 209	Environment, Sustainability Services-I	2	0	0	2	Old
3	ART 206	Architectural Structures-I	2	0	0	2	Old
Jury Subjects							
4	ARJ 205	Architectural Design-III	0	3	7	12	Old
5	ARJ 206	Digital Design Fabrication-I	0	2	2	4	Old
6	ARJ 218	Construction Material & Methods-III	0	6	2	6	Old
7	CCU303	Community Connect	0	4	0	2	Old
Practical Subjects							
8	RSPC001	Related Study Programme/Community Connect-1	-	-	-	Non-CGPA credit	Not shown in Mark sheet
9	VAC 003	VAC-III(Orientation Workshop)	-	-	-	Non-CGPA credit	Not shown in Mark sheet
					Total Credits	**30**	

Program: BACHELOR OF ARCHITECTURE

Semester: IV (2102)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 219	Environment, Sustainability & Services-II	2	0	0	2	Old
2	ART 218	History, Theory & Criticism –IV	2	0	0	2	Old
3	ART 216	Architectural Structures-II	2	0	0	2	Old
Jury Subjects							
4	ARJ 215	Architectural Design-IV	0	3	7	12	Old
5	ARJ 216	Construction Material & Methods-IV	0	6	2	8	Old
6	ARJ 213	Digital Design Fabrication-II	0	2	2	4	Old
Jury Elective Subjects							
7	AEJ 220	Trends In Architecture	0	3	0	2	Old
8	AEJ 221	Textile Crafts, Art & Design					
9	AEJ 222	Art & Design					
10	AEJ 223	Product-Furniture Design					
11	AEJ 224	Ergonomics					
12	VAC 004	VAC-IV				2/Non Credit	
					Total Credits	**30**	

Program: BACHELOR OF ARCHITECTURE

Semester: V (2101)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 308	History, Theory & Criticism –V	2	0	0	2	Old
2	ART 309	Environmental, Sustainability & Services - III	2	0	0	2	Old
3	ART 306	Architectural Structures-III	2	0	0	2	Old
Jury Subjects							
4	ARJ 305	Architectural Design-V	0	3	7	12	New
5	ARJ 306	Construction Material & Methods-V	0	3	3	6	New
6	ARJ 303	Digital Design Fabrication-III	0	2	2	4	Old
Jury Elective Subjects							
7	AEJ 307	High Rise Building	0	1	1	2	Old
8	AEJ 313	Cinema in Architecture					New
		Total Credits				**30**	

Program: BACHELOR OF ARCHITECTURE

Semester: VI (2102)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 315	Environment, Sustainability & Services-IV	2	0	0	2	Old
2	ART 314	History, Theory & Criticism –VI	2	0	0	2	Old
3	ART 316	Building, Estimation & Costing	2	0	0	2	Old
Jury Subjects							
4	ARJ 311	Architectural Design-VI	0	3	7	12	Old
5	ARJ 312	Construction Material & Methods-VI	0	3	3	6	Old
6	ARJ 313	Digital Design Fabrication-IV	0	2	2	4	Old
Jury Elective Subjects							
7	AEJ 317	Architecture Criticism & Journalism	0	1	1	2	Old
8	AEJ 318	High Rise Architecture					
9	AEJ 319	Robotics					
10	AEJ 320	Trends in Planning & GIS					
						Total Credits	**30**

Program: BACHELOR OF ARCHITECTURE

Semester: VII (2101)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 403	Urbanism	2	0	0	2	Old
2	ART 404	Landscape	2	0	0	2	Old
3	ART 405	Professional Practice	2	0	0	2	Old
Jury Subjects							
4	ARJ 401	Architectural Design And Parametric Design-VII	0	3	7	12	Old
5	ARJ 402	Working Drawing-VII	0	3	3	6	Old
					Total Credits	**30**	

Program: BACHELOR OF ARCHITECTURE

Semester: VIII (2102)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Jury Subjects							
1	ARJ 411	Practical Training/ Internship				22	Old
					Total Credits	**22**	

Batch: 2021

Program: BACHELOR OF ARCHITECTURE

Semester: IX (2101)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Theory Subjects							
1	ART 507	Critical Study Of Art	2	0	0	2	Old
Jury Subjects							
2	ARJ 501	Architectural Design-VIII	2	2	8	15	Old
3	ARJ 502	Dissertation	1	0	4	7	Old
Jury Elective Subjects							
4	ARJ 503	Sustainability-IA	0	3	3	6	Old
5	ARJ 508	Digital Design Fabrication -IB					Old
Total Credits						**30**	

Program: BACHELOR OF ARCHITECTURE

Semester: X (2102)

Session: 2021-22

S.No	Subject Code	Subject Name	L	P	S	Credits	Remarks
Jury Subjects							
1	ARJ 511	Thesis	0	1	13	20	Old
Jury Elective Subjects							
2	AEJ 512	Sustainability-IIA	0	3	3	6	Old
3	AEJ 513	Digital Design Fabrication -IIB					
		Total Credits				**26**	

SEMESTER I

ARP 101: Communicative English-1

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 1**
1	Course Code	**ARP: 101**
2	Course Title	**Communicative English-1**
3	Credits	**2**
4	Contact Hours (L-P-S)	**1-2-0**
5	Course Status	**Compulsory**
6	Course Objective	To minimize the linguistic barriers that emerge in varied socio-linguistic environments through the use of English. Help students to understand different accents and standardize their existing English. Guide the students to hone the basic communication skills - listening, speaking, reading and writing while also uplifting their perception of themselves, giving them self-confidence and building positive attitude.
7	Course Outcomes	CO1 Learn to use correct sentence structure and punctuation as well as different parts of speech. Learning new words its application and usage in different contexts helpful in building meaning conversations and written drafts. Develop over all comprehension ability, interpret it and describe it in writing. Very useful in real life situations and scenarios. CO2 A recognition of one's self and abilities through language learning and personality development training leading up to greater employability chances. Learn to express oneself through writing while also developing positive perception of self. To be able to speak confidently in English CO3 To empower them to capitalize on strengths, overcome weaknesses, exploit opportunities, and counter threats. To ingrain the spirit of Positive attitude in students through a full length feature film followed by a storyboarding activity. Create a Self-Brand, identity and self-esteem through various interesting and engaging classroom activity. CO4 Exposing students to simulations and situations wherein students learn to describe people and situations and handle such situations effectively and with ease. Teaching students how to engage in meaningful dialogues and active conversational abilities to navigate through challenging situations in life and make effective conversations. Learn how to transform adverse beginnings into positive endings – through writing activities like story completion. CO5 At this stage the Students will be exposed to take advantage of the digital literacy platforms and to use them to their merit. How to use effective social media and how to create and build successful and professional social media handles. Students will also be exposed to multiple Career Opportunities across different domains. How to engage in effective brainstorming to deduct meaningful

		solutions to problems, like Fishbone techniques etc CO6 The students will also learn profusely about Social and cultural etiquettes along with teamwork. Students will effectively learn the Art of Management & Leadership Skills. The Students will also gradually start learning about the Entrepreneurial skills at this stage along with internal communication techniques.
8	Course Description	The course is designed to equip students, who are at a very basic level of language comprehension, to communicate and work with ease in varied workplace environment. The course begins with basic grammar structure and pronunciation patterns, leading up to apprehension of oneself through written and verbal expression as a first step towards greater employability.
9	Outline syllabus	
	Unit 1	**Sentence Structure**
		1a. Subject Verb Agreement 1b. Parts of speech 1cWriting well-formed sentences
	Unit 2	**Vocabulary Building & Punctuation**
		2a- Homonyms/ homophones, Synonyms/Antonyms 2b- Punctuation/ Spellings (Prefixes-suffixes/Unjumbled Words) 2c- Conjunctions/Compound Sentences
	Unit 3	**Writing Skills**
		3a- Picture Description – Student Group Activity 3b- Positive Thinking - Dead Poets Society-Full-length feature film - Paragraph Writing inculcating the positive attitude of a learner through the movie | SWOT Analysis – Know yourself 3c- Story Completion Exercise –Building positive attitude - The Man from Earth (Watching a Full length Feature Film) 3d- Digital Literacy | Effective Use of Social Media
	Unit 4	**Speaking Skill**
		4a – Self-introduction/Greeting/Meeting people – Self branding 4b-Describing people and situations - To Sir With Love (Watching a Full length Feature Film) 4c - Dialogues/conversations (Situation based Role Plays
	Unit 5	**Professional Skills | Career Skills**
		5a-Exploring Career Opportunities 5b-Brainstroming Techniques & Models 5c-Social and Cultural Etiquettes

		5d-Internal Communication
	Unit 6	**Leadership and Management Skills**
		6a-Managerial Skills 6b-Entrepreneurial Skills
10	Mode of examination	Class Assignments/Free Speech Exercises / JAM Group Presentations/Problem Solving Scenarios/GD/Simulations (60% CA and 40% ETE
11	Weightage Distribution	*Class Assignments/Free Speech Exercises / JAM Group Presentations/Problem Solving Scenarios/GD/Simulations (60% CA and 40% ETE*
12	Text book/s*	● Blum, M. Rosen. *How to Build Better Vocabulary*. London: Bloomsbury Publication ● Comfort, Jeremy(et.al). *Speaking Effectively*. Cambridge University Press
13	Other References	

Observations:

1. A Single Consolidated Syllabus has now replaced the Previous Functional English Beginners -1 and Functional English Intermediate -1
2. 2 Credits previously allocated to FEN 01 the Lab Sessions have been dissolved
3. The Pearson Voice Labs have been completely eliminated

T 151: Construction Material & Methods-I

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 1**
1	Course Code	**ART 151**
2	Course Title	**Construction Material & Methods-I**
3	Credits	**5**
4	Contact Hours (L-T-S)	**0-0-5**
	Course Status	**Compulsory**
5	Course Objective	1. To develop understanding about construction principles. 2. To familiarize students with building elements 3. To understand basic building materials such as mud, bamboo, stone and bricks and the various construction techniques wherein these materials are used. 4. To understand different types of brick & stone masonries and their applications along with mud & bamboo construction.
6	Course Outcomes	CO1: To **examine** various building elements. CO2: To **understand** the functions and characteristics of common building systems and assemblies. CO3: To **comprehend** the standard nomenclature and classify the various types of bricks, brick masonry bonds & demonstrate the application of the same. CO4: To **develop** an understanding of different types of brick & stone masonries and their application. CO5: To **discuss** mud and bamboo construction techniques.
7	Course Description	The entire course of Construction Methods and materials that is taught in architecture is a logically laid out curriculum which aims at one aspect of the construction in each semester. The course in First Semester aims at introducing to the students the primary building materials and their properties and applications in building construction. The students are taught the basics of construction through lectures and hands-on exercises. Further the course elaborates on mud, stone and bricks as the basic building materials.
8	Outline syllabus	
	Unit 1	**Building Elements & Terminology**
	A	Elements of building Terminology, Nomenclature of various parts of building from foundation to roof.
	B	Section through building.
	C	General idea of load transmission in load bearing & frame structures, their advantages, disadvantages and suitability.

	Unit 2	**Brick and Brick masonry**		
	A	Brick terminology, types of brick and its manufacturing process.		
	B	Types of Bricks : e.g. Bull Nose, Queen Closer, different kinds of bats etc.		
	C	Brick bonds- English bond and Flemish (single and double) bond in brick for up to two brick thick wall.		
	Unit 3	**Brick Junctions &Jaalis**		
	A	Tests and defects, properties of brick and its uses. Merits & Demerits of different types of brick bonds, principles of brick masonry		
	B	Laying of brick bonds/ junctions on sites L Junction, T junction, Cross junction, Oblique junction		
	C	Design and construction of brick jallis		
	Unit 4	**Stone Masonry**		
	A	Dressing, laying in Stone Masonry- Tools used, Surface finishes, principles of stone masonry		
	B	Classification of Stone Masonry- Random Rubble, Coursed Rubble, Ashlar, Composite Stones		
	C	Joints of stone masonry		
	Unit 5	**Mud & Bamboo construction**		
	A	Mud Architecture- Introduction and various construction techniques, Properties, Advantages & Disadvantages		
	B	Bamboo Architecture- Construction details & Techniques, Properties, Advantages & Disadvantages		
	C	Case Study of Mud & Bamboo buildings. Site Visit of Kiln		
9	Mode of examination	Theory/Jury		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*	McKay, W.B., “Building Construction Volume I, II, III and IV”, Longmans, 1955. 3. Ching, Francis D. K. and Adams, Cassandra, “Building Construction Illustrated”, Wiley and Sons, 2000. 4. The Construction of Buildings – Barry Volume I, II, III and IV 5. Chudley, Roy, “Construction Technology”, Longman, 2005. 6. Building Construction_Mitchell (Elementary and Advanced) 7. Rangwala, S. C., “Building Construction”, Charotar Publishing House, 2007 8. Building Construction-Bindra&Arora. 9. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.		
12	Other Reference			

ART 152: Human Values, Ethics and Constitutional values

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 1**
1	Course Code	**ART 152**
2	Course Title	**Human Values, Ethics and Constitutional Values**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
5	Course Status	**Compulsory**
6	Course Objective	-To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education. -To help students initiate a process of dialog within themselves to know what they 'really want to be' in their life and profession -To facilitate the students to understand harmony at all the levels of human living, and live accordingly. -To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life -Develop in students sensitivity to constitutional obligations.
7	Course Outcomes	CO1: To **summarize** the significance of value inputs in a classroom, the need, basic guidelines, content and process of value education, CO2: To **explore** the meaning of happiness and prosperity in the current scenario in the society CO3: To **distinguish** between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work. CO4: To **assess** the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships , their role in ensuring a harmonious society CO5: To **develop** in students sensitivity to constitutional obligations. CO6: To **adapt** the spirit of secularism and national unity in students.
8	Course Description	
9	Outline syllabus	
	Unit 1	**Need, Basic Guidelines, Content and Process for Value Education**
		1a - Continuous Happiness and Prosperity- A look at basic Human Aspirations 1b - Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority 1c- Understanding Happiness and Prosperity correctly- A critical

<table>
<tr><td></td><td></td><td colspan="3">appraisal of the current scenario, Method to fulfill the above human aspirations: understanding and living in harmony at various levels.</td></tr>
<tr><td></td><td>Unit 2</td><td colspan="3">Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship .</td></tr>
<tr><td></td><td></td><td colspan="3">2a- Understanding the meaning of Vishwas; Difference between intention and competence
2b- Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship
2c- Understanding the harmony in the society (society being an extension of family)</td></tr>
<tr><td></td><td>Unit 3</td><td colspan="3">Holistic Understanding of Harmony on Professional Ethics</td></tr>
<tr><td></td><td></td><td colspan="3">3a- behaviour of a person or group in a business environment
3b- professional competence with ethical human conduct.
3c - honest in one’s work and serving the people along with trustworthiness, respecting others, honesty, accountability, abiding by the rules and avoiding harming anyone.</td></tr>
<tr><td></td><td>Unit 4</td><td colspan="3">Constitutional Values</td></tr>
<tr><td></td><td></td><td colspan="3">4a - LIBERTY of thoughts, expression, belief, faith and worship
4b - EQUALITY of status and of opportunity and to promote among them all
4c- FRATERNITY, assuring the dignity of the individual and the unity and integrity of the nation.</td></tr>
<tr><td>10</td><td>Mode of examination</td><td colspan="3">Theory</td></tr>
<tr><td rowspan="2">11</td><td rowspan="2">Weightage Distribution</td><td>CA</td><td>MTE</td><td>ETE</td></tr>
<tr><td>30%</td><td>20%</td><td>50%</td></tr>
<tr><td>12</td><td>Text book/s*</td><td colspan="3">1.R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.</td></tr>
<tr><td>13</td><td>Other References</td><td colspan="3">1.A Nagraj, 1998, Jeevan Vidya EkParichay, Divya Path Sansthan, Amarkantak.
2.P L Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
3.A N Tripathy, 2003, Human Values, New Age International Publishers.
4.SubhasPalekar, 2000, How to practice Natural Farming, Pracheen (Vaidik)
KrishiTantraShodh, Amravati.
5.E G Seebauer& Robert L. Berry, 2000, Fundamentals of Ethics for Scientists & Engineers , Oxford University Press</td></tr>
</table>

ARJ 151: ARCHITECTURAL DESIGN- I

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 1**
1	Course Code	**ARJ 151**
2	Course Title	**Architectural Design -I**
3	Credits	**8**
4	Contact Hours (L-P-S)	**0-0-8**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is to -To understand and analyze elements, principles, space, and human relationship of the design and composition -To enable students to formally apply and visualize various methods of form generation (hand skills and graphics) -To introduce students to various components of form based design process and thereby successfully ideate a form into design. -To enable students to understand and analyze relation of space and human by learning various principles of proportions and anthropometry -To develop and implement various communicative presentation skills
7	Course Outcomes	CO1: Student should be able to **demonstrate** the appropriate skills of form making and model making CO2: Student should be able **to interpret** concepts of composition and basic principles of design, principles of color and texture CO3: The student should be able to **develop** an understanding relation of space and human. CO4: The student should be able to **comprehend** the skills and knowledge to design space solutions CO5: The student should be able to **communicate** effectively through documentation, graphical and verbal presentations.
8	Course Description	The studio is designed to familiarize students with visual grammar, elements of design and methods of visual composition with various mediums and color in 2D & 3D. The studio focuses on space proportions and anthropometrics with its application on form based design process.
9	Outline syllabus	
	Unit 1	**2D & 3D COMPOSITION**
		1a- Visual elements- point, line, plane and volume. 1b- Understanding Positive and negatives, solids and voids 1c- Principles of Proportion, Scale and balance, rhythm, contrast,

		harmony, symmetry, focus, order and chaos	
	Unit 2	**CONSTRUCTION/ADDITION/ SUBTRACTION**	
		Model based additives exercise using: 2a- Planes and Solids 2b- Manipulating planes and solids 2c- Color theory and application	
	Unit 3	**FORM FINDING**	
		3a- Formal application of methods learnt through the preparatory exercises. 3b- Exploration of firm materials in developing forms 3c- Exploration of soft materials in developing forms	
	Unit 4	**ANTHROPOMETRICS AND BASIC SPACE STANDARDS**	
		4a- Human Body and anthropometrics 4b- Human Space relation and basic standards 4c- Space proportions	
	Unit 5	**DESIGN DEVELOPMENT & MODEL MAKING**	
		5a- Model (Preferably LCJ) based exercises to understand space transformation, special relations and anthropometry. 5b- visual composition and drawing development 5c- Understanding architectural elements and final visualization in terms of model.	
10	Mode of examination	**Jury/Practical/Viva**	
11	Weightage Distribution	CA	ETE
		50%	50%
12	Text book/s*	1.Gill, R. W. (2011). Rendering with pen and ink. London: Thames and Hudson. 2.Ching, F. D. (2014). Architecture Form, Space, and Order. John Wiley & Sons. 3.Unwin, S. (2008). Analysing architecture. London: Routledge. 4.Unwin, S. (2012). Exercises in architecture: Learning to think as an architect. Abingdon, Oxon: Routledge.	
13	Other References	1, Ernst and Peter Neufert. Architects' Data 2, Donald Watson, Michael J. Crosbie (Time-Saver Standards for Architectural Design, Eighth edition	

ARJ 152: ARCHITECTURAL, VISUAL REPRESENTATION AND DESIGN - I

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-26**
Branch:		**Semester: 1**
1	Course Code	**ARJ 152**
2	Course Title	**Architectural, Visual Representation & Design - I**
3	Credits	5
4	ContactHours (L-P-S)	0-0-5
5	Course Status	Compulsory
6	Course Objective	The main intention of the course is -To introduce and familiarize students with drafting tools and other necessary equipment's -To understand and apply the basics of representation and visualization skills -To identify and illustrate the different real life objects through architecture representation -To develop and appraise the imagination and subjective expression through form and images
7	Course Outcomes	CO1: Student should be able to **comprehend** the drafting tools to produce qualitative work CO2: Student should be able to **formulate** and use observation based knowledge and methods to implement scale, dimension, composition in manual drafting CO3: Student should be able to **relate** different process and terminologies in 2d and 3d graphical representations CO4: Student should be able to **apply** the knowledge of colors, materials and textures through hand rendering techniques CO5: Student should be able to **develop** basic skills of drawings and representation, also assimilate learning of visualization of solids to surface developments and vice versa
8	Course Description	The process of design requires varied techniques of visualization and representation to aid design development. These may be in two or three dimensions using physical media with hand sketching, mechanical drawing and making models or virtual representation using computer software and audio visual media. In architectural practice the precise and communicative representations of designed objects follows certain conventions of representation and also employ graphic techniques to express "soft" aspects of design. This aspect is addressed under the title Architectural Drawing. The course overlaps with the Design Studio course and may be seen as a complementary and symbiotic set of exercises for development of skills.

