



SCHOOL OF ARCHITECTURE AND PLANNING
Bachelor of Architecture

Programme Code: SAP0102
Duration- 5 Years Full Time

PROGRAM STRUCTURE
AND
CURRICULUM & SCHEME OF EXAMINATION
2018-19

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

- 1. Transformative educational experience**
- 2. Enrichment by educational initiatives that encourage global outlook**
- 3. Develop research, support disruptive innovations and accelerate entrepreneurship**
- 4. Seeking beyond boundaries**

Core Values

- Integrity**
- Leadership**
- Diversity**
- Community**

1.2 Vision and Mission of the School

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

- 1. To create and sustain a stimulating and responsive academic inclusive environment.**
- 2. To regularly enhance the teaching contents & techniques in keeping with current and future trends.**
- 3. To provide a competitive and career oriented programme.**
- 4. 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**

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S. No.	Subject Code	Subjects	Teaching Load			Credits	Remarks (if any)
			L	T	P		
THEORY SUBJECTS							
1.	ART 104	History, Theory & Criticism -I	2	0	0	2	NEW
2.	FEN 101	Functional English Beginners I	2	0	0	2	NEW
3.	FEN 103	Functional English Intermediate I					
PRACTICALS							
4.	ARJ 101	Architectural Design-I	1	2	6	11	NEW
5.	ARJ 102	Construction Material & Methods-I	2	2	2	6	NEW
6.	ARJ 103	Architectural Visual Representation- I	2	2	2	6	NEW
7.	ENP 102	Functional English Lab I	0	2	0	1	NEW
TOTAL						28	

S. No.	Subject Code	Subjects	Teaching Load			Credits	Remarks (if any)
			L	T	P		
THEORY SUBJECTS							
1.	ART 204	History, Theory & Criticism – III	2	0	0	2	NEW
2.	ART 205	Environment,Sustainability & Services-I	2	0	0	2	NEW
3.	ART 206	Architectural Structures-I	2	0	0	2	NEW
PRACTICALS							
4.	ARJ 201	Architectural Design-III	2	2	6	12	NEW
5.	ARJ 202	Construction Material & Methods-III	2	2	2	6	NEW
6.	ARJ 203	Digital Design Fabrication-I	0	2	2	4	NEW
PRACTICALS ELECTIVE SUBJECTS							
7.	AEJ207	Green Building & Sustainability	2	0	0	2	NEW
8.	AEJ208	Trends In Architecture					
9.	AEJ 209	Textile Crafts, Art & Design					
10.	AEJ 210	Vernacular & Settlement Patterns-Typological Studios					
TOTAL						30	

S. No.	Subject Code	Subjects	Teaching Load			Credits	Remarks (if any)
			L	T	P		
PRACTICALS							
1.	ARK 505	Practical Training/ Internship				21	For this batch only
2.	ARK 506	General Proficiency-I				2	
TOTAL						23	

S. No.	Subject Code	Subjects	Teaching Load			Credits	Remarks (if any)
			L	T	P		
PRACTICALS							
1.	ARK 507	Thesis	8	0	20	18	For this batch only
2.	ARK 508	Professional Practice	2	0	0	2	
3.	ARK 509	Town Planning	1	0	3	4	
TOTAL						24	

ARJ 101 - Architectural Design -I

School: SUSAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch:		Semester:1
1	Course Code	ARJ 101
2	Course Title	AD 1(Architectural Design 1)
3	Credits	11
4	Contact Hours (L-P-S)	1-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> To understand spatial configuration, visual composition and expose students to elements defining space To understand and expose students to different methods of form development. To initiate students to understanding spatial configuration with reference to the human scale.
6	Course Outcomes	CO1: Students will be equipped with basic methods of form generation CO2: Students will have and understanding of spatial requirement with respect to the human scale CO3: Students will be enabled to perceive spatial relation.
7	Course Description	The studio is designed to introduce students to the basics of three dimensional form and space and instill in the students an interest in form generation as a preliminary tool of spatial design. Students will be exposed to different mediums and techniques of representation- sketches, drawings, model making.
8	Outline syllabus	
	Unit 1	SURFACES & VOLUMES
		a. Three dimensional exploration with surfaces to understand space. b. Understanding spatial relations and dialogues through volumetric studies c. Visual composition and representation through drawings to introduce scale
	Unit 2	FORM MANIPULATION
		a. Additive & subtractive forms b. Textures through folding, weaving, wrapping

		c. Tessellation						
	Unit 3	ANTHROPOMETRY						
		a. Understanding human scale and spatial requirement b. Case study and exposure through examples c. Application of anthropometry						
	Unit 4	ABSTRACTION						
		a. Simplifying form to 3D representation b. Extending process to 2D representation c. Form development by interchanging between 2D and 3D representation						
	Unit 5	DESIGN EXPLORATION						
		a. Formal application of methods learnt through the preparatory exercises. b. design exercise of any space of rudimentary scale c. arriving at solutions through physical models						
	Mode of examination	Jury						
	Weightage Distribution	<table border="1"> <tr> <td>CA</td> <td>MTE</td> <td>ETE</td> </tr> <tr> <td>60%</td> <td>0%</td> <td>40%</td> </tr> </table>	CA	MTE	ETE	60%	0%	40%
CA	MTE	ETE						
60%	0%	40%						
	Text book/s*	Conditional Design- An introduction to Elemental Architecture, Di Mari Yooo Operative Design- A catalogue of spatial Verbs, Di Mari Yoo Form, Space & Order, DK Ching Neufert Architects' Data Indian Anthropometric dimensions for ergonomic design practice, Debkumar Chakrabarti, NID.						
	Other References							