9	Outline syllabus		
	Unit 1	**FUNDAMENTALS OF ARCHITECTURAL DRAWING**	
		1a- Architectural Lettering 1b- Architectural scales and dimensioning 1c- Architectural representation of materials and architectural elements through architectural graphic symbols.	
	Unit 2	**ORTHOGRAPHIC PROJECTIONS**	
		2a- Principles and projection methods of orthographic projection 2b- Development of surfaces 2c- section of solids	
	Unit 3	**INTRODUCTION TO ARCHITECTURAL DRAWINGS**	
		3a- Plans, elevations, sections 3b- Measure Drawing 3c- Scaling and compositions of sheets	
	Unit 4	**ISOMETRIC AND AXONOMETRIC VIEWS**	
		4a- Solids 4b- Compositions 4c- Buildings	
	Unit 5	**RENDERING AND VISUALISATION**	
		5a- Converting the orthographic projections into Three Dimensional Visualizations. 5b- Basic Architectural rendering of orthographic projections drawings to develop understanding of materials, proportions and scale. 5c- Compiling the entire portfolio	
10	Mode of examination	**Jury**	
11	Weightage Distribution	**CA**	**ETE**
		50%	**50%**
12	Text book/s*	1. Gill, R. W. (2011). *Rendering with pen and ink*. London: Thames and Hudson 2. Ching, F. D. (n.d.). *Architectural Graphics Ed. 6*. John Wiley & Sons. 3. Bhatt, N.D. and Panchal, V.M. (1996). *Engineering Drawing – Plane and Solid Geometry*. Charotar Publishing House.	
13	Other References	-	

ARJ 153: Digital Design Fabrication-I

School: SUSAP		**Batch: 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 1**
1	Course Code	**ARJ 153**
2	Course Title	**DDF-I (Digital Design Fabrication-I)**
3	Credits	**3**
4	Contact Hours (L-P-S)	**0-0-3**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is: 1. To develop understanding about Microsoft Office and its relevance in presentation & documentation. 2. To familiarize students with digital presentation techniques using various tools and techniques. 3. To make familiar with Photoshop as a tool and its basic functioning in design presentations. 4. To understand and should have ability to create 3D space design using digital 3D tools.
7	Course Outcomes	CO1: **Understand** Presentation techniques using various digital tools. CO2: **Apply** office tools, basic image renders & understanding of 3D space design. CO3: **Construct**the concepts of presentation methods and techniques in 2D and 3D through various architectural projects of progressive complexity CO4: **Formulate** Presentation skills using techniques they learned CO5: **Develop**Image renders and 3D Views techniques for quicker methods and presentation skills
8	Course Description	The entire course of Digital Design Fabrication that is taught in the almost 8 semesters is a logically laid out curriculum which aims at one aspect of the knowledge of digital tools in each semester. This course covers the study of presentation skills with regard to Architecture. Students learn the commands to create presentations using various digital design software.
9	Outline syllabus	
	Unit 1	**Introduction to MS Office**
		1a -Introduction to MS Office 1b - To develop and understand tools and basic set up for MS Office 1c - Theoretical understanding and working of MS Office
	Unit 2	**Image rendering Methods And Techniques**
		2a - Introduction to Adobe Photoshop 2b - To comprehend tools and systems for Image renders 2c - Manipulate and alter through various tools and techniques
	Unit 3	**Digital Painting using Photoshop**
		3a - Learn to apply Brush tool and methods for painting 3b - Demonstrate presentation using Brush tool 3c - Draw and create a complete scene render using digital painting

	Unit 4	**Introduction to digital 3D tools**		
		4a - Basic Interface and functions 4b - 3D Modeling tools and techniques 4c - Material, Texture in 3D Model		
	Unit 5	**Methods And Techniques – 3D – Demonstration**		
		5a - To apply more complex tools and methods in 3D Modeling 5b - Demonstrate presentation output, material application and lighting in 3D view. 5c - Draw and create a complete set of architectural drawings for a dwelling unit in 3D space design.		
10	Mode of examination	Jury		
11	Weightage Distribution	CA		ETE
		50%		50%
12	Text book/s*	1. Adobe Photoshop CC Bible Professional Edition by McClelland Deke 2. Fundamentals of Three-Dimensional Computer Graphics by Watt 3. SketchUp For Dummies, Book by Aidan Chopra 4. The SketchUp Workflow for Architecture: Modeling Buildings, Visualizing Design, and Creating Construction Documents with SketchUp Pro and Layout: by Michael Brightman		
13	Other Reference			

ART 154: Model Making & Carpentry Workshop

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch.		**Current Academic Year: 2021-22**
Branch:		**Semester: I**
1	Course Code	**ARJ 154**
2	Course Title	**Model Making & Carpentry Workshop**
3	Credits	**3**
4	Contact Hours (L-P-S)	**0-0-3**
5	Course Status	**Compulsory**
6	Course Objective	After successful completion of this course, student should be able to: -To represent their ideas in a rudimentary model format using simple materials like paper, thermocol, hardwood, Metals, glass fibre etc. -The students able to operate the carpentry tools to perform wooden jobs which help to understand the nature of wood material. -Impart knowledge of basic production process of Clay, Wood and Metal -Understanding of the various tools and equipment available for executin these exercises
7	Course Outcomes	CO1: To **assess** different model materials. CO2: To **demonstrate** various cutting and pasting techniques that are applicable for model making in different materials. CO3: To **create a basic** architectural model. CO4: To **develop** a detailed architectural model. CO5: To **understand** various details of site development, landscaping and human figures in the architectural model
8	Course Description	This skills workshop is designed to familiarize students to work with basic materials. The Studio shall focus on working with materials starting from its rough, unprepared stage to a simple finished product.
9	Outline syllabus	
	Unit 1	**Introduction of basic materials and tools**
		1a-Variety of paper board, sun board, cork sheet, transparent sheet, coloured paper, balsa sheet, mount board, mat sheet, drafting, pasting and cutting tools etc. 1b-Basic cutting and pasting job related to ivory sheet (cube, cuboid, prism, cylinder, trapezium etc.) 1c-Basic cutting and pasting job related to sun board sheet (cube, cuboid, prism, cylinder, trapezium etc.)
	Unit 2	**Introduction of Basic model making workshop 1**
		2a- Introduction: Importance of architectural models in the profession, materials used in making different types of architectural models: their types and selection criteria. 2b-Techniques for fabrication of basic design modal (any Kiosk) to understand door/ window making techniques with mount board/ivory sheet. 2c-Preparation of base for modal.

	Unit 3	**Introduction of detailed model making workshop 1I**		
		3a- Building blocks at least 02 storey with details like windows, doors, porch, balconies, pergola, terraces, parapet etc. 3b- 1 or 2 BHK interior model with toilet and kitchen detail. 3c -Furniture design with different materials.		
	Unit 4	**Preparation of model Base**		
		4a-Preparation of wooden base 4b-Components of site layout like parking, roads, pavements, water body, landscaping, trees, slope/contours etc. 4c-Boxing, lighting and naming of modal.		
	Unit 5	**Carpentry Workshop**		
		5a-Introduction of carpentry tools and their use with all safety and introduction of carpentry joints. 5b-1st job related to carpentry joint (team work) 5c-2nd job related to carpentry joint (team work)		
10	Mode of examination	Jury		
11	Weightage Distribution	CA	MTE	ETE
		50%		50%
12	Text book/s*	**Reference-Books** • CrissB.Mills, Designing with Models. • Wolfgang Knoll and Martin Hechinger, Architectural Models. • Don A. Watson, Construction Materials and Processes, McGraw Hill Co., 1972. • W.B. Mckay, 'Building Construction', Vol.1,2,3 Longmans, U.K.1981. • Alanwerth, Materials, The Mitchell Pub.Co.Ltd., London,1986. • R.Chudleu, 'Building Construction Handbook', British Library Cataloguing in Publication Data, London,1990. • S.C. Rangwala, Engineering Materials, CharotarPub.House, Annand, 1997.		

SEMESTER II

ART xxx: History, Theory & Criticism-I

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	**ART xxx**
2	Course Title	**History, Theory & Criticism - I**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1.To understand the historical development through different era's and region. 2.To understand the political economy of the period 3.To understand Cultural and Social significance of the period 4.To identify and study the salient features of the architectural styles during the era
6	Course Outcomes	CO1: **Identify** different styles of historic architecture CO2: **Classify** prominent / important historic buildings by their components / style of design CO3: **Describe** prominent / important historic buildings CO4: **Analyze** the contributing factors for the design development of different styles. CO5: **Compare** various styles on the basis of the contributing factors responsible for their development CO6: **Apply** the knowledge of historic architectural styles and techniques in design. .
7	Course Description	This Course deals specifically with the socio-political, historical and cultural dimensions of Architectural history in various regions. Through this module students develop a deeper understanding of the architectural styles during the period and famous examples of the same.
8	Outline syllabus	
	Unit 1	**Mesopotamia &Egypt**

		1a. Introduction to Mesopotamian civilizations, their social systems and cultures. Ziggurats and their development – White Temple, Ziggurat of Ur, Urnammu and Khorsabad. 1b. Generic Temple Layout - Temple Oval and Khafaje o Palace Complex/Citadel of Khorsabad, Nebuchadnezzar's Babylon, Persepolis Introduction to Egyptian civilization, their social systems and cultures. Monumentality tomb architecture: 1c. Evolution of the pyramid from the mastaba – Great Pyramid of Cheops, Gizeh etc. Temple architecture: mortuary temples and cult temples - Temple of Ammon Ra, Karnak, Khons - Temple of Abu Simbel (Rock Cut) etc.		
	Unit 2	**Indus Valley civilization , The Aryan civilization, Buddhist and Jain Architecture**		
		2a. Introduction to Indus Valley and Aryan civilizations, their social systems and cultures . City of Harappa, Mohanjodaro and Lothal, layout of domestic units & public facilities, building materials and construction technologies used.The Vedic civilization; Layouts of Aryan Village, type of dwellings and building materials.		
		2b. Evolution of Jain & Buddhist Architecture; Development by Ashoka, Hinayan&Mahayan styles of Buddhist architecture. Architectural features of Stupas, Monolithic Pillars, Rock cut architecture (Chaityas & Viharas), Monestries, Rock edicts.		
		2c. Jain viharas, Temples of Rajasthan, Gujarat, Central India.		
	Unit 3	**Greece**		
		3a. Introduction to Greek civilization, their social systems and cultures 3b. Classical Order – Doric, Ionic, Corinthian. Temple types on basis of column layout – case example of Acropolis, Athens 3c. Public Buildings and Square – Agora, Stoa, Prytaneum, Bouleuterion, Tholos, Gymnasium, Theatre		
	Unit 4	**Rome**		
		4a. Introduction to Roman civilization, their social systems and cultures 4b. Contribution in new materials and new construction/structural systems, eg, Pozzolana, Cementae, Stone Blocks, Stone Masonry, Arch, Vault, Dome Orders in architecture: Tuscan and Composite techniques of construction. 4c. Forum Romanum and other Imperial forums, Pantheon, Public buildings: Colloseum, Circus Maximus, Thermae of Caraculla.		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text			

	book/s*	
	Other Reference	1. Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress, 1996. 2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London, 1985. 3. Leland M Roth; Understanding Architecture: Its elements, history and meaning; CraftsmanHouse; 1994 4. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams, 5. Inc.Pub., New York, 1972. 6. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,

ART xxx: Environment, Sustainability & Services I(Environment Science)

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	ART xxx
2	Course Title	**Environment , Sustainability & Services - I (Environment Science)**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is to equip students with basic study of human behavior and interaction with the environment.
7	Course Outcomes	CO1: To **describe** the elements of behavior and their relationship to the environment. CO2: To **interpret** the traditional built environment in context with community /neighborhoodbehavioral pattern CO3: To **distinguish** between built habitats based on community behavior CO4: To **demonstrate** space design with social aspects (like age, gender, ability, economy CO5: To **relate** built spaces with human interpretations
8	Course Description	• The course includes topics such as beliefs, meanings, values and attitudes of individuals or groups concerning various environments such as neighbourhoods, cities, transport routes and devices, or recreational areas; evaluation and effectiveness of environments designed to accomplish specific objectives; Interrelationships between human environments and behavioural systems; practices aimed at controlling environments and behaviour. • The subject will have assignments in line with the understanding obtained from design studio, building materials & construction and history of architecture.
9	Outline syllabus	
	Unit 1	**Introduction**
		1a - Psychology and its relation to built space 1b - Behavioral Science and modern movement 1c- Elements of behavior
	Unit 2	**Built environment & User group**
		2a- Social behavior - Family, gender and group,

		2b- Community behavior patterns , 1c- Behavioral concept in neighborhood and communities 2c- Development of perception, Memory and thinking, mental map , Gestalt theory of Perception – environmental cognition and effect, spatial behaviour,		
	Unit 3	**Environmental perception**		
		3a- Environment as interacting system, Environmental perception,• Environmental cognition 3b- Environment – Behavior: phenomena and design, Behavior Settings: Fits and Misfits, Anthropometrics and ergonomics 3c - Proxemics and Personal Space, Territoriality and Defensible space		
	Unit 4	**Social design aspects**		
		4a - Privacy, Density, Crowding and Stress , Social space 4b - Safety, equity, Age and built space 4 c- Making space and place		
10	Mode of examination	Theory		
11	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
12	Text book/s*	1.Hidden Dimensions by T. Hall 2.Personal Space by Sommer 3.House Form And Culture by Amos Rappoport 4.A Pattern Language by C. Alexander 5.Life and Death of Great American Cities by Jane Jacobs		
13	Other References			

ARP 102: Communicative English-II

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	**ARP 102**
2	Course Title	Communicative English-2
3	Credits	**2**
4	Contact Hours (L-P-S)	**1-2-0**
5	Course Status	**Compulsory**
6	Course Objective	To Develop LSRW skills through audio-visual language acquirement, creative writing, advanced speech et al and MTI Reduction with the aid of certain tools like texts, movies, long and short essays.
7	Course Outcomes	CO1 :Move from primary self-assessment to larger goal and vision statement realization with the help of feature length films as enablers and multimedia as language facilitators. CO2:To develop a positive attitude through written expression of positive thought process and outlook with the help of writing activities like story completion et al. CO3 Learn advanced writing skills in English like full length essays, Precis, Executive Summary et al. CO4: Master the science of speech and correct pronunciation through the accent-neutralization program followed by reading sessions applying the lessons learnt. Also learning how to make a free speech and extempore art of speaking CO5: At this stage students will learn about Innovative Leadership and Design Thinking skills and practices along with Ethics and Integrity CO6: At this stage students will learn about Love & Compassion, Non-Violence & Truth, Righteousness, Peace, Service, Renunciation (Sacrifice) along with Introduction to Quant, Aptitude and Logical Reasoning.
8	Course Description	The course takes the learnings from the previous semester to an advanced level of language learning and self-comprehension through the introduction of audio-visual aids as language enablers. It also leads learners to an advanced level of writing, reading, listening and speaking abilities, while also reducing the usage of L1 to minimal in order to increase the employability chances.
9	Outline syllabus	
	Unit 1	**S Acquiring Vision, Goals and Strategies through Audio-visual Language Texts**
		1a. Pursuit of Happiness / Goal Setting & Value Proposition in life 1b. 12 Angry Men / Ethics & Principles 1c- The King's Speech / Mission statement in life | strategies & Action Plans in Life
	Unit 2	**Creative Writing**

		2a- Story Reconstruction - Positive Thinking 2b- Theme based Story Writing - Positive attitude 2c- Learning Diary Learning Log – Self-introspection		
	Unit 3	**Writing Skills 1**		
		3a- Precise 3b- Paraphrasing 3c-Essays(Simple Essays)		
	Unit 4	**MTI Reduction/Neutral Accent through Classroom Sessions & Practice**		
		4a – Vowel, Consonant, sound correction, speech sounds, Monothongs, Dipthongs and Tripthongs 4b- Vowel Sound drills , Consonant Sound drills, Affricates and Fricative Sounds 4c- Speech Sounds | Speech Music| Tone | Volume| Diction |Syntax |Intonation | Syllable Stress |		
	Unit 5	**Gauging MTI Reduction Effectiveness through Free Speech**		
		5a- Jam sessions 5b- Extempore 5c- Situation-based Role Play		
	Unit 6	**Leadership and Management Skills**		
		6a-Innovative Leadership and Design Thinking 6b- Ethics and Integrity		
	Unit 7	**Universal Human Values**		
		7a-Love & Compassion, Non-Violence & Truth 7b- Righteousness, Peace 7c- Service, Renunciation (Sacrifice)		
	Unit 8	**Introduction to Quantitative aptitude & Logical Reasoning**		
		8a- Analytical Reasoning & Puzzle Solving 8b- Number Systems and its Application in Solving Problems		
10	Mode of examination	Class Assignments/Free Speech Exercises / JAM Group Presentations/Problem Solving Scenarios/GD/Simulations (60% CA and 40% ETE		
11	Weightage Distribution	CA	MTE	ETE
		20%	30%	50%
12	Text book/s*	1.Blum, M. Rosen. *How to Build Better Vocabulary*. London: Bloomsbury Publication 2. Comfort, Jeremy(et.al). *Speaking Effectively*. Cambridge University Press		
13	Other References			

ART xxx: Construction Material & Methods-II

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	**ART xxx**
2	Course Title	**Construction Material & Methods-II**
3	Credits	**5**
4	Contact Hours (L-P-S)	**0-0-5**
	Course Status	Compulsory
5	Course Objective	1.To develop an understanding about arches built in stone and brick. 2. To acquaint the students with wood & commercial timber. 3. To familiarize the students with traditional & conventional use of timber in building construction. 4. To familiarize the students with various components and their construction details in timber. 5. To acquaint students with various kinds of deep and shallow foundations.
6	Course Outcomes	CO1: To **understand** the basics of arch construction in stone and brick. CO2: To **explain** various construction details of substructure and superstructure in timber construction. CO3: To**categorize** timber doors and windows along with its components and make their construction details. CO4: To **determine**various construction details in timber. CO5 : To **develop** an understanding of various kinds of footings & foundations.
7	Course Description	The second semester of Construction methods and materials deals with construction details of Load bearing and Timber Framed Structures. The students are taught the construction basics of using these materials, the differing structural characteristics and the varying ways they are employed in the making of buildings. Arches in different materials as well as Foundations & Footings are introduced this semester.
8	Outline syllabus	
	Unit 1	**Brick & Stone Arches**
		1a-Elementary principles of Arch construction, Definition of various technical terms, and Components of arch. 1b-Types of Arch – Flat, Segmental, Semi-circular etc. 1c-Exposure to site OR practicing in construction yard by making examples of Arches and brick masonry.
	Unit 2	**Timber Construction**
		2a-Timber used as a building material, Types, advantages and disadvantage of Timber, Manufacturing process of timber, Characteristics, Defects & Preservation methods. 2b-Technical terms, classification of joints, Joinery details Exposure to site OR Practicing different types of timber joinery in wood workshops.
	Unit 3	**Cement & Glass as Materials & Timber Doors**

<table>
<tr><td></td><td></td><td colspan="3">3a-Cement and glass as a building material, types, advantages and disadvantages & Manufacturing process
3b-Design considerations, Location of doors, design of different types of wooden doors and its construction details
Sliding doors & its construction details
3c-Market Survey of industrial timber products- Veneer, Plywood , Sunmica, Laminates, Block board, particle board, fiber board etc.
Timber & Hardware- Hinges, Handles, Knobs, Bolts, L-drops, Locks, Stoppers, Stays, Silencers, Chain guards, Closers, Catchers, Knockers etc. in various materials.</td></tr>
<tr><td rowspan="2"></td><td>Unit 4</td><td colspan="3">RCC,PCC and Timber Windows</td></tr>
<tr><td></td><td colspan="3">4a-RCC and PCC as building material, advantages & disadvantages, grades, uses, manufacturing process.
4b-Design considerations , location of windows, fully glazed window, louvered, centrally pivoted, top hung windows, side hung, partly glazed,
Joinery details of timber frame, style, rails, panels, fixing of glass, double glazing etc. Fixtures and fastenings
4c-Market Survey of different types of windows and materials available in market like PVC, Metal, Timber etc.</td></tr>
<tr><td rowspan="2"></td><td>Unit 5</td><td colspan="3">Foundation & Footings</td></tr>
<tr><td></td><td colspan="3">5a-Definitions, Purpose of foundation, types of foundation, selection criteria for foundation based on soil conditions, physical properties.
5b-Types of Foundation- Spread/ Isolated foundation (Spread, Combined , Grillage & Raft) Pier Foundation
5c-Caisson Foundation), Pile Foundation, Load bearing Foundation (brick and stone)
External Wall Section</td></tr>
<tr><td></td><td>Mode of examination</td><td colspan="3">Theory</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Weightage Distribution</td><td>CA</td><td>MTE</td><td>ETE</td></tr>
<tr><td>30%</td><td>20%</td><td>50%</td></tr>
<tr><td></td><td>Text book/s*</td><td colspan="3">1.McKay, W.B., “Building Construction Volume I, II, III and IV”, Longmans, 1955.
2. Ching, Francis D. K. and Adams, Cassandra, “Building Construction Illustrated”, Wiley and Sons, 2000.
3. The Construction of Buildings – BarryVolume I, II, III and IV 4. Chudley, Roy, “Construction Technology”, Longman, 2005. 5. Building Construction_Mitchell (Elementary and Advanced)
6. Rangwala, S. C., “Building Construction”, Charotar Publishing House, 2007
7. Building Construction-Bindra&Arora.
8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005.
9. Building Materials by SC Rangwala: Charotar Pub. House, Anand</td></tr>
<tr><td></td><td>Other References</td><td colspan="3"></td></tr>
</table>

ARJ xxx: Architectural Design –II

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	**ARJ xxx**
2	Course Title	**Architectural Design -II**
3	Credits	**8**
4	Contact Hours (L-P-S)	**0-0-8**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is to -To explain various components and techniques of a design process. -To expose students to different works of renowned architects. -To devise and appraise the documentation process along with architectural drawings portfolio -To learn, analyze and implement relations of Human- form - function -To identify and articulate the methods of design, spatial planning, and form generation strategies for a small scale project
7	Course Outcomes	CO1: To **Select** the appropriate tools -methods of model making, drawings and design presentations- to access, predict a design project CO2: To I**nterpret** the works of renowned architects documented and **Illustrate** various design processes, methods and means deployed to achieve spatial organization. CO3: To **Analyze** research literature and various scales of architectural projects contextually to arrive at substantiated conclusions. CO4: To **Apply** spatial configuration to a small scale project by using their user research based knowledge. CO5: To **Communicate** effectively through documentation, graphical and verbal presentations.
8	Course Description	The studio is designed to familiarize students with visual grammar, elements of design and methods of visual composition with various mediums and color in 2D & 3D. The studio focuses on space proportions and anthropometrics with its application on form based design process.
9	Outline syllabus	
	Unit 1	**REVERSE ENGINEER A PROJECT**
		1a- Study of renowned architect's buildings though open models. 1b- Drawings & Documents. 1c- Context manipulation.