ARJ 102 - Construction Material & Methods-I

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: I
1	Course Code	ARJ 102
2	Course Title	CMM-I (Construction Material & Methods-I)
3	Credits	6
4	Contact Hours (L-T-P)	2-2-2
	Course Status	Compulsory
5	Course Objective	1. To develop understanding about construction principles. 2. To familiarize students with building elements 3. To make familiar with basic building materials such as mud, stone, and bricks and the various construction techniques wherein these materials are used. 4. To understand different types of brick masonries and their applications
6	Course Outcomes	CO1: To be able to describe the functions and characteristics of common building systems and assemblies CO2: To define basic building elements CO3: To be aware of the properties and applications of various basic materials such as mud, stone and bricks CO4: To select and design suitable type of masonry work in building application.
7	Course Description	The entire course of Construction Methods and materials that is taught in the first 6 semesters, 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 handson exercises. Further the course elaborates on mud , stone and bricks as the basic building materials.
8	Outline syllabus	
	Unit 1	Introduction of construction and materials
	A	Introduction to Various basic building materials, Role of Building materials in construction such as stone, mud, brick etc.
	B	Types of different brick /brick bonds, mortar joints and introduction to tools used in masonry
	C	Site Exposure-Observe, measure & Sketch /Workshop of brick
	Unit 2	Brick Bonds
	A	Drafting plan, section elevation of an English bond wall for 1", 1 ½ ", 2"

		brick thick wall		
	--B	Drafting plan, section & elevation of single and double Flemish brick bond wall(1", 1 ½ ", 2" thick).		
	C	Workshop- create different patterns of bonds and jaalis in brick		
	Unit 3	Brick Bonds		
	A	Various types of decorative brick bonds and wall junctions up to various wall thicknesses		
	B	Brick Bonds – Rat Trap, silver lock, English cross, Dutch, garden wall bond, Offset functions and quoins: right angled and angular quoins		
	C	Wall Junctions - L Junction, T junction, Cross junction, Oblique junction		
	Unit 4	Brick Arches, Vaults, Domes		
	A	Elementary principles of Arch, Vault and Dome construction.		
	B	Definition of various technical terms, and Components of arches, Vault and Domes		
	C	Types of Arches, Vault and Domes		
	Unit 5	General Introduction of Building systems		
	A	Introduction to Building elements new/old		
	B	Introduction to Building systems new/ old		
	C	Case studies		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	-	50%
	Text book/s*			
	Other Reference			

ARJ 103-Architectural, Visual Representation-I

School: SAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester:2
1	Course Code	ARJ113
2	Course Title	Architectural, Visual Representation-I
3	Credits	3
4	Contact Hours (L-T-P)	1-2-0
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • Development of Soft and Hard Skills that aspect the representation and visualization of design. • Develop in depth understanding of various architectural drawing and rendering techniques.
6	Course Outcomes	CO1:the students will be able to describe various skills of of representation in advanced media of rendering. CO2: The dtudents will be able to develop in depth understanding of hand skills and architectural drawing. CO3:the students will be able to interpret two dimentional and three dimentional drawings CO4: the students will be able to design and compose architecural drawings rendered in suitable media
7	Course Description	The course is to introduce and explore various modes of expression and communication of creative idea, other than architecture proper. This may include textual, graphic and performing mediums of various natures as complements to learning of architecture. The course also underlines the interconnections across various design oriented disciplines and explores the alternative modes of expression of the same idea. The course would have short exercises and assignments for assimilation of skills and brining together the knowledge learn to the drafting table . To think “out of the box” and to move away from various preconceived notions.
8	Outline syllabus	
	Unit 1	Perception and representation
		a.Extension of dexterity for representation and abstract interpretation, with additional media such as collage, stencils.

		b. Learning to create architectural entourage and renderings for representation with correct sense of scale and proportions. c. application of skills		
	Unit 2	Three dimension Visualizations		
		a. Isometric and oblique three dimensional views, b. Two point and one point perspectives for simple forms. c. Two point and one point perspectives for complex forms.		
	Unit 3	Sciography		
		a. Rendering for sciography, tones, texture, colors, and light. b. Sciography in two dimensional surfaces c. Sciography of simple and complex forms		
	Unit 4	Drawing Development		
		a. creating orthographic projects of a complex geometry building (preferably with a curvilinear form/ Dome) on a suitable scale (1:50/1:100). b. Understanding different terminologies of a building with due attention to lineweight. c. Application of skills		
	Unit 5	Rendering and Visualisation		
		a. Converting the orthographic projections into Three Dimensional Visualizations like Sectional models or isometrics as per design in various scales b. Rendering of orthographic projections drawings to develop deep understanding of proportions and scale. c. compiling the entire portfolio		
	Mode of examination	Jury/Practical/Viva		
	Weightage	CA	MTE	ETE
	Distribution	50%	0%	50%
	Text book/s*	-		
	Other References	Suggested Books/Readings: 1. Gill, Robert W.; Manual of Rendering with Pen and Ink, Thames and Hudson, London, 1997 2. DK Ching, Architectural Graphics		

ART 104 -History, Theory & Criticism -1

School: SAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester:1
1	Course Code	ART 104
2	Course Title	History, Theory & Criticism -1
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 1st to 5th Century AD 2. To comprehend key architectural works, cultural movements and ideas, their theoretical and cultural context and relevance to design 3. To help students communicate complex design ideas through verbal, visual and written means
6	Course Outcomes	CO1: Undertake research into architectural history. CO2: Engage in critical and analytical thinking with enhanced skills about architectural practices. CO3: Present verbal and visual arguments clearly and concisely on architectural styles
7	Course Description	This course examines the History of architecture from the early civilizations through the 6th century offering an introduction to the design fundamentals and analysis. It treats buildings and environments, including cities, in the context of the cultural and civilizational history.
8	Outline syllabus	
	Unit 1	Ancient River Valley Civilizations: Mesopotamia; Ancient Egyptian Architecture.
	A	Urbanization in the fertile crescent - Sumerian, Babylonian, Assyrian and Persian culture.
	B	Evolution of city-states and their character, law and writing, theocracy and architecture - Ninveh, Khorsahbad, Marie, Babylon etc. Evolution of the ziggurat - Ziggurat of Ur, Urnamu etc. Evolution of the palaces - Palace of Sargon, Khorsabad - Palace at Persepolis.
	C	Ancient Egypt – History, religious and funerary beliefs and practices. Tomb Architecture from Mastaba to Pyramids. Temple Architecture.

	Unit 2	Ancient Civilizations: Aegean & Classical Period: Greece		
	A	Orders in architecture: Doric, Ionic, Corinthian - optical illusions in architecture.		
	B	Domestic architecture; Public Buildings: Agora, Stoas, Theaters, Bouletrion and Stadia's.		
	C	Greek temple: evolution and classification - Parthenon and Erechthion, Geometry and symmetry of individual buildings and their relationship with others based on different organizing principles and conditions of site.		
	Unit 3	Classical Period: Rome		
	A	Roman history: Republic and Empire- Roman religion and the Roman temple - Roman character - lifestyle, Roman urban planning - art and architecture as imperial propaganda: forums and basilicas.		
	B	Orders in architecture: Tuscan and Composite, Domestic architecture – structural forms, materials and techniques of construction.		
	C	Rome: Forum Romanum and other Imperial forums, Enclosure and manipulation of space: Pantheon - Public buildings: Colloseum, Circus Maximus, Thermae of Caraculla.		
	Unit 4	Byzantine Architecture		
	A	Byzantine Architecture: Historical background, Social beliefs, Architecture, Materials and Technology.		
	B	Byzantine construction, planning character – Byzantine dome, Pendentive		
	C	Byzantine Architecture: St. Marks Basilica, Hagia Sophia - structural forms and materials		
	Unit 5	Early Christian Architecture		
	A	Early Christian Architecture: Historical background, Social beliefs, Architecture, Materials and Technology.		
	B	Architectural Features with relevant examples from - St. Peters Basilica, St. Clement Basilica. Planning and its significance to the masses.		
	C	Comparison between Early Christian and Byzantine Architecture: Architecture, Materials and Technology.		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

ARJ 111 - Architectural Design -II

School: SUSAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch:		Semester: 2
1	Course Code	ARJ 111
2	Course Title	AD2 (Architectural Design 2)
3	Credits	11
4	Contact Hours (L-P-S)	1-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> To understand the role of light and shadow in spatial design and an introduction to elements of architecture To expose students to different works of renowned architects to be able to understand spatial quality and design methodology To enable students to formally apply methods of design and form generation to a small scale project with constraints of site and context.
6	Course Outcomes	CO1: Students will be equipped to CO2: Students will be exposed to the works of renowned architects and identify methods and means deployed to achieve spatial organization. CO3: Students will be enabled to apply spatial configuration to a small scale project
7	Course Description	The studio is designed to expose students to different works of renowned architects and introduce them to methods of case studies. The studio would guide students to formally understand and arrive at a design solution to a given problem through architectural methods of model making, drawings and design presentations.
8	Outline syllabus	
	Unit 1	LIGHT & SHADOW
		a. Model based exercises to understand space transformation due to light b. Role of texture in visual composition c. Understanding architectural elements and its role.
	Unit 2	CASE STUDY 1
		Case study of residential spaces through a. Model b. Drawings & Documents

		c. Context manipulation.		
	Unit 3	CASE STUDY 2		
		a. Interpretation of design methods and concept. b. Interchanging between 2D and 3D representation to understand form generation and scale c. Reverse design analysis and criticism		
	Unit 4	DESIGN EXPLORATION 1		
		Design Exercise to expose studio to: a. parameters b. context c. formalising design ideas.		
	Unit 5	DESIGN EXPLORATION 2		
		a. Formal application of methods learnt through the preparatory exercises. b. Design exercise of residential dwelling of with site constraints, client and context. c. Arriving at design solutions through physical models, drawings and supportive documents		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	Conditional Design- An introduction to Elemental Architecture Operative Design- A catalogue of spatial Verbs, Di Mari Yoo Case Study Houses, Elizabeth A.T.Smith 101 Things I learned in architecture school, Mathew Fredrick. Shadow Makers, Stephen Kite.		
	Other References			