	Unit 2	**DOCUMENTATION**	
		2a- Interpretation of design methods and concepts. 2b- Interchanging between 2D and 3D representation to understand form generation and scale. 2c- Reverse design analysis and criticism.	
	Unit 3	**ANALYSIS**	
		Analyzing the architect's project to expose studio to: 3a- Design process 3b- Circulation 3c- Space relation	
	Unit 4	**DESIGN RESPONSE**	
		4a- Formal application of methods learnt through the preparatory exercises. 4b- Design exercise of residential dwelling with site constraints, client and context. 4c- Arriving at design solutions through physical models/block models, drawings and supportive documents.	
	Unit 5	**PORTFOLIO DESIGN**	
		5a- Narrating the design process. 5b- Formulating complete set of drawings. 5c- Supporting the project with 3d visualizations/ model.	
10	Mode of examination	Jury	
11	Weightage Distribution	CA	ETE
		50%	50%
12	Text book/s*	1.Conditional Design- An introduction to Elemental Architecture 2.Operative Design- A catalogue of spatial Verbs, Di Mari Yoo 3.Case Study Houses, Elizabeth A.T.Smith 4.101 Things I learned in architecture school, Mathew Fredrick. 5.Shadow Makers, Stephen Kite.	
13	Other References	1.Ernst and Peter Neufert. Architects' Data 2.Donald Watson, Michael J. Crosbie (Time-Saver Standards for Architectural Design, Eighth edition	

ARJ xxx: Architectural, Visual Representation & Design - II

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-26**
Branch:		**Semester: II**
1	Course Code	**ARJ xxx**
2	Course Title	**Architectural, Visual Representation & Design – II**
3	Credits	**4**
4	Contact Hours (L-P-S)	**0-0-4**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is -To introduce and familiarize students with drafting tools and other necessary equipment's -To understand and apply the basics of representation and visualization skills -To identify and illustrate the different real life objects through architecture representation -To develop and appraise the imagination and subjective expression through form and images
7	Course Outcomes	CO1: Student should be able to **comprehend** the drafting tools to produce qualitative work CO2: Student should be able to **formulate** and use observation based knowledge and methods to implement different view typology CO3: Student should be able to **relate** different process and terminologies in 2d and 3d graphical representations CO4: Student should be able to **apply** the knowledge of colors, materials and textures through hand rendering techniques CO5: Student should be able to **develop** basic skills of drawings and representation, also assimilate learning of visualization of complex solids.
8	Course Description	This course introduces advanced techniques for architectural drawing such as perspective projection, sciography mix-media renderings etc. The course intends to develop essential manual skills such as proficiency in drawing, largely used as primary mode of communication of ideas in architectural design.
9	Outline syllabus	
	Unit 1	**THREE DIMENSIONAL VISUALIZATIONS: ISOMETRICS AND AXONOMETRIC**

		1a- Isometric views 1b- oblique three dimensional views 1c- Visualizing Architectural drawings into view	
	Unit 2	**THREE DIMENSIONAL VISUALIZATIONS : PERSPECTIVES**	
		2a- Free hand Perspective Drawings 2b- Two point and one point pespectives for simple forms and complex. 2c- Visualizing Architectural drawings into perspective view	
	Unit 3	**SCIOGRAPHY**	
		3a- Sciography in architecture. Rendering for sciography, tones,texture, colors, and light. 3b- Sciography in two dimentional surfaces 3c- Sciography of simple and complex forms	
	Unit 4	**ARCHITECTURAL RENDERING**	
		4a- Introduction to various techniques of rendering 4b- Architectural Entourages (Trees, people, cars, materials) 4c- Application of skills on architectural drawings	
	Unit 5	**VISUALIZATION AND FORM DEVELOPMENT**	
		5a- Converting the orthographic projections/ architectural drawings into Three Dimensional Visualizations like Sectional models, views 5b- Rendering (applying sciography and architectural renders) of orthographic projections drawings to develop deep understanding of proportions and scale. 5c- Compiling the entire portfolio	
10	Mode of examination	**Jury**	
11	Weightage Distribution	CA	ETE
		50%	50%
12	Text book/s*	1.Gill, R. W. (2011). *Rendering with pen and ink*. London: Thames and Hudson 2.Ching, F. D. (n.d.). *Architectural Graphics Ed. 6*. John Wiley & Sons. 3.Bhatt, N.D. and Panchal, V.M. (1996). *Engineering Drawing – Plane and Solid Geometry*. Charotar Publishing House.	
13	Other References	-	

ARJ xxx: Digital Design Fabrication – II

School: SUSAP		**Batch: 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: II**
1	Course Code	**ARJ xxx**
2	Course Title	**DDF-II (Digital Design Fabrication-II)**
3	Credits	**3**
4	Contact Hours (L-P-S)	**0-0-3**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is: 1. To develop understanding about of AutoCAD and its relevance in Architecture. 2. To familiarize students with digital 2D drafting skills using various tools and techniques. 3. To make familiar & aware of architectural drafting with a focus on industry standards. 4. To understand and should have ability to assemble drawings in industry-standard plan form and produce plotted hard copies ready for distribution.
7	Course Outcomes	CO1: **Understand** Basics of Computer Aided Drafting CO2: **Apply**computer aided drafting and its parameter as tools and its application in Architecture CO3: **Build**the concepts of CAD drafting methods and techniques in 2D and 3D through various architectural projects of progressive complexity CO4: **Formulate** and apply CAD drafting in their projects CO5: **Develop**CAD techniques for quicker methods and presentation skills
8	Course Description	The entire course of Digital Design Fabrication that is taught in the almost 8 semesters is a logically laid out curriculum which aims at one aspect of the knowledge of digital tools in each semester. This course covers the study of Computer Aided Drafting (CAD) with regard to Architecture. Students learn the commands to draft necessary drawings using the latest version of AutoCAD Software.
9	Outline syllabus	
	Unit 1	**Introduction to Computer Aided Drafting**
		1a- Introduction to Computer Aided Drafting
		1b - To develop and understand tools and basic set up for computer aided drafting
		1c - Theoretical understanding of CAD
	Unit 2	**Computer Aided Drafting Methods And Techniques – 2D**
		2a - To comprehend tools and systems for 2d drafting
		2b - Develops and draws various architectural plans, elevations and sections through 2D CAD
		2c -Manipulate and alter through various tools and techniques

		existing architectural drawings in 2D CAD	
	Unit 3	**Computer Aided Drafting methods and techniques – 2D – demonstration**	
		3a - To apply more complex tools and methods to edit drawings in 2D CAD	
		3b - Demonstrate presentation drawings in 2D Cad	
		3c - Draw and create a complete set of architectural drawings for a dwelling unit in 2D CAD	
	Unit 4	**Computer Aided Drafting Methods and Techniques – 3D – Demonstration**	
		4a - To apply more complex tools and methods to edit drawings in 3D CAD	
		4b - Develops and draws various architectural volumes, forms and surfaces through 2D CAD	
		4c - Convert and draw 2D architectural drawings to 3D forms	
	Unit 5	**Computer Aided Drafting Methods and Techniques – 3D – Demonstration**	
		5a - To apply more complex tools and methods to edit drawings in 3D CAD	
		5b - Demonstrate presentation drawings, material application and lighting in 3D CAD	
		5c - Draw and create a complete set of architectural drawings for a dwelling unit in 3D CAD	
10	Mode of examination	Jury	
11	Weightage Distribution	CA	ETE
		50%	50%
12	Text book/s*	1.Photoshop CC Bible Professional Edition by McClelland Deke 2.Fundamentals Of Three-Dimensional Computer Graphics by Watt 3.Computer Aided Design Guide for Architecture, Engineering and Construction by Aouad 4.The Illustrated AutoCAD 2021 Quick Reference First Edition by Ralph Grabowski 5.AutoCAD 2021: A Problem-Solving Approach 6.CAD For Interiors Beyond the Basics by J.A. Fiorello	
13	Other Reference		

SEMESTER III

ART 208: History, Theory & Criticism – III

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 3**
1	**Course Code**	**ART 208**
2	**Course Title**	**History, Theory & Criticism - III**
3	**Credits**	**2**
4	**Contact Hours (L-P-S)**	**2-0-0**
	Course Status	**Compulsory**
5	**Course Objective**	1.To understand the historical development through the 16th to the 19th century 2.To understand the political economy of the period 3.To understand Cultural and Social significance of the period 4. To identify and study the salient features of the architectural styles during the 16th to the 19th century
	Course Outcomes	CO1: **Identify** main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture. CO2: Interpret & d**iscuss** the socio-cultural context of the 16th-19th century within which these theoretical approaches to design have developed. CO3: **Classify** prominent / important historic buildings by their components / style of design CO4: **Compare**& critique the various approaches to design in relation to their historical context. CO5: **Analyse** the contributing factors for the design development of different styles.
7	**Course Description**	This Course deals specifically with the socio-political, historical and cultural dimensions of Architectural history from the 16th century to the 19th century. Through this module students develop a deeper understanding of the architectural styles during the period and famous examples of the same.
8	**Outline syllabus**	

	Unit 1	**Renaissance**
	A	Break with medieval churches for sources from Roman antiquity. Spatial centralization through simple addition of independent spatial elements
	B	Use of elementary geometrical forms unified through symmetry and simple mathematical ratios. Reintroduction of anthropomorphic Classical Orders.
	C	Study of palazzos and development of centralized church form through specific examples from Italy.
	Unit 2	**Mannerism**
	A	Conflict and tension in Mannerism in place of harmony and order of Renaissance. Dynamic interplay of contrasting elements as against static addition of independent units of Renaissance church.
	B	Interplay between manmade and nature in villas. Dynamism of urban spaces.
	C	Centralized longitudinal and the elongated central church plans. Study of important villas, churches and urban spaces in Italy.
	Unit 3	**Baroque & Rococo**
	A	Dynamism and systemization of Baroque architecture. Vitality and spatial richness with underlying systematic organization.
	B	Space as constituent element of architecture, as a complex totality and indivisible figure, comprising of interacting spatial elements based on inner and outer forces.
	C	Sensitivity to effects of texture, color, light and water. Study of important urban spaces and churches in Italy and Germany.
	Unit 4	**Hindu Architecture – Nagara &Vesara Style**
	A	The evolution of the temple form, evolution of the shikhara in north India.
	B	The three schools of architecture - the Gujarat (Sun Temple, Modhera), the Khajuraho (Kandariya Mahadeva Temple), and the Orissa styles (Lingaraj and Konark Temple).
	C	Comparison in spatial attributes scale and detail.
	Unit 5	**Hindu Architecture - Dravidian Style**

	A	The evolution of the vimana and the contributions of the Chalukyas (Badami,Aihole&Pattadakal), the Pallavas (Shore Temple, Mahabalipuram), the Pandyas and the Cholas (brihadeshwara temple thanjavur)		
	B	The contributions of the Nayaks to the temple cities (Meenakshi Amman Temple).		
	C	The city morphology, spatial diversity and planning criteria.		
9	**Mode of examination**	**Theory**		
10	**Weightage Distribution**	**CA**	**MTE**	**ETE**
		30%	**20%**	**50%**
11	**Text book/s***			
12	**Other References**			

ART 209: Environment Sustainability and Services I

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 3**
1	Course Code	**ART 209**
2	Course Title	**Environment Sustainability and Services I**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	1. to introduce the various parameters to describe the climate of a place 2. to explain the climate characteristics globally both at macro and micro level 3. to discuss heat gain in buildings and to introduce concept of thermal comfort 4. to outline the principles of building design, landscape and environment with their implications on thermal comfort, day-lighting and ventilation 5. to enumerate various intervention strategies to modify building microclimate of the various zones 6. to encourage development of creative ideas for climate responsive building design
6	Course Outcomes	CO1: describe the climate of a place appropriate for architectural intervention CO2: demonstrate an understanding of the concept of thermal comfort in buildings CO3: assess level of heat gain in buildings CO4 : understand material properties w.r.t. climate CO5: understand ways to modify heat gain, day-light and ventilation in buildings CO6: develop strategies for modifying/controlling building microclimate in the different climatic zones
7	Course Description	This course aims to introduce study of climate in built environment from architectural point of view and establishes the link between the climate of a place, thermal comfort and the building design. It also prepares students to design climate responsive buildings.
8	Outline syllabus	
	Unit 1	**Climate in Architecture**
	A	Relevance of Climatology to Architecture
	B	Understanding factors affecting the macro climate of a place and microclimate of site. Measurements.
	C	Climatic measurements
	Unit 2	**Thermal comfort, design and materials**
	A	Thermal Comfort factors and indices
	B	Principles of Thermal Design and Heat exchange in buildings
	C	Thermal Properties of Materials

	Unit 3	**Structural Control**		
	A	Solar Geometry		
	B	Ventilation and Air Movement		
	C	Daylighting		
	Unit 4	**Climate responsive Design Characteristics in different climatic zones**		
	A	Hot Dry Zone		
	B	Warm Humid and Composite Zone		
	C	Cold Zone		
	Unit 5	**Climate responsive Design Applications in different climatic zones**		
	A	Hot Dry Zone		
	B	Warm Humid and Composite Zone		
	C	Cold Zone		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30% (1 test +2 Quizzes)	20%	50%
11	Text book/s*	Mayhew, A., Szokolay, S.V., Ingersoll, T.G., Koenigsberger O.H., (2011) Manual of Tropical Housing and Building, Edition 1, Universities Press		
12	Other References	1.Givoni, B. (1969)Man, Climate and Architecture, Elsevier 2.Olgyay, V., (1969)Design with Climate, PricetonUnivesity Press 3.Krishan, A., Baker, N., Yannas, S., Szokolay, S.V., (2001) Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings, McGraw Hill Publication 4.Szokolay S.V., (2008) Introduction to Architectural Science: The Basis of Sustainable Design, Elsevier Press 5.Nayak, J.K., Prajapati, J.A., Handbook on Energy Conscious Design		

ART 206: ARCHITECTURAL STRUCTURES-1

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester:3**
1	Course Code	**ART 206**
2	Course Title	**Architectural Structures-1**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	1. Understand how various materials function when loaded 2. To understand how different materials interact with each other 3. To introduce the concept of behaviour of structural components and simple analytical techniques 4. To understand how different materials interact with each other
6	Course Outcomes	CO1: Demonstrate systematic knowledge of developing architectural forms based on structural systems CO2: Understand the interdependence of architectural form and structural system of a structure CO3: Identify basic structural systems CO4: Demonstrate the current knowledge and the latest trends in structural systems of contemporary architecture. CO5: Identify different types of Structures
7	Course Description	The course is an understanding of the basic principles of structural mechanics so that it forms the basis for study of structure systems. Through a series of practical exercise participants will be familiarized with how structural systems and materials interact with each other. The objective here is to develop amongst students an appreciation of the various nuances involved in the both manmade and natural structures.
8	Outline syllabus	
	Unit 1	
	a	Concept of direct force mechanism in structure, tension and compression.
	b	Concept of loads as forces, response as deformations.
	c	Simple stresses and Strains
	Unit 2	
	a	Centre of Gravity
	b	Moment of Inertia
	c	Concept of equilibrium of forces
	Unit 3	
	a	Elements of Static
	b	Shear force & Bending Moment
	c	Forces in Trusses
	Unit 4	
	a	Beams and Loads
	b	Bending Stresses and Shear Stress

	c	Deflection of Beams		
	Unit 5			
	a	Column and Struts		
	b	Properties of Concrete		
	c	Properties of Steel		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*			
12	Other References			

ARJ205 - Architectural Design –III

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 3**
1	Course Code	**ARJ 205**
2	Course Title	**ARCHITECTURAL DESIGN III**
3	Credits	**12**
4	Contact Hours (L-P-S)	**0-3-7**
	Course Status	**Compulsory**
5	Course Objective	1.Understanding the norms & systems of building in a settlement. 2.To develop intuitive mode of investigation for design. 3.To study the built environment and to develop a basic understanding of space and form. 4.To explore the inter-relationship between human behaviour and space in a built environment, including, volume of space, shape, form, function, climate and materials.
6	Course Outcomes	CO1: **Illustrate** systems of site planning and building in a settlement. CO2: **Make use of** research based knowledge and methods including context analysis, case studies, project requirements and synthesis of information to provide context specific solutions. CO3: Student should be able to **demonstrate** creative skills for design of small projects along with Inferring from critical evaluation of these processes CO4: Student should be able to **apply** the knowledge of design fundamentals, Basic building sciences, societal issues and humanities and basic environmental sciences in design of project. CO5: **Assimilate** and **Apply** learning of construction, structures and computers to basic design. CO6: **Demonstrate** basic skills of drawings and representation.
7	Course Description	The main objective of this subject is to make the students familiar with design & the architectural design process. The students will be Understanding the norms & systems of building in a settlement and designing an 'Urban Insert' accordingly. Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct in the students.
8	Outline syllabus	
	Unit 1	**Minor Project**
		Introduction to Minor project Form and material based investigation Understanding spatial aspects based on activity, space, form and human scale.
	Unit 2	**Minor Project- Finalization**
		Documentation. Analysis. Identification of requirements Final design presentation

	Unit 3	**Major Project- Conceptual**		
		Introduction to Major project (INSERT FOR THE SETTLEMENT IN QUESTION, such as Pre primary/ nursery school, Art gallery and Pavilion etc. Site- 1500 sqm (appx) Scale : 1:50/ 1:100 Understanding/Insight/Perception – Generating the insight for Context, Purpose, Motivation, End User etc Action Research -Literature Study, Site Analysis, Case Study.		
	Unit 4	**Concept Development**		
		Concept- Understanding and generating the idea, its expression in different methods using manual, digital media etc Schematic Design development- single line representations of drawings in architectural formats for the developed concept, which includes : Site –its understanding of terrain, movement patterns, flora and fauna, climate etc Blocking/ Massing of built forms- generating an understanding of built forms in relation to the site, their orientations, interrelation amongst all the built forms etc. Facade/ Aesthetics- understanding whether form follows function or vice versa. Expression of the idea through 3d Model development.		
	Unit 5	**Finalization**		
		Design development (on appropriate scale)- double line representations of drawings in architectural formats for the developed schematic design, which includes : Site Plan, floor plans, sections, elevations, etc Expression of the design through 3d Model development on appropriate scale and materials Final portfolio submission (manual or digital output)		
9	Mode of examination	**Jury**		
10	Weightage Distribution	CA		ETE
		50%		50%
11	Text book/s*	-		
12	Other References			

ARJ 206: DIGITAL DESIGN FABRICATION

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 3**
1	Course Code	ARJ 206
2	Course Title	DDF-II (Digital Design Fabrication-II)
3	Credits	4
4	Contact Hours (L-P-S)	0-2-2
	Course Status	Compulsory
5	Course Objective	1. To develop understanding about of AutoCAD and its relevance in Architecture. 2. To familiarize students with digital 2D drafting skills using various tools and techniques. 3. To make familiar &aware of architectural drafting with a focus on industry standards. 4. To understand and should have ability to assemble drawings in industry-standard plan form and produce plotted hard copies ready for distribution;
6	Course Outcomes	CO1: **Develop** understanding of Computer Aided Drafting CO2: **Comprehends** computer aided drafting and its parameter as tools and its application in Architecture CO3: **Demonstrate** the concepts of CAD drafting methods and techniques in 2D and 3D through various architectural projects of progressive complexity CO4: **Design** and apply CAD drafting in their projects CO5: **Evaluates** CAD techniques for quicker methods and presentation skills
7	Course Description	The entire course of Digital Design Fabrication that is taught in the almost 8 semesters is a logically laid out curriculum which aims at one aspect of the knowledge of digital tools in each semester. This course covers the study of Computer Aided Drafting (CAD) with regard to Architecture. Students learn the commands to draft necessary drawings using the latest version of AutoCAD Software.
8	Outline syllabus	
	Unit 1	**Introduction To Computer Aided Drafting**
	A	Introduction to Computer Aided Drafting
	B	To develop and understand tools and basic set up for computer aided drafting
	C	Theoretical understanding of CAD
	Unit 2	**Computer Aided Drafting Methods And Techniques – 2D**
	A	To comprehend tools and systems for 2d drafting
	B	Develops and draws various architectural plans, elevations and sections through 2D CAD
	C	Manipulate and alter through various tools and techniques existing

		architectural drawings in 2D CAD
	Unit 3	**Computer Aided Drafting methods and techniques – 2D – demonstration**
	A	To apply more complex tools and methods to edit drawings in 2D CAD
	B	Demonstrate presentation drawings in 2D Cad
	C	Draw and create a complete set of architectural drawings for a dwelling unit in 2D CAD
	Unit 4	**Computer Aided Drafting Methods And Techniques – 3D – Demonstration**
	A	To apply more complex tools and methods to edit drawings in 3D CAD
	B	Develops and draws various architectural volumes, forms and surfaces through 2D CAD
	C	Convert and draw 2D architectural drawings to 3D forms
	Unit 5	**Computer Aided Drafting Methods And Techniques – 3D – Demonstration**
	A	To apply more complex tools and methods to edit drawings in 3D CAD
	B	Demonstrate presentation drawings , material application and lighting in 3D CAD
	C	Draw and create a complete set of architectural drawings for a dwelling unit in 3D CAD
9	Mode of examination	Jury
10	Weightage Distribution	CA | | ETE 50% | | 50%
11	Text book/s*	1. Photoshop CC Bible Professional Edition by McClelland Deke 2. Fundamentals Of Three-Dimensional Computer Graphics by Watt 3. Computer Aided Design guide For Architecture, Engineering And Construction by Aouad 4. The Illustrated AutoCAD 2021 Quick Reference First Edition by Ralph Grabowski 5. AutoCAD 2021: A Problem-Solving Approach 6. CAD For Interiors Beyond The Basics by J.A. Fiorello
12	Other Reference	