ARJ 112 - Construction Material & Methods-II

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 2
1	Course Code	ARJ 112
2	Course Title	CMM-II (Construction Material & Methods-II)
3	Credits	6
4	Contact Hours (L-T-P)	2-2-2
	Course Status	Compulsory
5	Course Objective	1. To develop an understanding about load bearing materials and principles. 2. To acquaint the students with load bearing component details in the substructure and superstructure. 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
6	Course Outcomes	CO1: To be able to describe the load bearing systems principles. CO2: To explain various construction details of substructure and superstructure in a load bearing construction. CO3: To select and design suitable type of construction in traditional or conventional timber application. CO4: To be able to detail out various construction details in timber.
7	Course Description	The part 2 of 6 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.
8	Outline syllabus	
	Unit 1	Load Bearing
	A	Understanding load bearing structures through small spaces/ site exposure
	B	Understanding plan and section and relating to the load bearing systems
	C	Understanding of building components of load bearing structures and their construction processes
	Unit 2	Load Bearing Components and its detailing
	A	Vertical components- Foundations, DPC
	B	Vertical components- Piers, buttresses etc
	C	Horizontal components-Beams, Floors, roofs
	Unit 3	Timber structures
	A	Introducing timber as a building material its relevance - Types,

		Availability, Processing & Usability, Advantages & Disadvantages, Physical characteristics, etc.		
	B	Working with timber and knowing its joineries and hands on workshop		
	C	Case studies		
	Unit 4	Timber structures		
	A	Introducing timber structures and construction practices.		
	B	Understanding plan and section in relation to the timber structure systems and their terminologies		
	C	Foundations of Timber Posts.		
	Unit 5	Timber structures		
	A	Wall: Various types of timber frame walls, with details of joints and cladding. Dhajji walls construction. Windows and doors in Frame walls/site exposure		
	B	Floor: Various types of timber floors & their construction methods. Floor finishes for timber floors		
	C	Roof: Types of timber roofs, Lean-to roofs, King Post and Queen Post trusses. Roof coverings using AC/CGI sheets. Gutters, Ridge and Valley detail.		
	Mode of examination	Theory/Jury/		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*			
	Other References			

ARJ 113- Architectural, Visual Representation-II

School: SAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 2
1	Course Code	ARJ 113
2	Course Title	(AVR-II) Architectural, Visual Representation-II
3	Credits	4
4	Contact Hours (L-P-S)	1-0-2
	Course Status	Compulsory/Elective
5	Course Objective	
6	Course Outcomes	CO1:the students will be able to describe various skills of of representation in advanced media of rendering. CO2: The students will be able to develop in depth understanding of hand skills and architectural drawing. CO3: the students will be able to interpret two dimensional and three dimensional drawings CO4: the students will be able to design and compose architectural drawings rendered in suitable media
7	Course Description	The course is to introduce and explore various modes of expression and communication of creative idea, other than architecture proper. This may include textual, graphic and performing mediums of various natures as complements to learning of architecture. The course also underlines the interconnections across various design oriented disciplines and explores the alternative modes of expression of the same idea. The course would have short exercises and assignments for assimilation of skills and brining together the knowledge learn to the drafting table . To think “out of the box” and to move away from various preconceived notions.CO2
8	Outline syllabus	
	Unit 1	Perception and representation
		a. Extension of dexterity for representation and abstract interpretation, with additional media such as collage, stencils. b. Learning to create architectural entourage and renderings for representation with correct sense of scale and proportions. c.
	Unit 2	Three dimation Visualizations

		Isometric and oblique three dimensional views, Two point and one point perspectives for simple forms. Two point and one point perspectives for complex forms.		
	Unit 3	Sciography		
		Rendering for sciography, tones, texture, colors, and light. Sciography in two dimensional surfaces Sciography of simple and complex forms		
	Unit 4	Drawing Development		
		creating orthographic projects of a complex geometry building (preferably with a curvilinear form/ Dome) on a suitable scale (1:50/1:100). Understanding different terminologies of a building with due attention to lineweight.		
	Unit 5	Rendering and Visualisation		
		a. Converting the the orthograhc projections into Three Dimentional Visualizations like Sectional models or isometrics as per design in various scales b. Rendering of orthographic projections drawings to develop deep understanding of proportions and scale. c. compiling the entire portfolio		
	Mode of examination	Jury/Practical/Viva		
	Weightage	CA	MTE	ETE
	Distribution	50%	0%	50%
	Text book/s*	-		
	Other References	Suggested Books/Readings: 1. Gill, Robert W.; Manual of Rendering with Pen and Ink, Thames and Hudson, London, 1997 2. JaxThemier, B.W., "How to Paint and Draw", Thames and Hudson, 1985		

ART 114- History, Theory & Criticism -2

School: SAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch:Architecture		Semester : 2
1	Course Code	ART 114
2	Course Title	History, Theory & Criticism -2
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	Compulsory
5	Course Objective	<p>To understand the historical development through different era's and region.</p> <p>To understand the political economy of the period</p> <p>To understand Cultural and Social significance of the period</p> <p>To identify and study the salient features of the architectural styles during the era</p>
6	Course Outcomes	<p>CO1: Identify main characteristics of architecture, recognizing Influences and major concepts-identify buildings, ideas, and architects that portray the Architecture.</p> <p>CO2: Interpret & discuss the socio-cultural context of the particular era within which these theoretical approaches to design have developed.</p> <p>CO3: Compare & critique the various approaches to design in relation to their historical context.</p>
7	Course Description	<p>This Course deals specifically with the socio-political, historical and cultural dimensions of Architectural history in various regions.</p> <p>Through this module students develop a deeper understanding of the architectural styles during the period and famous examples of the same.</p>
8	Outline syllabus	
	Unit 1	Buddhism Architecture
	A	Historical background
	B	Social beliefs and Architecture
	C	Materials and Technology
	Unit 2	Romanesque Architecture
	A	Historical background
	B	Social beliefs and Architecture
	C	Materials and Technology
	Unit 3	Gothic Architecture
	A	Historical background
	B	Social beliefs and Architecture

	C	Materials and Technology		
	Unit 4	Islamic, Persian and Cordoba Architecture		
	A	Historical background		
	B	Social beliefs and Architecture		
	C	Materials and Technology		
	Unit 5	Islamic, Persian and Cordoba Architecture		
	A	Urban centres like Mamluk, Cairo etc		
	B	Architecture of Umayyad Caliphate to Turkey		
	C	Islamic Landscapes		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References	Paul Frankl, Gothic Architecture, Yale University Press 2001. Oleg Grabar, The mediation of the Ornament Yahya Abdullahi- Evolution of Islamic Geometric Patterns Oleg Grabar and Richard Ettinghausen, Islamic Art & Architecture 650-1250 Robert Hillenbrand, Islamic Architecture: Form, Function & Meaning Nicola Coddstream, Medieval Architecture.		

ARJ 114 - DIGITAL DESIGN FABRICATION SCRIPT – 1 (DDF Script-1)

School: SAP		Batch : 2018-23
Program: B. ARCH		Current Academic Year: 2018-2019
Branch: ARCH		Semester: 2
1	Course Code	ARJ: 114
2	Course Title	DIGITAL DESIGN FABRICATION SCRIPT – 1
3	Credits	4
4	Contact Hours (L-T-P)	0-2-2
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • Knowledge and understanding of Computer Graphics tools. • Practical skills in the computer graphic software for architectural presentation • Skills in experimentation, critical analysis and the discriminatory selection of computer software for specific end uses. • Awareness of architectural drafting with a focus on industry standards. • Ability to assemble drawings in industry-standard plan form and produce plotted hardcopies ready for distribution;
6	Course Outcomes	CO1. Students can able to demonstrate and present their work using Computer Graphic tools. CO2. Ability to construct accurate 2D geometry as well as complex 3D shapes and surface objects; CO3. Ability to create 2D representations of 3D objects as plan view, elevations and sections;
7	Course Description	<p>Students will use the Adobe Creative Suite for this course. Students will learn to use the basic tools of Photoshop, Illustrator, and InDesign. Upon completion of the course students will be able to understand the difference between a pixel-based and vector-based graphic and import and export graphics in multiple formats. Topics will include creating text and gradients, drawing and composing an illustration, transforming and distorting objects, incorporating color techniques, placing type in an image, how to work with layers and printing preparation will also be covered.</p> <p>This course also 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.</p>
8	Outline syllabus	

	Unit 1	Introduction to Vector Based tools using Adobe Illustrator		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 2	Introduction to Raster Based tools using Adobe Photoshop		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 3	Introduction to CAD using AutoCAD (Interface/Tools/Working)		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	Drafting Drawings using AutoCAD		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	Advanced plotting (Layouts, Viewports), Office Standards		
		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*	Mastering Adobe Creative Suite CC, Mastering AutoCAD 2018.		
	Other References			

ARJ 201- Architectural Design -III

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: -		Semester: 3
1	Course Code	ARH 201
2	Course Title	ARCHITECTURAL DESIGN III
3	Credits	12
4	Contact Hours (L-P-S)	2-2-6
	Course Status	Compulsory
5	Course Objective	<p>To question the idea of “built expression” and “meaning” in architecture.</p> <p>To develop intuitive mode of investigation for design.</p> <p>To study the built environment and to develop a basic understanding of space and form.</p> <p>To explore the inter-relationship between human behaviour and space in a built environment, including, volume of space, shape, form, function, climate and materials.</p>
6	Course Outcomes	<p>CO1: Demonstrate basic skills of drawings and representation, also assimilate learning of construction, structures and computers to apply to basic design.</p> <p>CO2: Develop out of the box creative skills for design of small projects.</p> <p>CO3: Explore creative processes and idea generation and demonstrate critical evaluation of these processes in their design project.</p>
7	Course Description	<p>The main objective of this subject is to make the students familiar with design & the architectural design process.</p> <p>Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct in the students.</p>
8	Outline syllabus	
	Unit 1	Minor Project
		<p>Introduction to Minor project</p> <p>Form and material based investigation</p> <p>Understanding spatial aspects based on activity, space, form and human scale.</p>
	Unit 2	Minor Project- finalization
		<p>Pre design study-Case study and functional standards</p> <p>Concept formulation and idea investigation</p> <p>Final design presentation</p>
	Unit 3	Major Project- Conceptual
		Introduction to Major project, such as Pre primary/ nursery school,