ARJ 218: Construction Material & Methods-III

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: 3**
1	Course Code	**ARJ 218**
2	Course Title	**Construction Material & Methods-III**
3	Credits	**6**
4	Contact Hours (L-P-S)	**0-6-2**
	Course Status	**Compulsory**
5	Course Objective	1. To provide complete knowledge on roofing systems, flooring systems & partitions using various materials. 2. To understand various methods of water proofing and fire protection means. 3.To familiarize students about the conventional and new formwork systems, scaffolds, temporary supports and underpinning 4. To cultivate personal observation and self-learning in students,site visits are conducted so as to cover the given syllabus. 5. To help students observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This shall form part and parcel of the sessional work for internal assessment.
6	Course Outcomes	CO1: **Understand** roofing systems in different materials. CO2:**Illustrate** the construction details of various flooring systems. CO3:**Develop** an understanding of various partitioning methods with use of different materials like timber, glass and metal. CO4:**Analyse** various methods of waterproofing and fire protection means. CO5:**Discuss** conventional and new formwork systems, scaffolds, temporary supports and underpinning
7	Course Description	This Construction Studio is designed to study roofing, flooring and partitions of various materials. Also, waterproofing, scaffolding and formwork systems are introduced through a series of workshops, site visits and studio work.
8	Outline syllabus	
	Unit 1	**Roof & Roof Covering**
		1a-Classification of roof, technical terms, various forms of roofs for different spans- collar beam roof, pitched roof, single roof, double roof, trussed roof etc.
		1b-Introduction to Timber Portal Frames, Timber trusses and joinery details of tie beam, principal rafter, common rafter etc., fixing of roof tiles.
		1c-Introduction to metal truss and joinery details. Study of contemporary roofing materials

	Unit 2	**Flooring**		
		2a-Types of Floorings, materials and methods of flooring 2b-Mud flooring, Brick Flooring, Mosaic, Marble, Tiled, Terrazzo, Cement Concrete Flooring 2c-Timber Floors, RCC Flooring, Ribbed Floor, Pre Cast Concrete Floor, Steel Structure Flooring		
	Unit 3	**Partitions**		
		3a-Partitioning methods with use of different materials e.g. Timber and Timber Products, Brick / Block, Pre-cast Concrete Block, Cement Board, Compressed Straw Board, Glass and Glass Brick, Gypsum board 3b-Types of timber partitions: Single, double and flushed timber partitions 3cGlass Partitions, Gypsum Partitions		
	Unit 4	**Water Proofing, Damp Proofing, Structure Joints and Fire Protection**		
		4a-Causes and defects of dampness, methods adopted for waterproofing (Basement, Toilet, Kitchen & Terrace) and damp proofing at different levels of a building, treatment and admixtures and different materials (rigid, flexible) used in the process. 4b -Types of Joints- Expansion Joint, Isolation Joint, Contraction Joint, Sliding Joint and construction Joint) 4c- Fire resistance properties of different materials, Fire Resistance construction techniques, Hollow Protection to Steel Columns and Beams, Fire protection equipment and requirement for multi-story buildings.		
	Unit 5	**Deep Excavation, Scaffolding & Formwork, Shoring, and Underpinning**		
		5a-Setting out of Site, Excavations method, precautions to be taken in deep excavation, de-watering and Timbering (Hard Soil, Firm Soil, loose wet Soils and Loose Dry Soil), Timbering of Shallow Trenches 5b-Scaffolding & Types of Scaffolding (Brick- Layer's, Mason's, Steel or Tubular Needle and Wooden Scaffold), Shoring & Types of Shoring (Raking, Flying & Dead Shores), Underpinning. 5c- Formwork (Plywood and Steel Formwork), Formwork for Square column, Round Column, Beam, Slab And RCC Staircase, Construction and Removal of Formwork.		
9	Mode of examination	Jury		
10	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
11 12	Text book/s*	1.McKay, W.B., "Building Construction Volume I, II, III and IV", Longmans, 1955. 2. Ching, Francis D. K. and Adams, Cassandra, "Building Construction Illustrated", Wiley and Sons, 2000. 3. The Construction of Buildings – BarryVolume I, II, III and IV 4. Chudley, Roy, "Construction Technology", Longman, 2005. 5.		

		Building Construction_Mitchell (Elementary and Advanced) 6. Rangwala, S. C., “Building Construction”, Charotar Publishing House, 2007 7. Building Construction-Bindra&Arora. 8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005. 9. Building Materials by SC Rangwala: Charotar Pub. House, Anand

CCU 303: COMMUNITY CONNECT

School: SAP		**Batch : 2021-26**
Program: B.Arch		**Current Academic Year: 2022-23**
Branch:		**Semester: 3**
1	Course Code	CCU 303
2	Course Title	**Community Connect**
3	Credits	**2**
4	Contact Hours (L-T-P)	**0-0-4**
	Course Status	**Compulsory**
5	Course Objective	1. The objective of assigning the project related to community work is to expose our students to different social and infrastructural issues faced by the people in different sections of society in rural areas. 2. This type of project work will help the students to develop better understanding of problems of people living in a less privileged position in the society, may be socially, medically, economically, in the built fabric or otherwise. 3. This type of live project work will help our students to connect their class-room learning with practical issues/problems in the rural setup.
6	Course Outcomes	CO1: **Sensitize** to the living challenges of disadvantaged communities and **appreciate** societal realities beyond textbooks and classrooms CO2: **Acquire** knowledge and skills which will help them **understand**, project and **perceive** rural setup. CO3 :**Expose** the students to **understand** different current issues, **analyse** them from a rural perspective CO4 :**Learn** to do research, **apply** their knowledge via research, and training for community benefit CO5 :**Suggest** or design solutions to the social issues, **work** on socio-economic projects with teamwork and timely delivery and **engage** with communities for meaningful contribution to society
7	Course Description	The course shall enable the students to be able to connect with the community and provide them with architectural solutions for the social issues that they face in their day to day life. Major sub themes for research are - 1.Impact of government projects in community. 2.Social issues through surveys • Environment issues through primary and secondary surveys • Economic issues, through census and primary surveys. • Technology-adaption • Infrastructure Issues.
8	Outline syllabus	
	Unit 1	**Introduction to the Research problem**
	A	1a. Statement of the problem.
	B	1b. Purpose of the study

	C	1c. Significance of the study.		
	Unit 2	**Literature/ On site review**		
	A	2a. Identify and group together common areas.		
	B	2b. Compare, contrast and evaluate issues.		
	C	2c. Demonstrate why the topic and research is relevant to your field of study.		
	Unit 3	**Methodology**		
	A	3a. Sample		
	B	3b. Data collection		
	C	3c. Data analysis		
	Unit 4	**Implications and Limitations of study**		
	A	4a. Identifying the limitations and how important each limitation is.		
	B	4b. Explaining the nature of limitations.		
	C	4c. Suggesting how such limitation could be overcome		
	Unit 5	**Implications and Recommendations**		
	A	5a. Specific measures or directions that can be taken		
	B	5b. Critical suggestion regarding the best course of action in a certain situation		
	C	5c. Guide to resolve issues and result in a beneficial outcome		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		-	-	100 %
	Text book/s*			
	Other References			

SEMESTER IV

ART 219: Environment Sustainability and Services II

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: IV**
1	Course Code	**ART219**
2	Course Title	**Environment Sustainability and Services II**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1. To describe the water supply and distribution requirements in buildings 2. To explain the terminology, principle of sanitation, drainage layouts, fixtures 3. To describe the electrical system, distribution, installation and material. 4. To sketch the schematic layout of simple water, sanitation and electrical services for domestic and public buildings. 5. To discuss various systems of environmental control and management.
6	Course Outcomes	CO1: Knowledge and comprehension of water supply and distribution system in buildings CO2: Knowledge and comprehension of sanitation system, its various components, their working, and types CO3: Knowledge and comprehension of electrical services and application to make informed choice of appropriate wiring system in buildings and incorporate necessary design features CO4: Application in electrical, plumbing and sanitary services of buildings CO5: Knowledge and awareness of various concepts of environment control and management strategies
7	Course Description	This course aims to familiarize the students with building services like water supply, sanitation and electrical services that are necessary in a multi-storeyed, large-scale building. It also introduces the concept of sustainable environment control and management.
8	Outline syllabus	
	Unit 1	**Water Supply**
	A	Distribution of water in an area, Overhead tank, Underground tanks, Pipe appurtenances
	B	Requirements of water distribution system in low rise and high rise buildings. Water fixtures, water meter and storage tanks
	C	Hot and cold water supply system, Pipe - types, size, Jointing and fittings.
	Unit 2	**Sanitation**
	A	Principles of sanitation, Collection and conveyance of

		waste matter from buildings, Sanitation systems in buildings, Sanitary fittings, traps & types, manholes, intercepting and inspection chambers.		
	B	Drainage systems :Types of drainage systems, Dry and wet carriage systems, Sizes of drain pipes and material of pipes, Gradients used in laying drains and sewers etc		
	C	Sewage treatment system- septic tank and soak pits, Roof and surface water drainage. Rain water storage and harvesting principles and methods.		
	Unit 3	**Electrical**		
	A	Electrical Introduction – Terminology and Distribution of electricity in a building		
	B	Electrical Circuits, Fuse, MCB, etc., Types of switches, sockets etc Design consideration for electrical installation		
	C	Wires and types and specifications, Systems of wiring – Basic considerations. Various types of internal wiring systems e.g. cleat, casing and capping, batten and conduit (surface & concealed).		
	Unit 4	**Services Drawing**		
	A	The plumbing and sanitary drawings for individual spaces e.g. kitchen, toilet, wash area, utility etc. and building		
	B	Plumbing and drainage layout drawing for a building.		
	C	Electrical layout drawing of a building		
	Unit 5	**Environmental control & management**		
	A	Storm water and Waste water management		
	B	Sewage disposal system and effluent management		
	C	Solid waste management		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text Book/s	Rangwala, P.B. (2019). *Water supply and Sanitary Engineering including Environmental Engineering*. Anand, India: Charotar Publishing House Pvt. Ltd.		
12	Other References	1. Hall, F., &Greeno, R. (2013). *Building Services Handbook: Incorporating current building and water regulations.* Oxon, Ox: Routledge. 2. Orbart, A., & Parlour, R. P. (2016) *Building Services engineering for architects and building design professionals*. Integral Publication. 3. National Building Code of India 2005 Bureau of Indian Standards, New Delhi, 2005 4. https://www.designingbuildings.co.uk/wiki/building-services 5. https://www.coursera.org/learn/global-environment-management		

ART 218: History, Theory & Criticism -IV

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: IV**
1	Course Code	**ART 218**
2	Course Title	**History, Theory & Criticism -IV**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	1. To make students critically analyze, evaluate and make informed judgment on a wide range of architectural problems and situations 10th to 16th Century AD 2. To comprehend key architectural works, cultural movements and ideas, their theoretical and cultural context and relevance to design 3. To illustrate the differences in architectural styles of Hindu, Colonial and Mughal eras and make the students compare the religious and cultural context with respect to the socio-economic variations of those times.
6	Course Outcomes	CO1: **Identify** main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture. CO2: Interpret & d**iscuss** the socio-cultural context of the 16th- 19th century within which these theoretical approaches to design have developed. CO3: **Classify** prominent / important historic buildings by their components / style of design CO4: **Compare**& critique the various approaches to design in relation to their historical context. CO5: **Analyse** the contributing factors for the design development of different styles.
7	Course Description	This course examines the History of Architecture from the 10th century through the 16th century offering an overall understanding of religious and cultural context to architectural styles evolved. It introduces the impact of socio-economics on the building typology.

8	Outline syllabus	
	Unit 1	**Neo Classical Architecture**
	A	Origins of Neoclassical Style, Contribution of Andrea Palladio
	B	Colonial and Federal Style, Contribution of Giovanni Battista
	C	Greek Revival, Beaux Arts.
	Unit 2	**Early Islamic architecture**
	A	Birth of Islam; Early Islamic architecture- beginnings in Arabia, Arab houses, prophets mosque , Dome of the Rock, Islamic architecture under Ummayads in Syria, Damascus, Spain, Toledo;
	B	Islamic architecture under Abbasids in North Africa –Dar alSalam, Samarra; under Tulunids at Egypt; Under Nasrids at Granada; Qayrawan; Under Aglabids- Tunisia; Under Fatimids-;
	C	Mosques of Iran and Central Asia, Afghanistan; under the Samanid, Uzbekistan, Iran; Mosques and Tombs.
	Unit 3	**Indo-Islamic Architecture - the Sultanate Style**
	A	Introduction and understanding of ‘Islam’s’ philosophy and its consequent rituals and their interpretation in building types.
	B	The architecture of early Islamic dynasties that ruled from Delhi like the Slave, Khalji, Tughlaq, Sayyid, Lodhis and Shershah Suri regimes.
	C	Comparison in spatial attributes scale and detail.
	Unit 4	**Mughal Architecture**
	A	Evolution of Mughal Architecture from the Sultane style of Architecture from Babur to Shahjahan.
	B	Architectural Features - Geometry in Architecture.
	C	Analysis of Architecture of Qutub Complex, Taj Mahal, Fatehpur Sikri, Tomb of Itmad-Ud-Daulah and similar spaces and interpretation in comparative context.
	Unit 5	Colonial Architecture and Late Mughal Architecture
	A	British Architecture – Private Bungalows and Government Buildings.

	B	French, Dutch and Portuguese forms of architecture. Comparison with British Architecture.		
	C	Late Mughal Architecture: Comparison with Early Mughal Architecture, Impact of Socio-economic conditions in architectural context.		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			

ART 216 – Architectural Structures-II

School: SUSAP		**Batch : 2021-26**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester:IV**
1	Course Code	**ART 216**
2	Course Title	**Architectural Structures-II**
3	Credits	**2**
4	Contact Hours (L-T-P)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1. To understand the analysis of indeterminate structures and their use. 2. To understand how different materials interact with each other 3. To introduce the concept of behaviour of structural components under deflection.
6	Course Outcomes	CO1: Demonstrate systematic knowledge of developing architectural forms based on structural systems CO2: Understand the interdependence of architectural form and structural system of a structure CO3: Identify basic structural systems CO4: Demonstrate the current knowledge and the latest trends in structural systems of contemporary architecture. CO5: Identify different structures.
7	Course Description	The course is an understanding of the basic principles of structural mechanics so that it forms the basis for study of structure systems. Through a series of practical exercise participants will be familiarized with how structural systems and materials interact with each other. The objective here is to develop amongst students an appreciation of the various nuances involved in the both manmade and natural structures.
8	Outline syllabus	
	Unit 1	
	A	Determinacy and Indeterminacy : Determinate and Indeterminate structures .
	B	Energy Principles Introduction: Virtual work, Betti's and Maxwell, laws of reciprocal deflection. Application of Virtual work. Castigliano's theorems.
	C	Introduction, forms of Elastic Strain Energy
	Unit 2	
	A	Slope Deflection method .
	B	Analysis of fixed and continuous beams,
	C	yielding of supports.
	Unit 3	

	A	Analysis and design of sections		
	B	Singly and doubly reinforced sections		
	C	Introduction and use of design aids (IS 456:2007)		
	Unit 4			
	A	Strength and Serviceability requirements .		
	B	Design methods		
	C	Working stress ,ultimate strength and limit state		
	Unit 5			
	A	Introduction to One-Way slab. Two way slab.		
	B	Detailing of Reinforcement		
	C	Introduction. Shear stress, Diagonal tension. shear reinforcement , Development 1ength, Anchorage Bond, Flexural bond.		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

ARJ 215 : Architectural Design- IV

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: IV**
1	Course Code	ARJ
2	Course Title	ARCHITECTURAL DESIGN IV
3	Credits	12
4	Contact Hours (L-P-S)	0-3-7
	Course Status	Compulsory
5	Course Objective	• The aim of the studio is to introduce students to design of repetitive units/ Modular focusing on horizontal spatial planning with focus on interrelationship between spaces and their respective hierarchy. • To sensitise them to observing their environment and incorporating the learning's into their design. • The objective is to focus on design evolution with respect to passive design strategies and site context.
6	Course Outcomes	CO1: To **Illustrate** the learning from climatic study to the designed modules. CO2: To **Translate** research andenvironmental strategies to incorporate in the design process. CO3: To **Analyze** the different variables while using light as a major source of design element. CO4: To **Apply** the knowledge of local materials, sustainability and climatic impact on design project. CO5: To **Implement** the structural design in the design project. CO6: To **Demonstrate** basic skills of drawings and representation with modern tool usage.
7	Course Description	Looking at the immediate built environment and understanding its fundamental components and their impact on the surroundings. The studio deals with the study of built form and its relationship to the site, surroundings and climatic setting. Design proposals to address sensitivity to climatic and physical settings. The design problem would induce students to experiment with built and open spaces. Exercises relating personal experiences to behavioral needs and translating them into documented information that can be used as a basis for design. Introduction to other role players in the Architectural process viz; the client and the user.
8	Outline syllabus	
	Unit 1	Minor Project
		a. Introduction to Minor project b. Form and material based investigation

		c. Understanding spatial aspects based on activity, space, form and human scale.		
	Unit 2	Minor Project- finalization		
		a. Pre design study-Case study and functional standards b. Concept formulation and idea investigation c. Final design presentation		
	Unit 3	Major Project- Conceptual		
		a. Introduction to Major project b. Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns. Site- 4000 sqm (appx) Scale : 1:100 , 1:200		
	Unit 4	Concept Development		
		a. Concept Formulation, Bubble Diagram and activity zoning. b. Design development- site development c. Design development- floor Plans		
	Unit 5	Finalisation		
		a. Design development- sections and elevations b. Model making on appropriate scale c. Final portfolio submission		
9	Mode of examination	Jury		
10	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
11	Text book/s*	-		
12	Other References			

ARJ 216 : Construction Material & Methods-IV

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: IV**
1	Course Code	**ARJ 216**
2	Course Title	**Construction Material & Methods-IV**
3	Credits	**6**
4	Contact Hours (L-P-S)	**0-6-2**
	Course Status	Compulsory
5	Course Objective	1. To introduce Various kinds of Timber Staircases 2.To introduce them to various types of RCC staircases and their details 3.To familiarize students about various metal staircases and construction details 4. To study various types of false ceilings and their details. 4. To cultivate personal observation and self learning in students,site visits are conducted so as to cover the given syllabus. 5. To help students observe, measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This shall form part and parcel of the sessional work for internal assessment.
6	Course Outcomes	CO1: To **Classify** various kinds of staircases and their details CO2:To **understand** details of timber staircase. CO3: To**illustrate** details of various kinds of RCC staircases CO4: To **discuss** details of various kinds of Metal Staircases. CO5: To **develop** an understanding of various details of false ceilings.
7	Course Description	This Construction Studio is designed to study various kinds of staircases and their details. Timber, metal and RCC are the main materials to be studied for staircases. Also, false ceilings are introduced. These components are taught through workshops, studio work and site exposure.
8	Outline syllabus	
	Unit 1	**Staircases**
		1a-Introduction, technical terms, calculations, requirement of a good staircase 1b-Classification and materials of staircase 1c-Escalators, Byelaws of staircase
	Unit 2	**Timber Staircase**

		2a-Design a timber staircase for a single/two story building (Dog legged, spiral, straight flight) 2b-Joinery details of timber tread riser, baluster, handrail, newel post etc. 2c-Market survey/case study		
	Unit 3	**RCC Staircase**		
		3a-Design a RCC staircase for a single/two story building 3b-Construction details of waist slab & folded slab 3c-Market survey/case study		
	Unit 4	**Metal Staircase**		
		4a-Design a metal staircase for a single/two story building 4b-Steel staircase and its elements, Types of Steel Staircase- Straight Flight, Winder, Quarter landing, Half Landing, Curved and Spiral Staircase. Construction details 4c-Market survey/case study		
	Unit 5	**False Ceiling**		
		5a -Introduction to different types of False ceilings and their materials. 5b -Gypsum Products Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles). Construction details of different false ceilings 5c-Market Survey/Case Study		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		50%		50%
	Text book/s*	1.McKay, W.B., “Building Construction Volume I, II, III and IV”, Longmans, 1955. 2. Ching, Francis D. K. and Adams, Cassandra, “Building Construction Illustrated”, Wiley and Sons, 2000. 3. The Construction of Buildings – BarryVolume I, II, III and IV 4. Chudley, Roy, “Construction Technology”, Longman, 2005. 5. Building Construction_Mitchell (Elementary and Advanced) 6. Rangwala, S. C., “Building Construction”, Charotar Publishing House, 2007 7. Building Construction-Bindra&Arora. 8. Punmia B. C., Jain A. J., and Jain A.J., Building Construction, Laxmi Publications, 2005. 9. Building Materials by SC Rangwala: Charotar Pub. House, Anand		