		Art gallery and Pavillion etc. Site- approx 0.08 Ha to 0.4Ha 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)		
	Mode of examination	Jury		
	Weightage	CA	MTE	ETE
	Distribution	50%	0%	50%
	Text book/s*	-		
	Other References			

ARJ 202 - Construction Material & Methods-III

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 3
1	Course Code	ARJ 202
2	Course Title	CMM- III (Construction Material & Methods-III)
3	Credits	6
4	Contact Hours (L-P-S)	2-2-2
	Course Status	Compulsory
5	Course Objective	<p>1. To provide complete knowledge on Concrete, a building material vastly used, it's composition, applications and different grades used in the construction industry.</p> <p>2. To make students study the RCC details of multi-storeyed building, from foundation in RCC to roofing, substructure preparation and over-head structures.</p> <p>3.To introduce them to conventional slab systems ,form based systems and retaining walls.</p> <p>4.To familiarize students about the conventional and new formwork systems, scaffolds, temporary supports, underpinning and waterproofing.</p> <p>5. To cultivate personal observation and self learning in students,site visits are conducted so as to cover the given syllabus.</p> <p>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.</p> <p>This shall form part and parcel of the sessional work for internal assessment.</p>
6	Course Outcomes	<p>CO1:Present the RCC construction systems and comprehend the details in sheet form and report work.</p> <p>CO2:Illustrate the construction details of RCC building from foundation to slabs and roofing.</p> <p>CO3:Apply all related details concerned with the material in the components studied.</p>
7	Course Description	This Construction Studio is designed to study the load bearing structures, understanding of building components and their construction processes. The students are introduced to timber as a building material, the construction practices and joinery. The course aims at providing understanding of timber components through workshops, studio work and site exposure.
8	Outline syllabus	

	Unit 1	Basics of Reinforced Cement Concrete Framed Structural System and Bearing		
	A	Concrete and RCC- Composition, properties and uses; Water cement ratio; Grade of concrete, manufacturing, tests, types- PCC, RCC, light weight concrete and autoclaved aerated concrete etc.		
	B	The structural System- Terminologies, technologies employed in the Past & Present		
	C	Site Exposure: A Visit to under construction Site that employs RCC structural system.		
	Unit 2	RCC Building Component detailed study		
	A	2 / 4 Storey Building with basement. Typical Grid & Column Layout		
	B	Study of Shallow Foundation in RCC; Safe bearing capacity of soils and methods of improvements, Trenches, Preparation for Foundation work on site , Causes and failure and remedies etc.; Implementation of the study in the Building Design		
	C	Study of deep foundation in RCC, the system & techniques; Soil Bearing Capacity etc.; Safe bearing capacity of soils and methods of improvements,, Causes and failure and remedies etc.		
	Unit 3	RCC Building Component detailed study		
	A	Water proofing		
	B	Details of Retaining Walls, Shear Walls ,Typical Column & Beam details		
	C	Substructures and Over head structures in RCC		
	Unit 4	RCC Building Component detailed study		
	A	Conventional slab systems		
	B	Study of RCC Slabs-Flat Slabs(One way , two way, continuous) , etc		
	C	Form based Slab systems Conical & Dome		
	Unit 5	RCC Building Component detailed study		
	A	Introduction to formwork. Excavation and timbering of trenches with special references to loose soil and sub- soil water.		
	B	Study of various types of formwork for concrete, Scaffolding and temporary supports and Shoring & Underpinning.		
	C	Workshop- Hands on experience with concrete		
	Mode of examination	Theory/Jury/		
	Weightage Distribution	CA	MTE	ETE
		50%	-	50%
	Text book/s*			
	Other References			

ART 205 - Environment Sustainability and Services I

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch: Architecture		Semester: 3
1	Course Code	ART 205
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: an understanding of 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 CO7: adopt design features for enhancing climate responsiveness of buildings
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 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, Vernacular architecture
	B	Understanding factors affecting the macro climate of a place and

		microclimate of site. Measurements.		
	C	Different types of tropical Climatic Zones & their Characteristics.		
	Unit 2	Thermal comfort and Heat Exchange		
	A	Thermal Comfort factors and indices		
	B	Principles of Thermal Design		
	C	Heat Exchange in Buildings		
	Unit 3	Structural Control		
	A	Thermal Properties of Materials		
	B	Solar Geometry		
	C	Structural Control		
	Unit 4	Ventilation and Daylighting		
	A	Ventilation and Air Movement		
	B	Principles of Lighting		
	C	Daylighting		
	Unit 5	Climate responsive Design in different climatic zones		
	A	Hot Dry Zone		
	B	Warm Humid Zone		
	C	Cold Zone		
	Mode of examination	Theory		
	Weightage Distribution	CA 30%	MTE 20%	ETE 50%
	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		
	Other References	1. Givoni, B. (1969) Man, Climate and Architecture, Elsevier 2. Olgyay, V., (1969) Design with Climate, Princeton University 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 204 - History, Theory & Criticism – 3