ARJ 213 – DIGITAL DESIGN FABRICATION – II

School: SAP		**Batch : 2021-2026**
Program: B. ARCH		**Current Academic Year: 2021-22**
Branch: ARCH		**Semester: IV**
1	Course Code	**ARJ: 213**
2	Course Title	**DIGITAL DESIGN FABRICATION – II**
3	Credits	4
4	Contact Hours (L-T-P)	0-2-2
	Course Status	Compulsory
5	Course Objective	• Understanding of Advance 3D Modelling using Autodesk 3Ds Max. • Knowledge of options to work collaboratively on Virtual 3D Design. • Knowledge and Understanding of functional and aesthetic requirements of architecture and the application of those in virtual environments. • Knowledge of advanced 3D Renders using V-Ray rendering. • Learning of VR tools
6	Course Outcomes	CO1: Develop understanding of Computer Aided Drafting CO2: Comprehends computer aided drafting and its parameter as tools and its application in Architecture CO3: Demonstrate the methods and techniques in 2D and 3D through various architectural projects of progressive complexity CO4: Design and apply vray drafting in their projects CO5: Evaluates CAD techniques for quicker methods and presentation skills
7	Course Description	This course will be devoted to Advance digital modelling, Advance rendering using V-RAY render & image processing, this class will present advanced concepts and methodologies of digital based design for use in all phases of the design process. An emphasis will be placed on bringing the analog and digital realms closer together through concept, process + presentation; thus positioning the computer and digital media more intuitively in the students practice of architecture. As a result the students should become more adept at clearly articulated presentation of concept and form and understand principles behind new processes of fabrication, documentation and architectural experimentation made possible by the computer.
8	Outline syllabus	
	Unit 1	**Advance 3D Modelling**
		Sub unit - a, b and c detailed in Instructional Plan
	Unit 2	NURBS fundamentals: Creating + Editing Splines for surface creation, Surfaces, Splines from surfaces
		Sub unit - a, b and c detailed in Instructional Plan

	Unit 3	**Advance Rendering using VRAY**		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	**Advance Renders as Image, Animation & VR**		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	**Final Project**		
		Sub unit - a, b and c detailed in Instructional Plan		
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	Architectural Rendering with 3ds Max and V-Ray: Photorealistic Visualization. 3D Photorealistic Rendering: Interiors & Exteriors with V-Ray and 3ds Max: 1 The VR Book: Human-Centered Design for Virtual Reality		
	Other References			

AEJ 208–TRENDS IN ARCHITECTURE

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: IV**
1	Course Code	**AEJ 208**
2	Course Title	**TRENDS IN ARCHITECTURE**
3	Credits	**2**
4	Contact Hours (L-P-S)	**0-3-0**
	Course Status	**Elective**
5	Course Objective	To compare the trends in architecture within various time frames. To understand and expose students to the works of renowned architecture and the trends evolved by them. To analyse the case studies with respect to defined parameters.
6	Course Outcomes	CO1: Students will be able to compare the trends evolved in architecture since 19th century till date. CO2: Students will be equipped with the knowledge of various architects and their works. CO3: Students will be able to analyze the work done by architects globally and evaluate the trends evolved by their works. C04: Students will be able to identify styles. C05: Students will be able to compare and contrast the styles

7	Course Description	The studio is designed to introduce the students to the main trends in architecture from the nineteenth century till date and the activities of important architects under this time frame.
8	Outline syllabus	
	Unit 1	**Trends in architecture- 19th century**
		Emanuel Rocco, Sullivan and Alder, Felix Duban Case examples- Galleria Umberto, Auditorium Building Chicago, School of Beaux Arts Analysis of case examples
	Unit 2	**Trends in architecture- First Half of 20th century/ Pre war**
		Walter Gropius, Pierre Chareu, Otto Wagner, Antoni Gaudi Case examples- Bauhaus, Maison De Verre, casa Mila Analysis of case examples
	Unit 3	**Trends in architecture -Industrial Revolution**
		Le Corbusier, Jean Pourve, Frank Lloyd Wright, Alvaro Alto, Godin Case examples- The Cloister, Johnson Wax Administrative Building, Le Familistere Analysis of case examples
	Unit 4	**Trends in architecture -Later half of 20th Century/ Post war**
		Frank O'Gehry, Jean Nouvel, Renzo Piano, Peter Zumthor, Charles Garnier, Case examples- Guggenheim Museum, Nemausus, Pompidou Center, The Opera Garnier Analysis of case examples
	Unit 5	**Trends in architecture -21st Century**

		Tokyo Ito, ZahaHadid Case examples- The Sendai Media Center, Heydar AliyevCenter Analysis of case examples		
9	Mode of examination	**Jury**		
10	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
11	Text book/s*	1. Troman, R. (ed.), "History of Architecture, From Classic to Contemporary", Parragon.2009 2. Gossel, P. (2005) Architecture in the 20th century, Vol- 1 & Vol 2, Taschen 3. The Phaidon Atlas of Contemporary Architecture, Phaidon Press, 2004 4. Vidiella, A.S. (2008) The sourcebook of Contemporary Architecture, Harper Collins		
12	Other References			

AEJ 223 : Product-Furniture Design

School: SAP		**Batch : 2021-26**
Program: B. Arch		**Current Academic Year:**
Branch:		**Semester: 5**
1	Course Code	AEJ 223
2	Course Title	**Product-Furniture Design**
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	Elective
5	Course Objective	1. To develop the knowledge base that will enrich approaches to, and understanding of the field 2. To pursue specialised skills, techniques of practice and areas of knowledge that will expand awareness of the field of product design
6	Course Outcomes	CO1: Use the Product Design and Development Process, as a means to manage the development of an idea from concept through to production CO2: Employ research and analysis methodologies as it pertains to the product design process, meaning, and user experience. CO3: Apply creative process techniques in synthesizing information, problem-solving and critical thinking. CO4: Effective use of modelling/prototyping techniques (2D and 3D) in the generation of design ideas CO5:Design manipulation and presentation of designed products.
7	Course Description	This course aims to introduce the idea to enable the student to do an in depth study of the field of product design.
8	Outline syllabus	
	Unit 1	**Product Design**
	A	Introduction to Product Design
	B	Its scope and significance.
	C	Brief introduction to various areas of product design and various terminologies associated with it.
	Unit 2	**Human factors in design**
	A	Study the importance of different human factors like visual, hearing, tactile, taste, ergonomics etc.
	B	Experiments to demonstrate the importance of different human factors like visual, hearing, tactile, taste, ergonomics etc.
	C	Designing different products to demonstrate the use of human factors in design.
	Unit 3	**Product Design and Innovation**
	A	Introduction to the subject. Discussion on innovations done in various stages of product cycle. Product evolution and timeline

	B	Study futuristic designs and technologies including innovations in new materials, products and technologies.		
	C	Difference between Patents, Trademarks and Copyrights.		
	Unit 4	**User Experience in Design**		
	A	Study what is User Experience Design and its scope.		
	B	Understanding human interface and interaction with products, psychological and behavioural characteristics		
	C	Assignment that applying skills to understand user experience in design		
	Unit 5	**Design & Development**		
	A	Study basic ergonomics, user, lifestyles and create mood boards.		
	B	Product design in field – study various brands and their design language.		
	C	Designing/ styling a product (lifestyle).		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References	• *The complete book of colour*, Suzi Chiazzari. • *Dynamic color Painting,* Diane Edison. • *Indian anthropometric dimensions for ergonomic design practic* Debkumar Chakrabarti, National Institute of Design. • *Materials and Design,* M. F. Ashby, Kara Johnson.		

SEMESTER V

ART 308: History, Theory & Criticism -V

chool: SAP		**Batch : 2021-26**
Program: B.Arch		**Current Academic Year:**
Branch:		**Semester: V**
1	Course Code	ART 308
2	Course Title	History, Theory & Criticism –V (HTC-V)
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	Compulsory
5	Course Objective	1. To understand the historical development through the 20th to the 21st century. 2. To understand the political economy of the period 3. To understand Cultural and Social significance of the period 4. To identify and study the salient features of the architectural styles during the 20th to the 21st century.
6	Course Outcomes	CO1. Identify main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture. CO2. Interpret & discuss the socio-cultural context of the 20th and 21st centuries within which these theoretical approaches to design have developed. CO3. Compare & critique the various approaches to design in relation to their historical context. CO4. Comprehend key architectural works, cultural movements and ideas, their theoretical and cultural context and relevance to design. CO5. Apply the knowledge of historic architectural styles and techniques in design. CO6. Analyze the contributing factors for the design development of different styles.
7	Course Description	The History, Theory and Criticism (HTC) program deals specifically with the socio-political, historical and cultural dimensions of Architectural history from 1750 AD to 1950 AD. Through this module students develop a deeper understanding of the architectural styles during the period and famous examples of the same.
8	Outline syllabus	
	Unit 1	**Indian Architecture**
	A	Indo-Saracenic style
	B	Modern Architecture in India
	C	Philosophies, theories of indo Saracenic style architect
	Unit 2	**Early modern architecture**
	A	Art Deco
	B	Bauhaus

	C	The International style		
	Unit 3	**Contemporary Architecture**		
	A	Emergence of the Modern Movement in 20th C.		
	B	Avant-garde: Futurism, Constructivism, De Stijl, Expressionism etc.		
	C	Urban visions: The Birth of the skyscraper, Mega structures.		
	Unit 4	**Works and Philosophies**		
	A	Le Corbusier and the Esprit Nouveau		
	B	Le Corbusier's Chandigarh		
	C	Alvar Aalto and the Nordic tradition		
	Unit 5	**Architects of modernist movement**		
	A	Mies van der Rohe		
	B	Frank Lloyd Wright		
	C	Frank Gehry		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	1. European Architecture 1750-1890 by Barry Bergdoll 2. Modern Architecture by Alan Colquhoun 3. Space, Time and Architecture — Sigfried Giedion 4. Theory and Design in the First Machine Age | The MIT Press by Reyner Banham		
	Other References			

ART309– Environment Sustainability and Services -III

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: V**
1	Course Code	**ART 309**
2	Course Title	**Environment Sustainability and Services III**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	to explain the importance of good lighting, types, distribution of lamps, lighting effect to introduce concepts of heating, ventilation and air conditioning as a building service and the functioning of varied types of systems, advantages to initiate air-conditioned building design including ducting and distribution to explain the functioning of lifts, types, sizes, standards to inculcate efficient energy design of buildings and the relevant norms and standards
6	Course Outcomes	CO1- To **interpret** illumination services for various typologies of buildings CO2 -To **discuss** the active and passive components of HVAC and their underlying principles. CO3- To **explain** different types of air conditioning systems. Also, identify the design / execution time considerations specific to each of them. CO4- To **develop** understanding for vertical transportation system for Low rise and high rise buildings CO5-To **identify** the various interventions / innovations to make the building services systems energy efficient.
7	Course Description	This course aims to familiarize the students with advanced building services like Heating, Ventilation, Air-conditioning, 9HVAC) Lifts and Artificial Lighting that are necessary in a multi-storeyed, conditioned large-scale building. It also introduces the concept of energy-efficient building design and the relevant codes and standards.
8	Outline syllabus	
	Unit 1	**Artificial Lighting**
	A	Illumination and Glare
	B	Choice of luminaries
	C	Architectural lighting and special effects
	Unit 2	**Air conditioning**
	A	Principles of Air conditioning, Humidification & Dehumidification, Refrigeration cycle and air cycle, applications of refrigeration, Cooling Load

	B	Methods of cooling: evaporative cooling, AC, Systems of Air conditioning: Unitary air conditioning systems and central air conditioning , Packaged etc		
	C	Methods of heating		
	Unit 3	**Air distribution system**		
	A	Description of plants and duct layout, various terminologies associated		
	B	Air distribution system-fans, filters, ductwork, outlets, dampers		
	C	Drawing an HVAC layout of a room showing Air distribution system		
	Unit 4	**Lifts, Conveyers and Escalators**		
	A	Types, control, arrangements and operation		
	B	Design standards from building codes.		
	C	Details of systems and equipments		
	Unit 5	**Energy Efficient Building Design**		
	A	ECBC Code and ISO 50001		
	B	Compliance Requirements and Demonstration		
	C	Energy Audits		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30% (1 test +2 Quizzes)	20%	50%
11	Text book/s*	Hall, F., Greeno, R., (2013) Building Services Handbook, 7th ed. Routledge Publication, New York		
12	Other References	1. Severns, W.H., Fellows, (1958) J.R., Air-conditioning and Refrigeration, John Wiley & Sons Inc 2. A.F.C. Sherrat. (1980) Air Conditioning and Energy Conservation CIDC Architectural Press 3. Mujamdar, M.,(2002) Energy-efficient buildings in India, TERI & Ministry of Non-Conventional Energy Sources, New Delhi 4. National Building Code – 2005, Bureau of Indian Standards, New Delhi		

ART 306 – Architectural Structures-III

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester:V**
1	Course Code	**ART 306**
2	Course Title	**Architectural Structures-III**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	-To introduce metal as a construction material. -To study various kinds of doors and windows in metals like steel and aluminium. -To introduce them to steel truss and roofing systems -To cultivate personal observation, self learning in students and better understanding of details, site visits are conducted so as to cover the given syllabus.
6	Course Outcomes	CO1: **Understand** various uses of the metal in construction. CO2: **Illustrate** various kinds of doors and windows in steel. CO3: **Discuss** various details of Aluminum and UPVC Door, Window and Partitions. CO4: **Analyse** various details of Steel Floors & Finishes. CO5: **Develop** an understanding of various construction details of steel truss
7	Course Description	The course is an understanding of the basic principles of structural mechanics so that it forms the basis for study of structure systems. The students are exposed to a wide variety of examples that teach them to appreciate structural systems in steel structures. Through a series of practical exercise participants will be familiarized with how structural steel interacts with each other. To impart knowledge about the necessity and techniques of prefabricated building components.
8	Outline syllabus	
	Unit 1	
	A	Steel - Mechanical properties of steel, Structural steel products and advantage of steel as structural materials, Basis of structural design(Codes and Specifications, Design philosophies)
	B	Introduction to Steel members - Introduction to steel structural components. Beam, Column Compression members, Basic Column Bases and foundation.Tension members.
	C	Design of connections - Design of Riveted connections, Design of Bolted connections, Design of Welded connections
	Unit 2	
	A	Steel trusses for large span- Introduction to trusses. Types of Trusses. Standard Trusses SP38
	B	Composite construction & Prefabrication - Introduction to Girders

		Space , Pre-engineered buildings/Prefabricated buildings. Modular concepts		
	C	Design of Column - Detail of axially loaded short and long columns. Detail of eccentrically loaded short and long columns .Design for direct and uni-axial bending, use of design aids.		
	Unit 3			
	A	Soil mechanics - Soil mechanics (characteristics, bearing capacity, lateral pressure due to soil and underground water, soil investigation report and safe bearing capacity of soil).		
	B	Foundation - Introduction of different types of foundation w.r.t. SBC		
	C	Retaining Walls		
	Unit 4			
	A	Foundation Design - Design of simple R.C.C. isolated footing, introduction to framed structure. Behaviour of structure under wind load and seismic load.		
	B	Types of joints - Construction joints & Expansion joints in R.C.C. framed building.		
	C	Water proofing systems - Various types of water proofing systems		
	Unit 5			
	A	Flat slab, Coffered slab, Shells & Folded Plates		
	B	Pre stressed beams		
	C	Pre stressed slabs		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*			
12	Other References			

ARJ 305: Architectural Design – V

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: V**
1	Course Code	**ARJ 305**
2	Course Title	**Architectural Design – V**
3	Credits	**12**
4	Contact Hours (L-P-S)	**0-3-7**
	Course Status	**Compulsory**
5	Course Objective	1.The aim of the studio is to introduce students to Idea Embodiment. 2.To sensitise them to observing their environment and incorporating the learning's into their design. 3.The objective is to focus on design evolution with respect to passive design strategies and site context.
6	Course Outcomes	CO1: **Illustrate** the learning from historic/ vernacular/ ecological heritage study to the designed modules. CO2: **Translate** research and the understanding of the built environment into the design project. CO3: **Build** design strategies to incorporate in the design process for designing in Vernacular/Historical or heritage context. CO4: **Apply** the knowledge of passive design strategies and site context in design of project CO5: **Integrate** learning of construction, structures and computers to apply to design. CO6: **Demonstrate** advanced skills of drawings and representation with modern tool usage.
7	Course Description	Looking at the immediate built environment and understanding its fundamental components and their impact on the surroundings. The studio deals with the study of built form and its relationship to the site, surroundings and climatic setting. Design proposals to address sensitivity to climatic and physical settings. The design problem would induce students to experiment with built and open spaces. Exercises relating personal experiences to behavioural needs and translating them into documented information that can be used as a basis for design. Introduction to other role players in the Architectural process viz; the client and the user.
8	Outline syllabus	
	Unit 1	**Minor Project**
		1a. Introduction to Minor project 1b. Form and material based investigation 1c. Understanding spatial aspects based on activity, space, form and

		human scale.		
	Unit 2	**Minor Project- finalization**		
		2a. Pre design study-Case study and functional standards 2b. Concept formulation and idea investigation 2c. Final design presentation		
	Unit 3	**Major Project- Conceptual**		
		3a. Introduction to Major project 3b. Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns. 3c. Pre design study -Literature Study, Site Analysis, Case Study. Site- 8000 sqm (appx)		
	Unit 4	**Concept Development**		
		4a. Concept Formulation, Bubble Diagram and activity zoning. 4b. Design development- site development 4c. Design development- floor Plans		
	Unit 5	**Finalisation**		
		5a) Design development- sections and elevations 5b) Model making on appropriate scale 5c) Final portfolio submission		
9	Mode of examination	Jury		
10	Weightage Distribution	CA		ETE
		50%		50%
11	Text book/s*	-		
12	Other References			

ARJ 306: Construction Material & Methods-V

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: V**
1	Course Code	**ARJ - 306**
2	Course Title	**Construction Material & Methods-V**
3	Credits	**6**
4	Contact Hours (L-P-S)	**0-3-3**
	Course Status	Compulsory
5	Course Objective	1.To generate a basic understanding of the prefab construction 2.To familiarize the students with the constructional details of Prefab construction including open prefab systems, large panel prefab system, joints, precasting methods, on-site and off-site prefabrication, components. 3.To help them understand the methods of pre-stressing and post-tensioning of concrete, their application in large space structures today. 4.To familiarize the students with the components of Steel structures, their application, joinery, construction details of multi-storeyed steel structures, forms and materials for speedy construction from foundation to roofing, from walls to slabs, from structure to facade. 5.To cultivate personal observation and self learning in the students, site visits should be conducted so as to cover the given syllabus. 6.To help students observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This shall form part and parcel of the sessional work for internal assessment.
6	Course Outcomes	CO1:**Understand** the basic construction of steel and prefab structures. CO2:**llustrate** the applications of prefab construction, steel construction CO3:**Discuss** components of prefab construction, steel construction from foundation to roofing. CO4:**Analyse**details of prefab construction, steel construction from foundation to roofing with roof coverings. CO5:**Apply** all related details concerned with the material in the components studied.
7	Course Description	This Construction Studio is designed to study the Precast and Modular construction practices involving open prefab system, large panel prefab system. The students are introduced to pre-stressing and post-

		stressing of concrete, their characteristics and applications. The students are taught the construction basics of steel and wooden structures, their differing characteristics and the varying ways employed in the making of multi-storeyed buildings.		
8	Outline syllabus			
	Unit 1	**Precast and Modular Construction Practices**		
	A	Materials and Building components in small prefab construction		
	B	Prefabrication Material and Systems – open prefab system, large panel prefab system, joints, precasting methods, materials, on-site and off-site prefabrication, components, etc		
	C	Assembly of components, tolerances, modules, reference system, grids, positioning of functional elements – slabs, walls, staircases; Standardization in buildings' design and their components.		
	Unit 2	**Precast and Modular Construction Practices –Pre stressing & Post tensioning**		
	A	Pre-stressed Concrete Introduction, methods of pre-stressing and their application to large space structures		
	B	Pre-stressed Concrete-Materials for pre-stressing Classification, Availability, Characteristics and Uses		
	C	Post-tensioned Concrete, their applications & characteristics		
	Unit 3	**Steel structures**		
	A	Metal as building material, application, advantages, disadvantages, characteristics etc.		
	B	Elements and Components of Steel and Wooden structures -Beams ,Columns etc.		
	C	Joinery of Steel and Wooden structures		
	Unit 4	**Steel structures**		
	A	Foundation, Floors, Slabs, mezzanine floors		
	B	Portal frames, Space frames, their assembly & construction		
	C	Multi storied steel structure / Speed floors - Forms & materials for speedy construction, and the construction methods		
	Unit 5	**Roof coverings**		
	A	Introduction of roof covering materials & their uses.		
	B	Roof coverings using AC/CGI sheets, Gutters, Ridge and Valley detail		
	C	Site exposure		
	Mode of examination	Theory/Jury/		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			

ARJ 303: DIGITAL DESIGN FABRICATION – III

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		**Current Academic Year: 2021-22**
Branch:		**Semester: V**
1	Course Code	**ARJ: 303**
2	Course Title	**DIGITAL DESIGN FABRICATION – III**
3	Credits	**4**
4	Contact Hours (L-P-S)	**0-2-2**
	Course Status	**Compulsory**
5	Course Objective	·Understanding of Autodesk Revit as an example of a parametric BIM building modeling software. ·Knowledge of options to work collaboratively on Virtual Design and Construction (VDC) projects. ·Knowledge and Understanding of functional and aesthetic requirements of architecture and the application of those in virtual environments. ·Knowledge of advanced CAD/BIM principles: Interoperability, software extensions, scripting/automation, texturing/rendering, workflow methods and others.
6	Course Outcomes	CO1: **Develop** Understanding of a parametric building information model ("BIM" = a 3d object-oriented model of a building where each component has "intelligent" behaviors and embedded data) and extract data. This approach facilitates the creation of construction documents (plans, elevations etc.), material takeoffs and building schedules as well as performance (e.g. building energy) analysis. CO2: **Comprehends & Create** CAD/BIM-based tools to solve technical issues (fabrication, energy efficiency, lighting, structural etc.) during the planning process. CO3: **Demonstrate** BIM based Project Design. CO4: **Create** BIM project and documentation. CO5: **Evaluates** on understanding ofBIM project andtechniques for quicker methods and presentation skills.

7	Course Description	In this module the students will learn Centered on problem-based tasks, topics such as 3-dimensional modeling, design for fabrication, parametric building design, building information modeling (BIM), material takeoff, energy-efficient planning and model analysis, rendering and presentation, and others will be explored.
8	**Outline syllabus**	
	Unit 1	**Introduction to BIM and BIM tools**
	A	Introduction to Autodesk Revit
	B	Introduction to BIM, Scope, Challenges and Opportunities
	C	Drawing Tools, Basic Walls, Doors and windows
	Unit 2	**Design development process in BIM & Tools of parametric design**
	A	Wall Finishes, Components, Material & Texturing
	B	Working with Floor and Slabs with finishes
	C	Working with Roof and Roof Types
	Unit 3	**Building modelling using BIM tools**
	A	Stairs and Railings
	B	Complex walls with finishes-1
	C	Complex walls with finishes-2
	Unit 4	**Scheduling and detailing with BIM**
	A	3D Views, Section and elevations
	B	3D Texturing and Materials
	C	3D Components & 3D massing
	Unit 5	**Methods, Techniques and implementation**
	A	Sheets & layout
	B	Plot settings

	C	Final Project		
9	Mode of examination	**Jury**		
10	Weightage Distribution	**CA**	**MTE**	**ETE**
		50%	**-**	**50%**
11	Text book/s*	1. Mastering Autodesk Revit, by Eddy Krygiel, Lance Kirby, and Marcus Kim 2.Residential Design Using Autodesk Revit 2020, by Daniel John Stine 3. Design Integration Using Autodesk Revit 2021 4.Building Information Modeling, by Karen M. Kensek		
12	Other References			

AEJ307: High Rise Building

School: SAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester: 5**
1	Course Code	AEJ 307
2	Course Title	High Rise Buildings
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	Elective
5	Course Objective	1. to introduce the various parameters to describe the High rise building 2. to explain the characteristics globally both at urban and metropolis level 3. to discuss services in buildings and to introduce the concept of efficiency. 4. to outline the principles of High rise building design, and environment with their implications on comfort, functional elements 5. to enumerate various intervention strategies to modify building and their social and sustainable impact. 6. to encourage development of creative ideas for futuristic building design
6	Course Outcomes	CO1: Describe high rise construction and its architectural intervention CO2: Demonstrate an understanding of the concept of high-rise in cities. CO3: Discover level of special services require in buildings, its various structure techniques CO4 Understanding of material properties w.r.t. climate and sustainability. CO5: Compare ways to modify heat gain, day-light and ventilation in buildings CO6: Develop design features for enhancing futuristic approaches, vertical cities in design
7	Course Description	This course aims to introduce study of high rise building design, its need and implication on the built environment from architectural point of view and establishes the link between the climate of a place, environment and social issues. It also prepares students to design and think futuristic building design
8	Outline syllabus	
	Unit 1	**High Rise Building**
	A	Introduction to the basic terms high rise building, design considerations
	B	Introduction to characteristics of high rise building, Understanding various terminologies

	C	Methods of estimating different components of a building, Reasons for high rise development		
	Unit 2	**Structure of High Rise Building**		
	A	Evolution of structural system		
	B	Design , consideration and elements in Tubular system		
	C	Design , consideration and elements in Steel structure and Braced frame system		
	Unit 3	**Future development**		
	A	High rise building ,Present and Future		
	B	Vertical cities - the new form of high-rise construction evolution		
	C	High rise building case studies		
	Unit 4	**Environmental Impact**		
	A	Aspect and significance of high rise building in urban area		
	B	Social Sustainability of High-rise Buildings		
	C	On the Psychological Impacts of High rise Living - Building the Skyline		
	Unit 5	**High Rise building Services**		
	A	Design of lifts and elevators in high rise buildings, byelaws, fire escape		
	B	Design ,components and features of H.V.A.C, Plumbing and sanitation services in high rise building		
	C	Design ,components and features of electrical services in high rise building		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

AEJ 313: Cinema in Architecture

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: V**
1	Course Code	**AEJ 313**
2	Course Title	**Cinema in Architecture**
3	Credits	**2**
4	Contact Hours (L-P-S)	**0-0-2**
	Course Status	**Compulsory**
5	Course Objective	1.To create awareness and provide exposure about the design potential in theatre & cinema set design to architecture students. 2.To inculcate the ability to translate the requirements of the script to physical manifestations according to the traditions followed in the theatre & cinema industry. 3.To include the various services, lights, materials, in design.
6	Course Outcomes	CO1: Students should be able to Identify, select and apply the appropriate skills of cinemaset making and its history CO2: Students should be able to understand and apply concepts of composition and basic principles of design, principles of colour and texture in set design CO3: The students should be able to understand and analyze relation of space and human, views, special interrelationship. CO4: The student should be able to comprehend the skills and knowledge to design special space solutions. CO5: The student should be able to comprehend and communicate effectively through documentation, graphical and verbal presentations.
7	Course Description	The studio is designed to familiarize students with visual grammar, elements of design and methods of visual composition with various materials, mediums and color in set design. The studio focuses on space proportions and set design variables with its application in design process.
8	Outline syllabus	
	Unit 1	**History and Theater Film Set Design**
		a. Examination of the 20th century culture and society through film.. b. Film as cultural text to better understand history and cultural manifestations

<table>
<tr><td></td><td></td><td colspan="3">c. Investigation the production methods, dramatic theory and conventions, and scene design of various performance media</td></tr>
<tr><td rowspan="2"></td><td>Unit 2</td><td colspan="3">Graphic Design and Typography for Exhibit Design</td></tr>
<tr><td></td><td colspan="3">a. Principles of layout for creating effective visual signage
b. explore the unique problems, technique, theory, and approaches of signage in film set design
c. Introduction to the design applications for building signage</td></tr>
<tr><td rowspan="2"></td><td>Unit 3</td><td colspan="3">Set Design and Concept Wrap</td></tr>
<tr><td></td><td colspan="3">a. Practical use of Elements and principles of design in set Design
b. Presentation on different Film studios such as Ramoji film city, and Universal Studio
c. Analysing scripts and converting into storyboard to actual set</td></tr>
<tr><td rowspan="2"></td><td>Unit 4</td><td colspan="3">Stage Design</td></tr>
<tr><td></td><td colspan="3">a. Concept design for a set
b. Services in-cooperation in set design
c. Understanding set elements and final visualization in terms of model.</td></tr>
<tr><td>9</td><td>Mode of examination</td><td colspan="3">Jury</td></tr>
<tr><td rowspan="2">10</td><td rowspan="2">Weightage Distribution</td><td>CA</td><td>MTE</td><td>ETE</td></tr>
<tr><td>50%</td><td>0%</td><td>50%</td></tr>
<tr><td>11</td><td>Text book/s*</td><td colspan="3">Suggested Books/Readings:
a. BaicheBousmaha&Walliman Nicholas. Neufert Architect’s data. Blackwell science ltd.
b. Chiara De Joseph &crosbie.J.Michael. 1990. Time saver standards for building types. McGraw Hill company
c. Drafting for the theatre- Dennis Dorn and Mark Shanda
d. Light Fantastic: The Art and Design of Stage Lighting- Max Keller
e. The Handbook of Set Design- Crowood Press
f. Set Design by Tony Davis</td></tr>
<tr><td>12</td><td>Other References</td><td colspan="3"></td></tr>
</table>

SEMESTER VI

ART 315– Environment Sustainability and Service-IV

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VI**
1	Course Code	**ART 315**
2	Course Title	**Environment Sustainability and Service-4**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1.To explain the water supply and distribution, requirement of in buildings 2.To explain the principal and requirement of sanitation, Fixtures and terms involved 3.To understand the electrical system , distribution, installation and material. 4.To explain the schematic layout of simple water, sanitation and electrical for domestic and public buildings. 5. To introduce system of environment control and management
6	Course Outcomes	CO1: Knowledge of the functions of water supply distribution and management CO2: Familiarity with sanitation system its various components, their working, and types CO3: Make informed choice of appropriate wire selection in buildings and incorporate necessary design features CO4: Knowledge on various types of electrical, plumbing and sanitary services, working, components, sizes, standards CO5: Familiarity with Concepts of environment control and management strategies
7	Course Description	This course aims to familiarize the students with advanced building services like Fire Fighting, Acoustics, and Building Smart Technologies that are necessary in a multistoried, large-scale building. It also introduces the concept of energy-efficient building design and the relevant codes and standards.
8	Outline syllabus	
	Unit 1	**Fire Fighting**
	A	Causes & spread of fire, Fire fighting in multi-storey building, Combustibility of materials and safety norms, Fire resistant materials
	B	Fire detection and fire fightingequipments, Fire norms as per NBC
	C	Design of fire escapes layout, Fire detection and suppression system for buildings
	Unit 2	**Acoustics & Measurement of Sound.**

	A	Need of this special services, Cycles/sec, Decibels (dB), Effects & behaviour of sound		
	B	Inter space noise , Science of sound, Control and acoustical solutions (ABC)		
	C	Reverberation, Sound waves, Squeeze, Flanking, calculation, Reverberation time		
	Unit 3	**Sound transmission**		
	A	Class (STC) , Ceiling Attenuation, Class (CAC) ,Transmission Loss (TC), Impact Isolation Class (IIC)		
	B	Noise Reduction, Co- efficient etc.		
	C	Case study of Auditorium		
	Unit 4	Building Smart Technologies		
	A	Various Technologies such as Wind turbine technology, its concept, characteristics , standards , application and cost analysis Nanotechnology, its worldwide scenario, application and scope in future		
	B	Sensor technology in a building includes its installation, various types and standards		
	C	Building Integrated Photovoltaic Technology (BIPV). The Module shall culminate by analyzing the design and application of the various technologies studied in Intelligent Buildings		
	Unit 5	**Façade technology**		
	A	Double skin facade		
	B	Energy generating facades		
	C	Zero Energy Buildings		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30% (1 test +2 Quizzes)	20%	50%

ART 314 -History, Theory & Criticism -VI

School: SUSAP		Batch : 2021-2026
Program: B.Arch		
Branch:		Semester: VI
1	Course Code	ART 314
2	Course Title	History, Theory & Criticism –VI
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	1. To understand the historical development through the 20th to the 21st century 2. To understand the political economy of the period 3. To understand Cultural and Social significance of the period 4. To identify and study the salient features of the architectural styles during the 20th to the 21stcentury.
6	Course Outcomes	CO1. Identify main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture. CO2. Interpret & discuss the socio-cultural context of the 20th and 21st centuries within which these theoretical approaches to design have developed. CO3. Compare & critique the various approaches to design in relation to their historical context. CO4. Comprehend key architectural works, cultural movements and ideas, their theoretical and cultural context and relevance to design. CO5. Apply the knowledge of historic architectural styles and techniques in design. CO6. Analyze the contributing factors for the design development of different styles.
7	Course Description	This module deals specifically with the socio-political, historical and cultural dimensions of Architectural history from the 20th century to the 21st century. Through this module students develop a deeper understanding of the architectural styles during the period and

		famous examples of the same.
8	Outline syllabus	
	Unit 1	Post Modern Architecture
	A	Post Modern Architecture as a revision of Modern architecture and resistance to functional containers of 60's. Objective, representational and emphasis on content. Pluralistic and differing trends.
	B	Rooted to place and history. Regards of expression: ornaments, symbolism and context with irony and humour, exemplified through the
	C	works of James Stirling, Michael Graves, Charles Moore, AarataIsozak
	Unit 2	Critical Regionalism
	A	Origins of Critical Regionalism
	B	Works of Alvar Alto, Tadao Ando
	C	Works of Charles Correa, ,GeofferyBawa, MareoBotta
	Unit 3	Late Modernism
	A	Disregard historical imaginary to recapture ideas for modern architecture of 20's. Hi-tech metal abstractions of Richard Rogers, Normal Foster, showing structure and equipment as implied ornament. References of Russian Constructivists.
	B	The early works of New York Five including later works of RicharMier as complicated, exaggerated and sophisticated revival of the modern grid and Corbusier's geometry.
	C	Synthesis of Hi-Tech and Historicism in the works Aldo Rossi, Mario Botta, Cesar Pelli.
	Unit 4	Deconstructivism
	A	Desconstructivism as opposed to the ordered rationality of Modernism and Post Modernism.
	B	Narrative and representational. .Sources in Russian Constructivism.

	C	Non perfection in the works of Frank Gehry, Peter Eisenman, Berna Tschumi, Daniel Libeskind, questioning traditional purity of for geometry and structure.		
	Unit 5	Comparison and Critique		
	A	Comparison - Styles of Architecture 20th – 21st Century		
	B	Critique - Styles of Architecture 20th – 21st Century		
	C	Term Paper		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*			
12	Other References			

ART 316 - Building, Estimation & Costing

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VI**
1	Course Code	**ART 316**
2	Course Title	**Building, Estimation & Costing**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1. To know the various types of estimates and the techniques for preparing them 2. To know the importance and uses of specifications and how to write them 3. To know how to calculate the rates for a unit of work to be executed 4. To know the process of valuation of properties and how to prepare a valuation report
6	Course Outcomes	CO1: To knows and Recall the process of Construction stage wise and the type of Construction and materials used. CO2: To be able to Comprehend and understand the various processes of Estimating, Valuation, and tendering CO3: Execute and Implement the appropriate methods for preparing the estimates and valuation reports CO4: Demonstrate the acquired knowledge to complete a building Estimate/ Valuation report. CO5: Compares, evaluates, interprets the building typologies for preparing an estimate or doing the valuation , Justify with the help of documents and analysis
7	Course Description	This module introduces students to the methods of estimation and costing. Students are also familiarized with the specifications in a building project. The module also strives to inculcate awareness regarding the factors affecting the cost of buildings. Further it also deals with introducing to the students the methods of rate analysis for buildings components. Students would also familiarize with the valuation of building projects.
8	Outline syllabus	
	Unit 1	**Classification of Areas & Types of Estimates**
	A	Introduction to relevance and need of Estimation.
	B	Introduction to various types of Estimates.
	C	Methods of estimating different components of a building
	Unit 2	**Methods of building estimates**
	A	Preparation of Bill of Quantities (BOQ)

	B	Introduction of Centreline method & individual wall method of building estimate		
	C	Methods for preparation of Preliminary estimate.		
	Unit 3	**Specifications**		
	A	Introduction to Specifications , Types of Specifications		
	B	Writing general Specifications of work.		
	C	Writing detailedSpecifications for Building work.		
	Unit 4	**Analysis of Rates**		
	A	Introduction to Schedule of Rates , Importance of Rate Analysis, Considerations done while doing the Rate Analysis		
	B	Calculating the various quantities of materials required per unit.		
	C	Calculations for basic building materials like RCC, Brick work, etc.		
	Unit 5	**Valuation of Properties**		
	A	Introduction to Valuation and Purpose of Valuation.		
	B	Types of Building Valuation. Methods of Building Valuation.		
	C	Methods of calculating BuildingDepriciation.		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

ARJ 311 : Architectural Design –VI

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VI**
1	Course Code	**ARJ 311**
2	Course Title	**ARCHITECTURAL DESIGN VI**
3	Credits	**12**
4	Contact Hours (L-P-S)	**0-3-7**
	Course Status	Compulsory
5	Course Objective	1.The aim of the studio is to introduce students to design with focus on building services and functionality. 2.To develop sensitivity to building by laws. 3.To understand varied structural building systems . 4.Exploring and designing systems involving complex services for different requirements
6	Course Outcomes	CO1: **Develop** an understanding of the Modular construction and related issues CO2: **Integrate** details of bye laws and building regulations for creation of practical design CO3: **Apply** the knowledge the services required for the building in the design project. CO4: **Design** project using sustainable design strategies and detailing the building structural techniques, CO5: **Demonstrate** advanced skills of drawings and representation with modern tool usage.
7	Course Description	The project would involve the study of complex projects with intricate building services- Hospital/ Hotel/Convention Centre etc. Integration of Design ideas with structural feasibility. ● The project would involve case studies and analysis, site study and analysis. ● Concept evolution, preparation of design requirements, area requirements, interrelation and circulation patterns. sensitivity towards horizontal as well as vertical circulation requirements in a multi-storeyed building. ● Detailing of services to cater to the requirements ● Developing plans, sections and elevations, perspectives and sketches to be included in all key submissions for the development of communication skills. ● Detailed models to be generated with key submissions to communicate details of parking, landscaping and elevation features
8	Outline syllabus	

	Unit 1	Design Problem		
		a. Introduction to Project b. Form and material based investigation c. Understanding spatial aspects based on activity, space, form and human scale.		
	Unit 2	Literature & Case Study		
		a. Pre design study-Case study b. Pre design study -Literature Study, Site Analysis. c. Functional standards.		
	Unit 3	Concept Development		
		a. Concept formulation and idea investigation b. Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns c. Concept Formulation, Bubble Diagram and activity zoning.		
	Unit 4	Design Development		
		a. Design development- site development b. Design development- floor Plans c.Design development- sections and elevations		
	Unit 5	Design Presentation		
		a. Design sheets presentation. b. Model making on appropriate scale c. Final portfolio submission		
	Mode of examination	**Jury**		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	-		
	Other References			

ARJ 312 : Construction Material & Methods-VI

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VI**
1	Course Code	**ARJ 312**
2	Course Title	**Construction Material & Methods-VI**
3	Credits	**6**
4	Contact Hours (L-P-S)	**0-3-3**
	Course Status	Compulsory
5	Course Objective	1.To make students understand the composite materials, curtain walling and structural glazing systems used in facade. 2.To familiarize the students with different conventional wall and floor finishes. The students are introduced to Gypsum, it's various components and jointing details. 3.To help them understand the methods of wet and dry cladding in different material. 4.To introduce students with different types of false ceilings, gypsum false ceilings, it's construction details and incorporation of services. 5.The students are taught about the internal partition details. 6.To cultivate personal observation and self learning in the students, site visits should be conducted so as to cover the given syllabus. 7.To help students observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This shall form part and parcel of the sessional work for internal assessment.
6	Course Outcomes	CO1:Understand and comprehend the facade systems including composite, cladding materials and glazing systems. CO2: Illustrate the construction of interior finishes, flooring, wall and false ceiling,interior partitioning and furniture details. CO3: Apply all related details concerned with the material in the components studied.
7	Course Description	This Construction Studio is designed to study the Internal floor and wall finishes of wet and dry cladding systems. The students are introduced to the use of gypsum as a product used in false ceilings and internal partitions apart from other conventional materials. The students are taught the curtain walling systems and structural glazings, characteristics of glass as a building material. The students will also study the constructional details of furniture and new composite materials. The students are encouraged to conduct a market research of new materials in design and construction.