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch:		Semester: 3
1	Course Code	ART 204
2	Course Title	(HTC-3) History, Theory & Criticism - 3
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 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
6	Course Outcomes	<p>CO1: Identify main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture.</p> <p>CO2: Interpret & discuss the socio-cultural context of the 16th- 19th century within which these theoretical approaches to design have developed.</p> <p>CO3: Compare & critique the various approaches to design in relation to their historical context.</p>
7	Course Description	This Course deals specifically with the socio-political, historical and cultural dimensions of Architectural history from the 16 th century to the 19 th 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	Historical background
	B	Social beliefs and Architecture
	C	Materials and Technology
	Unit 2	Baroque
	A	Historical background
	B	Social beliefs and Architecture
	C	Materials and Technology
	Unit 3	Rococo

	A	Historical background		
	B	Social beliefs and Architecture		
	C	Materials and Technology		
	Unit 4	Neo classical		
	A	Historical background		
	B	Social beliefs and Architecture		
	C	Materials and Technology		
	Unit 5	Comparison and Critique		
	A	Early Renaissance, High Renaissance & Late Mannerism		
	B	Baroque and Rococo		
	C	English Palladian, Georgian and Federal American		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

ARJ 203 - DIGITAL DESIGN FABRICATION – 1 (DDF-1)

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch: ARCH		Semester: 3
1	Course Code	ARJ 203
2	Course Title	DIGITAL DESIGN FABRICATION – 1 (DDF-1)
3	Credits	4
4	Contact Hours (L-P-S)	0-2-2
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • Knowledge and understanding of 3D Modelling, texturing and basic rendering • Practical skills in the computer application software for architectural practice • Knowledge and Understanding of functional and aesthetic requirements of architecture and the application of those in virtual environments. • Skills in experimentation, critical analysis and the discriminatory selection of computer software for specific end uses. • Quality of the work produced; with the balance of the student's artistic expression & sensitivity as well as technical understanding, with integration of techniques and subject.
6	Course Outcomes	CO1. Students can able to demonstrate and present their work using Digital 3D tools. CO2. Students can able to realistically reconstruct a still life object or image in 3D Model. CO3. Students can able to demonstrate 3D Visualisation and Animation.
7	Course Description	In this module the students will learn to visualize and use 3D software to create digital 3D models. This course is designed for students to learn both practical and theoretical knowledge in constructing and managing 3-dimensional modeling and texturing. It is a highly interdisciplinary and complex subject of artistic expression and technological understanding.
8	Outline syllabus	
	Unit 1	Introduction to 3D Modelling (Interface/Tools/Working)
		Sub unit - a, b and c detailed in Instructional Plan
	Unit 2	Working with conceptual 3D Model with texture
		Sub unit - a, b and c detailed in Instructional Plan
	Unit 3	Lightning and basic rendering

		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	Render output in Still Image		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	Render output in Animation		
		Sub unit - a, b and c detailed in Instructional Plan		
	Mode of examination	Jury/Practical/Viva		
	Weightage	CA	MTE	ETE
	Distribution	50%	0%	50%
	Text book/s*	Autodesk 3ds Max 2018 Essentials, Inside Rhinoceros 6, Lumion 3D Cookbook - Brightman Designs		
	Other References			

ART 206 – ARCHITECTURAL STRUCTURES-1

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
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	<ul style="list-style-type: none"> • Understand how various materials function when loaded • To understand how different materials interact with each other • To introduce the concept of behaviour of structural components and simple analytical techniques • 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.
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		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

AEJ 207–GREEN BUILDING AND SUSTAINABILITY

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch: Architecture		Semester: 3
1	Course Code	AEJ 210
2	Course Title	Green Building And Sustainability
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Elective
5	Course Objective	<ul style="list-style-type: none"> To expose the students to sustainable architecture of the various parts of the country and Abroad. To understand sustainability as a holistic concept and the concept of sustainable habitat To understand the various sustainable parameters in habitat planning To understand the various green building features To be aware of green building rating systems
6	Course Outcomes	CO1:Identify and learn the main characteristics of the planning aspects, materials used in construction and the constructional details for sustainable and green building. CO2:Understand and discuss the green construction practice and design. CO3: Interpret & recognize green building and rating system.
7	Course Description	This module examines the link between the habitat, building and the environment. The module will discuss the idea of sustainability in the context of habitat planning and building design incorporating social, economic and environmental dimensions
8	Outline syllabus	
	Unit 1	Sustainability
		a. Meaning and definition b. Approach to sustainability c. Sustainable habitat planning and management- landuse, d. housing, energy, transportation, water and waste.
	Unit 2	Green Architecture
		a) Meaning and definition b) Difference between green and sustainable c) Green Building design features
	Unit 3	Green Buildings-Features
		a. Green materials and technologies

		b. Green construction practices through case studies c. Green building utility/services design and management	
	Unit 4	Green Buildings standards and codes	
		a. CPWD guidelines b. ECBC codes c. Understanding BEE	
	Unit 5	Green Buildings rating systems	
		a. Understanding Green Building Rating Systems b. Difference between LEED and GRIHA rating system c. Green building recognition	
	Mode of examination	Jury/Practical/Viva	
	Weightage Distribution	CA	ETE
		50%	50%
	Text book/s*	<ul style="list-style-type: none"> • Design with Nature by Ian.I.Mchag • Sustainable Design: Ecology, Architecture and Planning, Daniel Williams • Griha Manual , Teri • Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture by Bernard Rudofsky • Voluntary Agencies and Housing: A Report on Some Voluntary Agencies Working in the Field of Housing in India, by MadhaoAchwal. Published 1979 UNICEF 	
	Other References		