8	Outline syllabus			
	Unit 1	**Curtain walling/ structural glazing**		
	A	Curtain walling- Conventional Stick System, Semi unitized system, Unitized system, etc		
	B	Structural glazing both on walls and roofs/ Site Exposure		
	C	Introduction- Glass as a building material, types & its applications, factors defining performance & selection of Glass		
	Unit 2	**Wall and Floor Finishes**		
	A	Floor & Floor Finishes Brick, Cement Concrete, Stone, Terrazzo, Chequered Tile, Ceramic Tile, Vitrified Tiles, Wooden.		
	B	Wall finishes- Gypsum Plaster, Components and Accessories, Jointing and Finishing. Paints and Plaster		
	C	Materials and Details of Cladding -wet and dry in different materials, market research		
	Unit 3	**False Ceilings**		
	A	Introduction to different types of False ceilings and their materials.		
	B	Gypsum Products Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles).		
	C	Construction details of different false ceilings		
	Unit 4	**Internal Partitions**		
	A	Construction details of Metal Partition		
	B	Construction details of Wooden Partition		
	C	Construction details of Glass Partition		
	Unit 5	**Composite materials**		
	A	Definition and Introduction to composite materials		
	B	Application of Composite Material		
	C	Advantages & disadvantages of the composite materials		
	Mode of examination	Theory/Jury/		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*			
	Other References			

ARJ 313 : Digital Design Fabrication-IV

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VI**
1	Course Code	**ARJ313**
2	Course Title	**DIGITAL DESIGN FABRICATION – IV**
3	Credits	**4**
4	Contact Hours (L-P-S)	**0-2-2**
	Course Status	Compulsory
5	Course Objective	In this course, key phenomena and concepts in the field of digital fabrication are introduced and analyzed. The course deals with digital fabrication based on three overlapping perspectives: technology, crafts, and theory. The technological perspective highlights the technologies, concepts and processes that enable digital fabrication (including additive and subtractive manufacturing, CAD/CAM). The craft perspective puts emphasis on the various craftmanship abilities that are expressed in digital fabrication practices in seeking to transform an idea into a tangible prototype. The theory-focused perspective implies an appreciative feature of the course in which digital fabrication is discussed in terms of what changes digital fabrication can entail for organizations.
6	Course Outcomes	CO1: Define and explain what characterizes central technologies in digital fabrication. CO2: Explain theories that are relevant to how digital fabrication involves changes for organizations and organizing. Regarding proficiency and aptitude, the student is, after the course, expected to be able to: CO3: Compare and independently translate an idea into a tangible prototype using techniques and methods in digital fabrication. from given circumstances, in groups, carry out design work that is materialized through prototypes based on digital fabrication. Regarding evaluative capacity and approach, the student is, after the course, expected to be able to: CO4: Assess what type or combinations of types of digital fabrication technologies that are appropriate for the task at hand. Critically review and assess the introduction and shift to digital fabrication in manufacturing organizations. CO5: Develop and analyze organizational implications of digital

		fabrication.		
7	Course Description	This course is a hands-on exploration and apprenticeship in the art and process of digital fabrication. The course will assist students in nurturing the ability to efficiently translate ideas and concepts into digitally produced physical objects. Students will be given the opportunity to develop the skills necessary to maintain, calibrate and troubleshoot equipment in a fabrication lab as well as learn what it takes to keep a lab in operation. The future is present in the now. It is a magical time that we must take advantage of.		
8	Outline syllabus			
	Unit 1	Introduction to Advance 3D Modelling		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 2	Design development process		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 3	Understanding of Farication materials		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	Using technology for Digital Design Fabrication in the form of Prototype		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	Output Project		
		Sub unit - a, b and c detailed in Instructional Plan		
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	Anderson Chris Makers : the new industrial revolution		
	Other References			

AEJ 320- TRENDS IN PLANNING AND GIS

School: SUSAP		**Batch : 2021-2026**
Program: B.ARCH		
Branch: -		**Semester: VI**
1	Course Code	**AEJ 320**
2	Course Title	**TRENDS IN PLANNING AND GIS**
3	Credits	**2**
4	Contact Hours (L-P-S)	**2-0-0**
	Course Status	**Elective**
5	Course Objective	The proposed course provides basic understanding about GIS Technology.
6	Course Outcomes	CO1: Identify GIS and its components CO2 : Illustrate The Types Of Data Used In A GIS Software CO3 : Analyze Techniques Used In GIS Such As Spatial Interpolation, Map Projection Etc. CO4 : Compose The GIS Analysis Sheets
7	Course Description	This course is designed to help the students understand the basics of GIS and be able to analyse the different components of the software. Presently, GIS is being used extensively in various domains including in civil engineering, water resources, earth sciences, transportation engineering, navigation etc. Google Earth and Google Map are very popular custom designed user friendly GIS products which are widely used for various purposes including in navigation etc. As students of Architecture applications of GIS can be used to develop the understanding of its application in an urban context , which shall enable them to develop their critical evaluation skills for integration of built environment in an existing fabric of a city.
8	Outline syllabus	
	Unit 1	**What is Geographic Information Systems ?**

		a. Different components of GIS b. Different types of vector data , Raster data models and their types c. TIN data model		
	Unit 2	**Advantages and disadvantages associated with vector , raster and TIN**		
		a) Raster data compression techniques b. Different raster data file formats c. TIN and vector data advantages over raster data		
	Unit 3	**Database systems**		
		a. Introduction to Data systems and their types b. Spatial database systems and their types c. Non-spatial data (attributes) and their type		
	Unit 4	**Pre-processing of spatial datasets**		
		a. Different map projections b. Spatial interpolation techniques c. Different types of resolutions & Digital Elevation Model (DEM)		
	Unit 5	**Quality assessment of freely available DEMS**		
		a. GIS analysis-1 b. GIS analysis-2 and applications c. Errors in GIS & Key elements of maps		
9	Mode of examination	Jury		
10	Weightage Distribution	CA	**MTE**	**ETE**
		50%	**0%**	**50%**

SEMESTER VII

ART 403 –Urbanism

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VII**
1	Course Code	**ART 403**
2	Course Title	**Urbanism**
3	Credits	**2**
4	Contact Hours (L-T-P)	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1. To understand the basic elements, principles and techniques of urban design. 2. To understand the broader aspects and issues that bear upon the conception and built environment and public spaces at urban level. 3. To familiarize students with socio-economic issues and historical aspects of cities.
6	Course Outcomes	CO1: To Interpret relationship between the building and city CO2: To identify the dimensions of urban space CO3: To Assess Complex urban issues CO4: To Solve the interface between the building and urban space CO5: To Adapt to urban design of built form context
7	Course Description	Urbanism introduces the study of urban character—built form, social realm, and natural systems—through a historical overview that contextualizes contemporary issues related to urban form and development. Students will be introduced to the theories, language, and vocabulary of urbanism through readings, web-based lectures, directed observation, and critical thought.
8	Outline syllabus	
	Unit 1	**Introduction**
	A	Introduction to Urban Design. Brief discussion on History, Need, objective and scope of Urban Design.
	B	Introduction to the various determinants of Urban Form with relevant examples urban Form, Configuration and Character.
	C	Introduction to the various determinants of Urban Form with relevant examples Activity pattern, socio-cultural factors, materials and texture etc.
	Unit 2	**Urban Design Principles and Theories**
	A	Brief discussion on Public Realm, Urban Connections, concepts of urban Design, Urban Scale, Mass, Space, Neighborhood concept, community space and hierarchy of urban spaces within the city.
	B	Sustainable development, Urban Morphology and Façade Controls, Place Making, Place Branding, Place Promotion, Streetscape and Urban Infrastructure.

	C	Kevin Lynch's Principles and case presentation. Elements of townscape- Gordon Cullen and case presentation.		
	Unit 3	**Urban Renewal and Conservation**		
	A	Introduction to the Urban Renewal. Discussion on Urban renewal schemes in Indian context.		
	B	Discussion on the role of urban conservation need and scope of urban conservation in Indian context. Relevance of urban conservation in historic areas in terms of present context.		
	C	Introduction to the Built Heritage and its importance. Issues related with physical deterioration of built heritage and its preservation.		
	Unit 4	**The Morphology of the Cities**		
	A	The Origins of Cities		
	B	Greek City States		
	C	Rome and Empire		
	Unit 5	**Transformations of the 19th Century and the modern movement**		
	A	The Industrial City		
	B	Garden and Park		
	C	The Modern Movement		
9	Mode of examination	Theory		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*			
12	Other References	1. A.E.J. Morris, History of Urban Form before the Industrial Revolution, Prentice Hall 1996 2. Edmund Bacon, Design of Cities , Penguin, 1976 3. Gordon Cullen, The Concise Townscape, The Architectural Press, 1978 4. Kevin Lynch, Image of the City, MIT Press 1960. 5. Christian Norberg Schulz- Towards a Phenomenology of Architecture, Rizzoli New York, 1980 6. Jonathan Barnett, An Introduction to Urban Design 7. Gosling and Maitland, Urban Design, St. Martin‟s Press, 1984 8. William J. Mitchell, City of Bits: Space, Place and the infobahn, MIT Press, 1996. 9. Charles Correa, Housing and Urbanisation, Thames and Hudson, 1999 10. Donald Appleyard, Kevin Lynch, John R. Myer, The View from the Road, MIT Press 1965 11. Peter Calthorpe, The Next American Metropolis, Princeton Architectural Press, 1993 12. Thomas A, Horan, Digital Places: Building our city of bits, Urban Land Institute, 2000		

		13. Tridib Banerjee, Anastasia Loukaitou- Sideris, Companion to Urban Design, Routledge 2014 14: Design of cities Bacon, By Edmund. Publisher N Thames and Hudson Ltd. London. 15: Emerging Concepts in Urban Space Design By Broadbent. G . Publisher Van Nostrand Reihnhold N Y 16: Concept of Urban Design By Gosling D & Mattes . 17: Urban Design The Architecture of Towns and Cities, By Sprieregen Paul D. 18: Pattern Language series by Christopher Alexander. Williams,D. (2007).

ART 404: Landscape

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VII**
1	**Course Code**	**ART 404**
2	**Course Title**	**Landscape Architecture**
3	**Credits**	**2**
4	**Contact Hours (L-T-P)**	**2-0-0**
	Course Status	Compulsory
5	Course Objective	1.Describe role and scope of landscape architecture. 2.Differentiate between garden styles in landscape architecture and its evolution through history. 3. Demonstrate the methods of representations in landscape architecture designs 4. Prepare landscape and site planning drawings
6	**Course Outcomes**	CO1: Identify the relationship of landscape architecture with nature. CO2: Distinguish between the different garden styles and its evolution through time. CO3: Analyze and evaluate landscape drawings to make site plan exercises. CO4: Prepare landscape design drawings using appropriate representational graphics. CO5: Summarize the problems and issues. Identify possible solutions for different typologies.
7	**Course Description**	This course is designed to develop an understanding about landscape architecture and its relationship with nature. The course looks into various garden styles. The idea of site planning and landscape design is introduced in theory and drawings to develop a personal graphic presentation style.
8	**Outline syllabus**	
	Unit 1	INTRODUCTION
		a. Role and scope of landscape architecture. b. Elements of Landscape - Natural elements

		c. Elements of Landscape - Design elements		
	Unit 2	HISTORY		
		a. Evolution of Landscape Architecture: Historic times to present day b. Hindu Garden styles and philosophy c. Mughal Garden styles and philosophy		
	Unit 3	GRAPHICAL REPRESENTATION		
		a. Principles of Landscape Design - Illustration with suitable examples. b. Graphics Techniques for making landscape drawings – representation of landscape architecture. c. Conventional symbols in landscape presentations.		
	Unit 4	DRAWINGS		
		a. Understanding site planning principles b. Understanding the process of conceptual design, design development and construction documentation c. Preparation of schematic design set.		
	Unit 5	PLANT SELECTION		
		a. Understanding and identification of species. b. Selection criteria of plants on the basis of visual, functional, micro climate and ecological aspects. c. Planting Design with Classification of plants.		
9	Mode of examination	**Jury**		
10	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
11	Text book/s*	- Design With Nature - Ian L. McHarg - Landscape Architectural Graphic Standards - Leonard J. Hopper - The Planting Design Handbook- by Nick Robinson - Landscape Graphics - Grant Reid - Trees of Delhi - Pradip Krishen		
12	Other Reference			

ART 405- Professional Practice

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch: Architecture		**Semester: VII**
1	**Course Code**	**ART 405**
2	**Course Title**	**Professional Practice**
3	**Credits**	**2**
4	**Contact Hours (L-P-S)**	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	Introduce aspects of professional conduct, duties and responsibilities and legal rights and procedures of the architectural profession
6	Course Outcomes	CO1: Identify the importance of Architecture as a profession. CO2: Illustrate the role of architecture as a professional body and in education CO3: Explain the various laws related to Architecture profession CO4: Summarize the various procedures involved in architecture professional practices. CO5: Hypothesize the inter-relationships of different agencies within the Architecture profession.
7	Course Description	This course 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 course 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.
8	Outline syllabus	
	Unit 1	**Introduction, Role of Architectural bodies & Gender Equality in Profession**
	a	Role of COA & IIA as professional body for promotion and regulation of the Architectural profession and assisting its members
	b	Main provision of Architects Act, AICTE Act, Architects role in society and careers in Architectural Profession.
	c	Gender specific architecture world over and incentives in India, Gender pay gap.
	Unit 2	**Duties & Responsibilities of Architects and Architectural competitions**
	a	Scale of professional fees, mode of payment, professional conduct and ethics.
	b	Role of Architect with client, Contractor and Project management services & local authorities.

	c	Code of Conduct and Architectural Competitions.		
	Unit 3	**Tenders , Contract and Office organization &Management**		
	a	Tenders		
	b	Contracts		
	c	Professional organization, setting of practice.		
	Unit 4	**Valuation, Easement & Arbitration**		
	a	Elements of valuation and factors affecting valuation; Value classification and types of valuation.		
	b	Easement.		
	c	Arbitration.		
9	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
10		30%	20%	50%
11	Text book/s*	1. Architects Act 2. National Building Code 2016 and 2005 3. Contracts and their Management by B.S. Ramaswamy 4. Bids, Tenders & Proposals by Harold Lewis 5. Commercial Contracts Series by Adoranti Frank 6. Construction Management techniques by S. Seetharaman 7. The Architect's Guide to Small Firm Management by Rena M. Klein 8. Professional Practice by Namavati		
12	Other References			

ARJ 401- Architectural Design –VII

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: VII**
1	Course Code	**ARJ 401**
2	Course Title	**Architectural Design-VII**
3	Credits	**12**
4	Contact Hours (L-T-P)	**0-3-7**
	Course Status	**Compulsory**
5	Course Objective	1.The aim of the studio is to introduce students to High Density Development, Preferably High Density Housing 2.Exploring and designing systems involving complex services for different requirements 3.To develop sensitivity to building for large crowds 4.To develop sensitivity to building by laws.
6	Course Outcomes	CO1: To **make use of** the knowledge of modern tools for design thinking process CO2: To **apply** the knowledge of design fundamentals through scripting in their design process CO3: To **Assess** multiple options of designs to the learning process CO4: To **Adapt** latest trends in architecture and their application CO5: **Demonstrate** advanced skills of drawings and representation with modern tool usage
7	Course Description	Looking at the immediate built environment and understanding its fundamental components and their impact on the surroundings. The studio deals with the study of built form and its relationship to the site, surroundings and climatic setting. Design proposals to address sensitivity to people, climatic and physical settings. The design problem would induce students to experiment with built and open spaces.
8	Outline syllabus	
	Unit 1	Minor Project
		1a: Introduction to Minor project 1b: Form and material based investigation 1c: Understanding spatial aspects based on activity, space, form and human scale.
	Unit 2	Minor Project- finalization
		2a: Pre design study-Case study and functional standards 2b: Concept formulation and idea investigation 2c: Final design presentation
	Unit 3	Major Project- Conceptual

		3a: Introduction to Major project 3b: Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns. 3c: Pre design study -Literature Study, Site Analysis, Case Study.		
	Unit 4	Concept Development		
		4a: Concept Formulation, Bubble Diagram and activity zoning. 4b: Design development- site development 4c: Design development- floor Plans		
	Unit 5	Finalization		
		5a: Design development- sections and elevations 5b: Model making on appropriate scale 5c: Final portfolio submission		
9	Mode of examination	Jury		
10	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
11	Text book/s*	-		
12	Other References			

ARJ 402 -Working Drawing -VII

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester: VII**
1	Course Code	**ARJ 402**
2	Course Title	**Architectural Working Drawing Studio-VII**
3	Credits	**12**
4	Contact Hours (L-P-S)	**0-3-7**
	Course Status	**Compulsory**
5	Course Objective	1. To familiarize the students to the local building by laws. 2. To familiarize the students to the methods and components of submission /permit drawings based on the local by-laws. 3. To familiarize the students to the language of representation of working drawings and the methodology of preparing drawings. 4. To prepare a basic set of working drawings including site plan , landscape plan, floor plans, elevators, sections, detailed drawings of building compounds (kitchen, toilet, stairs, etc) and construction details as required (doors, windows, electrical, plumbing etc) 5. Preparation of schedule of finishes, doors, windows, drainage systems, etc.
6	Course Outcomes	CO1: To recognise the need and relevance of building by law and to apply them in the building design. CO2: To understand the methodology of presentation and representation in working drawings. CO3: To prepare detailed dimensioned working drawings of the building. CO4: To compare the various alternatives of available materials/ methods of construction details and incorporate the various services and apply them in the design. CO5: To produce a comprehensive and well designed and detailed-out set of working drawings good for execution of the building project.
7	Course Description	The module introduces the students to the local by-laws, their needs and interpretation and application in design including making a submission/ permit drawings. The students are taught how to generate a well detailed-out set of working drawings of the building project including site plan, floor plans, elevations, sections, details of building components (toilets, stairs, kitchen etc) and all other possible details. The working drawings set should be in such details that it is good for an error free execution of the project.
8	Outline syllabus	
	Unit 1	**Introduction to byelaws and working drawings**
	A	Introduction to local building bylaws, there need relevance interpretations and application in the design.

	B	Preparation of submission/ permit drawings as per the local by-laws.		
	C	Introduction to working drawings there methodology of dimensioning and how to prepare of comprehensive working drawings.		
	Unit 2	**Floor plans, Setting out plans / Centre lines plans**		
	A	Setting out plans, centre lines plans.		
	B	Site plan and landscapes plan (including details)		
	C	Floor plans		
	Unit 3	**Elevations and Sections**		
	A	Elevations		
	B	Sections		
	C	Skin/ Facade sections and details.		
	Unit 4	**Building components**		
	A	Kitchen details (plan, wall elevations, sections and details)		
	B	Toilet details (plan, wall elevations, sections and details)		
	C	Stairs details (plan, sections and details)		
	Unit 5	**Services and Miscellaneous details**		
	A	Electrical layouts (Architectural)		
	B	Plumbing layouts (Architectural) including water supply, sanitation, Architecture and fire (if required)).		
	C	Other Services (if required) and details of miscellaneous components (eg. Grills/Gates, Compound walls, Planters etc.		
9	Mode of examination	Internal and External Jury		
10	Weightage Distribution	CA	MTE	ETE
		50%	-	50%
11	Text book/s*	1. Bye Laws 2. NBC		
12	Other References			

SEMESTER VIII

ARJ 411: INTERNSHIP (Credits 22)

School: SUSAP		**Batch : 2021-26**
Program: B. Arch		
Branch:		**Semester: VII**
1	Course Code	ARJ 411
2	Course Title	**Practical Training / Internship**
3	Credits	**22**
4	Contact Hours (L-P-S)	**0-0-0**
5	Course Status	**Compulsory**
6	Course Objective	The main intention of the course is to introduce practical aspects of the Architectural Practice through hands-on experience by working in an Office of an experienced Architect registered with Council of Architecture(COA)
7	Course Outcomes	CO1: Student should be able to **comprehend and apply** the knowledge of the academic exercises to the practical projects CO2: Student should be able to **formulate, conduct** and use observation based knowledge and methods to implement conceptualization to execution of projects. CO3: Student should be able to **develop and explore** different processes and methodologies related to materials, details, working drawings. CO4: Student should be able to **apply** the communication and presentation skills in delivering of the projects. CO5: Student should be able to **demonstrate** advance skills of drawings and representation, also assimilate learning of visualizations. CO6: Student should be able to **design** project in context to requirements and practical application.
8	Course Description	The course aims to train a student to understand the various responsibilities and designations associated with an Architectural office. It should imbibe the idea of different tangential discipline ranging from idea generation, preparation of drawings and final execution of project on site along with the knowledge of other inter-related fields such as structure, services, contractors, vendors etc.
9	Outline syllabus	

	Unit 1	**PREPARATION OF DRAWINGS**	
		1a- Working drawings and details 1b- Conceptual and presentation drawings 1c- Municipal drawings as per Byelaws	
	Unit 2	**BUSINESS COMMUNICATION**	
		2a- Discussions with clients 2b- Follow-ups with Consultants 2c- Networking with Vendors	
	Unit 3	**SITE COORDINATION**	
		3a- Site inspection and supervision 3b- Site management and project delivery 3c- On site discussion with clients, contractors and vendors	
	Unit 4	**ADMINISTRATIVE WORK**	
		4a- Preparation of estimates, bill of quantities and specifications 4b- Preparation of charts, reports etc 4c- Preparation of physical or 3d models	
	Unit 5	**CASE STUDY OF PROJECT**	
		5a- Documentation of any two projects completed by the office. 5b- Analyzing and appraising the projects with the help of different attributes 5c- Site visit and documentation of the projects.	
10	Mode of examination	Jury	
11	Weightage Distribution	IA	ETE
		50%	50%
12	Text book/s*	-	
13	Other References	-	

SEMESTER IX

ART 507 - Critical Studies of Art

School : SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester: IX**
1	Course Code	**ART 507**
2	Course Title	**Critical Studies of Art**
3	Credits	**2**
4	Contact Hours (L-T-P)	**2-0-0**
	Course Status	**Compulsory**
5	Course Objective	1. The programme is intended to comprehend various visual art practices sculpture, painting and performance art. 2. It focuses on comprehending various forms, techniques and materials that have been experimented and explored in order to comprehend expanse of practices. 3. To understand the growth of visual art and the ideologies behind art works. 4. To aid in developing an ability to read and analyse different art works. .
6	Course Outcomes	**CO 1:-**The students will be able to understand the basic principles, materials and techniques used in developing an artwork. **CO2:-** The students shall be able analyse and read art works and differentiate between various art practices. **CO3:-** The students will be able to acess and articulate their comprehension of various works of art. **CO 4:-** They will be able to critically think about visual forms and by exploring various ideologies and their relationship with visual art. **CO5**: They will be able Compare and contrast the styles
7	Course Description	The course enables in developing critical thinking and articulation skills. Knowledge of various forms, styles and techiniques of visual art widens the students pleathora of comprehending images in the contemporary times by providing them with tools to comprehend artworks. It aids in traversing through the different notions of art by exploring ideologies associated with works of arts.
8	Outline syllabus	
	Unit 1	**Introduction**
		1A:- Principles and Elements of Art 1B:- Material, medium and Techniques 1C:- "Ways of Seeing"
	Unit 2	**Study 1: Art in the West : 1990 – 1950**
		2A:- Guernica (Picasso) , Women with the Hat (Henry Mattise), Les

<table>
<tr><td></td><td></td><td colspan="3">Demoiselles d'Avignon (Picasso), Water Lilies (Claude Monet), Starry Nights (Vincent Van Gogh),
2B:- Number 5, (Jackson Pollack), Broadway Boogie Woogie (Piet Mondrian), Spanish Dancer (Joan Miró), Bride's Toilet (Amrita Shergill)
2C:- Persistence of Memory (Salvador Dali), The Two Fridas (Frida Kahlo), Nude Descending a Staircase (Marcel Duchamp),</td></tr>
<tr><td rowspan="2"></td><td>Unit 3</td><td colspan="3">Study 2: Art In the West : 1950 Onwards</td></tr>
<tr><td></td><td colspan="3">3A:- The Treachery of Images(René Magritte), Barnett Newman (Onement 1), No. 3/No. 13 Magenta, Black, Green on Orange (Mark Rohtko), The Thinker (Auguste Rodin), Fountain (Marcel Duchamp)
3B:- Kazimir MalevichSuprematism (Kazimir Malevich) , Unique Forms of Continuity (Umberto Boccioni), The Prophet and Masks (Emil Nolde),
3C:- Bird in Space (Constantin Brancusi), Reclining Figures (Henry Moore), The Walking Man I (Alberto Giacometti), Tod und Feuer (Death and Fire, Paul klee), Impact of Bauhaus.</td></tr>
<tr><td rowspan="2"></td><td>Unit 4</td><td colspan="3">Performance and Asian Art</td></tr>
<tr><td></td><td colspan="3">4A:- Bharat Mata (Abanindranath Tagore), Santal Family (RamkinkarBaij), JatayuVadham (Raja Ravi Varma), Santal Boy with Drum (Jamini Roy), Contact of a Prince (F.N. Souza), Bride's Toilet (Amrita Shergill), Mother Teresa (M.F. Hussain)
4B:- Japnese Art, Chinese Art, Impact of Buddhist Art, Combodian Art
4C:- I Like America and America Likes Me (Joseph Beuys), Cut Piece (Yoko Ono), Rhythm 0 (Marina Abramovic), Yard (Allan Kaprow), Open Score (Robert Rauschenberg)</td></tr>
<tr><td rowspan="2"></td><td>Unit 5</td><td colspan="3">Contemporary Art</td></tr>
<tr><td></td><td colspan="3">5A:- Conceptual Art Practices
5B:- Introduction to CuratorialStudies
5C:- Projects</td></tr>
<tr><td>9</td><td>Mode of examination</td><td colspan="3">Theory</td></tr>
<tr><td rowspan="2">10</td><td rowspan="2">Weightage Distribution</td><td>CA</td><td>MTE</td><td>ETE</td></tr>
<tr><td>30%</td><td>20%</td><td>50%</td></tr>
<tr><td>11</td><td>Text book/s*</td><td colspan="3">- Laurie Adams - A History of Western Art-McGraw-Hill Humanities_SocialSciences_Languages (2011)
- Adrian George (2015) - The Curators Handbook
- RoseLee Goldberg - Performance Art: from Futurism to the Present
- Aisan Art : Dorinda Neave, Lara C.W. Blanchard and Marika Sardar
- - History of Fine Arts in India and the West: Edith Tomory
- A Student’s Handbook of Indian Aesthetics : Neerja A.</td></tr>
</table>

		Gupta *- Thomas Godfrey and Tony Godfrey:* ***Conceptual Art Book***
12	Other References	- **Fred S. Kleiner - Gardner's Art Through the Ages**_ *A Concise History of Western Art-Cengage Learning (2013)*

ART 501: Architectural Design-VIII

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: 9**
1	Course Code	**ARJ 501**
2	Course Title	**Architectural Design-VIII**
3	Credits	**15**
4	Contact Hours (L-P-S)	**2-2-8**
	Course Status	Compulsory
5	Course Objective	1. Exploring and designing for city level 2. Understanding the language of city spaces, plazas, etc in architectural design 3. Learn about the different elements of urban design
6	Course Outcomes	CO1: To **make use of** the knowledge of Urban design and policies in India. CO2: To **Inspect** the issues pertaining to built environment using the zoning plans, urban complexes. CO3: To **Appraise** the contextual impact of the urban design through design development on city scale CO4: To **Elaborate** an understanding of advanced urban design fundamentals of building massing, public space formulation, streets/transport design and landscape through design project CO5: **Demonstrate** advanced skills of drawings and representation with modern tool usage indicating the various elements of urban design.
7	Course Description	The studio deals with the city level urban design/development to enable the students to relate to city level design. It deals with designing and developing for an urban space and interrelation and scales. It is focused around assessing city level issues, creation of public spaces, identifying movement patterns, etc. Problem 1: Minor Design projects related to revitalisation/reuse of old structure Problem 2: Major • The design problem of Urban design scale is to be introduced, example; Redesigning of existing Urban area by studying and identifying the problems associated with it. • The project would be a medium sized urban design intervention. • The design solution would address issues like demography, market value, land use patterns etc. Other design issues are the detailing of open and built areas after studying human and vehicular traffic movement patterns. • The project should be substantiated by detailed site surveys and reading about urban design principles. Study models must accompany every stage.

8	Outline syllabus			
	Unit 1	Design Problem		
		a.Introduction to Project b.Form and material based investigation c.Understanding spatial aspects based on activity, space, form and human scale.		
	Unit 2	Literature & Case Study		
		a.Pre design study-Case study b.Pre design study -Literature Study, Site Analysis. c.Functional standards.		
	Unit 3	Concept Development		
		a.Concept formulation and idea investigation b.Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns. c.Concept Formulation, Bubble Diagram and activity zoning.		
	Unit 4	Design Development		
		a.Design development- site development b.Design development- floor Plans c.Design development- sections and elevations		
	Unit 5	Design Presentation		
		a.Design sheets presentation. b.Model making on appropriate scale c.Final portfolio submission		
9	Mode of examination	Jury		
10	Weightage Distribution	CA		ETE
		50%		50%
11	Text book/s*	-		
12	Other References	. A.E.J. Morris, History of Urban Form before the Industrial Revolution, Prentice Hall 1996 2. Edmund Bacon, Design of Cities , Penguin, 1976 3. Gordon Cullen, The Concise Townscape, The Architectural Press, 1978 4. Kevin Lynch, Image of the City, MIT Press 1960. 5. Christian Norberg Schulz- Towards a Phenomenology of Architecture, Rizzoli New York, 1980 6. Jonathan Barnett, An Introduction to Urban Design 7. Gosling and Maitland, Urban Design, St. Martin‟s Press, 1984 8. William J. Mitchell, City of Bits: Space, Place and the infobahn, MIT Press, 1996. 9. Charles Correa, Housing and Urbanisation, Thames and Hudson, 1999 10. Donald Appleyard, Kevin Lynch, John		

		R. Myer, The View from the Road, MIT Press 1965 11. Peter Calthorpe, The Next American Metropolis, Princeton Architectural Press, 1993 12. Thomas A, Horan, Digital Places: Building our city of bits, Urban Land Institute, 2000 13. Tridib Banerjee, Anastasia Loukaitou- Sideris, Companion to Urban Design, Routledge 2014 14: Design of cities Bacon, By Edmund. Publisher N Thames and Hudson Ltd. London. 15: Emerging Concepts in Urban Space Design By Broadbent. G . Publisher Van Nostrand Reihnhold N Y 16: Concept of Urban Design By Gosling D & Mattes . 17: Urban Design The Architecture of Towns and Cities, By Sprieregen Paul D. 18: Pattern Language series by Christopher Alexander. Williams,D. (2007).

ARJ503 – Sustainability IA

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: IX**
1	**Course Code**	**ARJ 503**
2	**Course Title**	**SUSTAINABILITYIA**
3	**Credits**	**6**
4	**Contact Hours (L-P-S)**	**0-3-3**
	Course Status	**Specialization Elective**
5	**Course Objective**	The program offers a comprehensive learning and problem-solving forum for those who want to apply sustainable concepts in their buildin project designs
6	**Course Outcomes**	CO1: To define sustainability and identify sustainable principles adopted in architectural projects CO2: To analyse and evaluate comparable sites for sustainability in such projects. CO3: To compare and critically appraisethe impact on sustainability from selection of materials and technologies adopted and their relevance in different building contexts. CO4: To apply, analyse and formulate alternative sustainable options for built forms and fenestration in a region. CO5: To integrate and plan sustainable building services for specific applications. CO6: To create and design innovative sustainable solutions and features for chosen building project application.
7	**Course Description**	This course is primarily oriented as a preparatory course for designing and incorporating sustainability features into all aspects of building design, The outcome of such learning will be demonstrated in the application of sustainable concepts in the thesis project in the following semester. The course deals with all aspects of sustainability starting from site selection, material choice, built form and design for energy and water efficiency and effective waste management. Critical evaluation, and innovative architectural solutions are encouraged through this course.
8	**Outline syllabus**	
	Unit 1	**Sustainability in Buildings**

		a) Introduction to course b) From Sustainable Development to sustainable building design c) Sustainability principles as applied to the chosen project and region of interest. Scaling the project and identifying relevant sustainability requirements		
	Unit 2	**Site Selection Process**		
		a) Study of comparable sites – accessibility, surrounding physical and built environment, socio-cultural context b) Evaluation of mutual impact of site characteristics and the facility (the chosen project) c) Strategies for selection and justification of selected site for the facility. Determine interventions if necessary.		
	Unit 3	**Building Material and Technology Evaluation**		
		a) Case Study analysis of material and technology in the regional constructions b) Bouquet of alternative building materialsand technologies available in the region. c) Comparative sustainability assessment of material and technology, benchmarking, sustainability index		
	Unit 4	**Built form design and building services planning**		
		a) Case study analysis of regional built forms and features. Study of forms and spaces, landscape planning, design of fenestration and shading b) Energy efficiency in building, passive strategies and renewable energy systems integration a) Planning building projects for sustainable water, wastewater and solid waste management		
	Unit 5	**Sustainable Design Development**		
		a) Preliminary design of interventions/ innovations for the chosen project/facility. b) Portfolio compilation and report preparation on sustainability aspects and features identified for their projects with justification c) Course Revision and student presentation		
9	**Mode of examination**	**Jury**		
10	**Weightage Distribution**	**CA**	**MTE**	**ETE**

		50%	**0%**	**50%**
11	**Text/Reference Books**	1. National Building Code 2. Energy Conservation Building Code 3. CPWD Sustainability Handbook 4. TERI Sustainable building manual		
12	**Other References**	1. ASHRAE 90.1 2. ISHRAE 3. Sustainable Development Goals of UN		

ARJ508: Design Fabrication – 1B

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester: IX**
1	Course Code	ARJ 508
2	Course Title	Digital Design Fabrication-IB
3	Credits	6
4	Contact Hours (L-P-S)	0-3-3
	Course Status	SpecialisationElective
5	Course Objective	1. To **develop** understanding of advance data-tree management and concepts in the field of digital fabrication are introduced and analyzed. 2. To **familiarize** students with digital fabrication based on three overlapping perspectives: technology, crafts, and theory. The technological perspective highlights the technologies, concepts and processes that enable digital fabrication (including additive and subtractive manufacturing, CAD/CAM). 3. Introduction of advance fabrication techniques and **Knowledge** of theory-focused perspective implies an appreciative feature of the course in which digital fabrication is discussed in terms of what changes digital fabrication can entail for organizations. 4. By the end of the course, every student should have **Knowledge and Understanding** of digital modeling, fabricating, documenting and assembly of a structure.
6	Course Outcomes	CO1: **Develop** Understanding of what characterizes central technologies in digital fabrication. Also, Explain theories that are relevant to how digital fabrication involves changes for organizations and organizing. CO2: **Comprehends** proficiency and aptitude, the student is, after the course, expected to be able to: Independently translate an idea into a tangible prototype using techniques and methods in digital fabrication. CO3: **Demonstrate** in groups; carry out design work that is materialized through prototypes based on digital fabrication. CO4: **Create** prototype and 3D Model using 3D printer. CO5: **Evaluates** on what type or combinations of types of digital fabrication technologies that are appropriate for the task at hand. Critically review and assess the introduction and shift to digital fabrication in manufacturing organizations. Analyze organizational implications of digital fabrication.
7	Course Description	The course will explore different scales of production of architecture using Digital Fabrication techniques such as: laser cutting, 3D printing, robotic (introduction) design and fabrication. One of the goals is to introduce the thinking around the function, by following the evolution of

		the design through iterations of production as a workflow. This course is a hands-on exploration and apprenticeship in the art and process of digital fabrication. The course will assist students in nurturing the ability to efficiently translate ideas and concepts into digitally produced physical objects. Students will be given the opportunity to Develop the skills necessary to maintain, calibrate and troubleshoot equipment in a fabrication lab as well as learn what it takes to keep a lab in operation. The future is present in the now. It is a magical time that we must take advantage of.
8	Outline syllabus	
	Unit 1	**Grasshopper**
	A	Advance Data Tree Management
	B	Advance Plugins for Designing
	C	Introduction to Generative Designing
	Unit 2	**Digital Design Fabrication**
	A	Introduction to digital fabrication and different methods
	B	Designing Forms for Fabrication
	C	Introduction to Laser-Cutting
	Unit 3	**Using technology for Digital Design Fabrication in the form of Prototype**
	A	working with Prototypes & fabrication materials
	B	working with Script for Prototypes
	C	working with Prototypes
	Unit 4	**Advance Fabrication Techniques**
	A	3d Printing
	B	Introduction to Robotic Fabrication within grasshopper environment
	C	Different systems types using grasshopper
	Unit 5	**Methods, Techniques and implementation - output Project**
	A	Design exploration for prototype (Group Project)
	B	Prototype -2
	C	Final Project
	Mode of examination	Jury
	Weightage Distribution	CA | | ETE 50% | | 50%
	Text book/s*	1. Printing Architecture: Innovative Recipes for 3D Printing 2. Grasshopper: Visual Scripting for Rhinoceros 3D - by David Bachman 3. AAD, Algorithms-aided Design: Parametric Strategies Using Grasshopper - by Arturo Tedeschi and Stefano Andreani
	Other Reference	

SEMESTER X

ARJ 511 – Architectural Design Thesis

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester:10**
1	Course Code	**ARJ 511**
2	Course Title	Architectural Design Thesis
3	Credits	20
4	Contact Hours (L-T-P)	2-0-12
	Course Status	Compulsory
5	Course Objective	• Identify a contextually challenging architectural design problem. • Evolve strategy to evolve a good solution. • Evolve present and defend the proposed design
6	Course Outcomes	CO1: Student should define a socio economic environment context and analyze the problem pertaining to the project CO2: Student should infer the research project and create methodology for the application of the knowledge to the project CO3: Student should be able to develop the knowledge of the professional principles CO4: Student should be able to discover design integrated solutions for the project considering the environment and sustainability impact of the design CO4: Student should be able to conclude the project both visually and verbally considering all the ethical principles of Architecture CO5: Student should be able to build independent learning by applying modern appropriate tools CO4 : Develop and present the proposed design.
7	Course Description	The B. Arch program culminates in a thesis project. Under the guidance of a thesis Mentor. Students are required formulate a cohesive thesis argument and project using supportive research and case studies and should demonstrate his ability and skills to do a critical enquiry through design. The nature of the work must be an original research or design project that involves additional learning of a substantive nature. The final proposal to be presented in appropriately rendered drawings, modules, 3D views and Report. The work must be documented with a written thesis completed to Institute specifications within the final term of the senior year.
8	Outline syllabus	
	Unit 1	**Identification of the project , preparation of Synopsis**
		a) Introduction/Background
		b) Aims & Objective, Rationale of the topic
		c) Site Identification and justification
	Unit 2	**Literature Study , Case study**

		a) Identify and group together common areas.		
		b) Compare, contrast and evaluate issues.		
		c) Demonstrate why the topic and research is relevant to your field of study.		
	Unit 3	**Program formulation**		
		a) Detailed Design Program		
		b) Design Criteria / Approach specific to the topic chosen		
		c) Conceptual Design		
	Unit 4	**Design interventions**		
		a) Preliminary Design Drawings		
		b) Service Drawings		
		c) Landscape / Site Details		
	Unit 5	**Design Proposal and Report**		
		a) Detailed design proposal		
		b) Supporting literature study		
		c) All Drawings & Report		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*			
	Other References			

ARJ 512 – SUSTAINABILITY IIB

School: SUSAP		**Batch : 2021-2026**
Program: B.Arch		
Branch:		**Semester: 10**
1	**Course Code**	**ARJ 512**
2	**Course Title**	**SUSTAINABILITY IIB**
3	**Credits**	**6**
4	**Contact Hours (L-P-S)**	**0-3-3**
	Course Status	**Specialization Elective**
5	**Course Objective**	Objective of this course is to have an in-depth understanding of energy systems, their fundamentals and energy efficiency measures considered in a building project.
6	**Course Outcomes**	CO1: To understand the different Renewable Energy Technologies CO2 : To analyze the building energy systems through different case studies CO3: To identify the measures of Energy efficiency via calculative analysis. CO4: To calculate cost and payback analysis for energy efficient solutions and energy systems via software on a live project CO5: To integrate and plan sustainable building services for specific applications. CO6: To create and design innovative sustainable solutions and features for chosen building project application.
7	**Course Description**	Renewable energy sources such as wind, hydro, solar and biomass are gaining an increasingly important role in assisting in environmental protection and improving the security of energy supply. It is equally significant in architectural design where buildings commenced about 50% of all energy usage in the most countries. This course aims at introducing the students to various forms of renewable energy sources and appropriate technologies for harnessing them for our benefit. In the other glance, the course provides the student with knowledge about passive systems in buildings such as wind chatters, double/triple glazing windows, thermal mass and so on.
8	**Outline syllabus**	

	Unit 1	**Energy Generation and Sustainability**
		a) Renewable Energy Technologies; review of energy sources, energy storage and conversion with emphasis on batteries and fuel cells, hydrogen as energy carrier b) Next Generation Smart Grid systems; challenges faced during the paradigm change; concepts such as SYNDEM/ VSM , etc. c) Sustainable Energy that relate to energy generation, transmission, distribution and delivery as well as theories , technologies, design, policies and integration of sustainable energy.
	Unit 2	**Energy Systems**
		a) Study of building energy systems – Passive and Active energy systems via Case Study (International &/or National), as per typology of the building such as residential, commercial, institutional, etc. b) Inference and analysis of case studies c) Proposal for energy systems, assessing energy performance in a Live Project.
	Unit 3	**Measure of Energy efficiency**
		a) Identifying the measures of Energy efficiency via calculative analysis on a related software for the Live Project. b) Environment/ Carbon Footprint analysis/ Energy Use Intensity analysis. c) Life Cycle Analysis of Live Project; for specified material/space/area/whole building etc.
	Unit 4	**Implementation and Operation – Live Project**
		a) Analysis of implementation of Energy Management system, and Energy systems. b) Maintenance strategy and control; transitioning from reactive to proactive maintenance, establishing minimum standard for inspection etc. c) Performing a operation and management system via open source software for Computerised Maintenance Management System (CMMS) etc. in relation to IGBC/ISHRAE/ASHRAE etc.
	Unit 5	**Checking and Management review – Live Project**
		a) Calculate Cost and Payback Analysis for Energy Efficient solutions and Energy Systems via software. b) Identifying and analysis of the savings of each measure taken up for efficient design proposal.

		c) Documenting all energy calculations data from Energy Management, Materials and Energy Balance, Energy systems and measures of Energy efficiency for Presentation / Jury.		
	Mode of examination	**Jury**		
	Weightage Distribution	**CA**	**MTE**	**ETE**
		50%	**0%**	**50%**
	Text Books			
	Other References			

ARJ513: Design Fabrication – I1B

School: SUSAP		**Batch : 2021-2026**
Program: B. Arch		
Branch:		**Semester: IX**
1	Course Code	ARJ 513
2	Course Title	Digital Design Fabrication-IIB
3	Credits	6
4	Contact Hours (L-P-S)	0-3-3
	Course Status	SpecialisationElective
5	Course Objective	1. To **develop** understanding of advance data-tree management and concepts in the field of digital fabrication are introduced and analyzed. 2. To **familiarize** students with digital fabrication based on three overlapping perspectives: technology, crafts, and theory. The technological perspective highlights the technologies, concepts and processes that enable digital fabrication (including additive and subtractive manufacturing, CAD/CAM). 3. Introduction of advance fabrication techniques and **Knowledge** of theory-focused perspective implies an appreciative feature of the course in which digital fabrication is discussed in terms of what changes digital fabrication can entail for organizations. 4. By the end of the course, every student should have **Knowledge and Understanding**of digital modeling, fabricating, documenting and assembly of a structure.
6	Course Outcomes	CO1: **Develop**Understanding of what characterizes central technologies in digital fabrication. Also, Explain theories that are relevant to how digital fabrication involves changes for organizations and organizing. CO2: **Comprehends** proficiency and aptitude, the student is, after the course, expected to be able to: Independently translate an idea into a tangible prototype using techniques and methods in digital fabrication. CO3: **Demonstrate** in groups; carry out design work that is materialized through prototypes based on digital fabrication. CO4: **Create** prototype and 3D Model using 3D printer. CO5: **Evaluates** on what type or combinations of types of digital fabrication technologies that are appropriate for the task at hand. Critically review and assess the introduction and shift to digital fabrication in manufacturing organizations. Analyze organizational implications of digital fabrication.
7	Course Description	The course will explore different scales of production of architecture using Digital Fabrication techniques such as: laser cutting, 3D printing, robotic (introduction) design and fabrication. One of the

		goals is to introduce the thinking around the function, by following the evolution of the design through iterations of production as a workflow. This course is a hands-on exploration and apprenticeship in the art and process of digital fabrication. The course will assist students in nurturing the ability to efficiently translate ideas and concepts into digitally produced physical objects. Students will be given the opportunity to Develop the skills necessary to maintain, calibrate and troubleshoot equipment in a fabrication lab as well as learn what it takes to keep a lab in operation. The future is present in the now. It is a magical time that we must take advantage of.		
8	Outline syllabus			
	Unit 1	**Grasshopper**		
	A	Advance Data Tree Management		
	B	Advance Plugins for Designing		
	C	Introduction to Generative Designing		
	Unit 2	**Digital Design Fabrication**		
	A	Introduction to digital fabrication and different methods		
	B	Designing Forms for Fabrication		
	C	Introduction to Laser-Cutting		
	Unit 3	**Using technology for Digital Design Fabrication in the form of Prototype**		
	A	working with Prototypes & fabrication materials		
	B	working with Script for Prototypes		
	C	working with Prototypes		
	Unit 4	**Advance Fabrication Techniques**		
	A	3d Printing		
	B	Introduction to Robotic Fabrication within grasshopper environment		
	C	Different systems types using grasshopper		
	Unit 5	**Methods, Techniques and implementation - output Project**		
	A	Design exploration for prototype (Group Project)		
	B	Prototype -2		
	C	Final Project		
	Mode of examination	Jury		
	Weightage Distribution	CA		ETE
		50%		50%
	Text book/s*	1. Printing Architecture: Innovative Recipes for 3D Printing 2. Grasshopper: Visual Scripting for Rhinoceros 3D - by David Bachman 3. AAD, Algorithms-aided Design: Parametric Strategies Using Grasshopper - by Arturo Tedeschi and Stefano Andreani		
	Other Reference			