AEJ208–TRENDS IN ARCHITECTURE

School: SUSAP		Batch : 2018-23
Program:B. ARCH		Current Academic Year: 2018-19
Branch:Architecture		Semester: 3
1	Course Code	AEJ208
2	Course Title	TRENDS IN ARCHITECTURE
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	ELECTIVE
5	Course Objective	<ul style="list-style-type: none"> - To compare the various trends evolved in architecture with context to different time frames. - To understand and expose students to the works of renowned architects and the trends started and evolved by them. - To analyse the case studies with respect to define parameters
6	Course Outcomes	CO1: Identify the trends evolved in architecture since 19 th century. CO2: Demonstrate the works of various architects. CO3: Analyze the works of greats in architecture and evaluate the trends evolved by their works.
7	Course Description	The studio is designed to introduce the students to the architectural trends prevalent since 19 th century and make the students analyze the works done by various architects within this period.
8	Outline syllabus	
	Unit 1	Trends in Architecture-19th Century
		a. Emanuel Rocco, Sullivan and Alder, Felix Duban b. Case Examples- Galleria Umberto, Auditorium Building, Chicago, School of Beaux Arts

		c. Analysis of Case examples	
	Unit 2	Trends in Architecture- First Half of 20th Century/ Pre war	
		a. Walter Gropius, Pierre Chareu, Otto Wagner, Antonio Gaudi b. Case Examples- Bauhaus, Maison De Verre, Casa Mila c. Analysis of Case examples	
	Unit 3	Trends in Architecture-Industrial Revolution	
		a. Le Corbusier, Jean Pourve, Frank Lloyd Wright, Alvaro Alto, Godin b. Case Examples- The Cloister, Johnson Wax Administrative Building, Le Familistere c. Analysis of Case Examples	
	Unit 4	Trends in Architecture- Later Half of 20th Century/ Post war	
		a. Frank O' Gehry, Jean Nouvel, Renzo Piano, Peter Zumthor, Charles Garnier b. Case Examples- Guggenheim Museum, Nemausus, Pompidou Center, The Opera Garnier c. Analysis of Case Examples	
	Unit 5	Trends in Architecture-20th Century	
		a. Tokyo Ito, Zaha Hadid b. Case Examples- The Sendai Media Center, Heydar Aliyev Center c. Analysis of Case Examples	
	Mode of examination	Jury Examination	
	Weightage Distribution	CA	ETE
		50%	50%

	Text Books	<ol style="list-style-type: none"> 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
	Other References	-

AEJ 210 – Vernacular and Settlement Patterns-Typological Studies

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch: Architecture		Semester: 3
1	Course Code	AEJ 210
2	Course Title	Vernacular and Settlement Patterns- Typological Studies
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Elective
5	Course Objective	<ul style="list-style-type: none"> • To expose the students to traditional architecture of the various parts of the country and Abroad. • The students are exposed to a wide variety of examples that teach them to appreciate architecture as an outcome of various social and economic values of society. • Identify and conserve the untapped values and principles in the evolution of new theories for architectural creations.
6	Course Outcomes	<p>CO1: Identify and learn the main characteristics of the planning aspects, materials used in construction and the constructional details.</p> <p>CO2: Compare & learn the settlement planning of the settlements in various parts of the country and Abroad.</p> <p>CO3: Interpret & discuss the factors influencing vernacular architecture of various places.</p> <p>CO4: Highlight needs and various ways of vernacular building research, analysis, presentation of finding and its application to contemporary buildings.</p>
7	Course Description	<p>Vernacular buildings comprise 99% of the buildings of the world. They are those buildings which spring from local custom and practice, that are usually not the result of what we today consider to be mainstream architectural practice.</p> <p>It provides powerful insights into fundamental issues of architecture. Its study provides insights into architectural form and typology, the building process, the relationship between buildings and human activity, the connection of buildings to geography, the ways in which material culture expresses social and cultural values.</p> <p>This course uses a survey of various traditions of vernacular building as a means to understand theoretical frameworks dealing with the nature, diffusion and transformation of architectural type; the formal, functional and aesthetic content of vernacular buildings and the continuities between the vernacular and the professional</p>

		world of architects.
8	Outline syllabus	
	Unit 1	Introduction to Vernacular Architecture.
		e. Introduction to Vernacular Architecture. f. Analytical review, classification, salient features and important contribution in evolving workable solution. g. Study of examples of vernacular architecture in history of world architecture
	Unit 2	Vernacular Architecture (outside Indian Subcontinent)
		a. Need to study Vernacular Architecture in present context. b. To understand evolution of building forms based on function, building material and construction techniques. c. To understand evolution of building forms based on art and craft, the local conditions, climate and geography, religion and culture in the period when they were built.
	Unit 3	Case Studies (Outside Indian Subcontinent)
		d. Case Study -1: work of Architects in contemporary world architecture – whose works are influenced by the Vernacular Architecture of the region. e. Case Study-2 f. Inference from the case study – as what were the factors influencing their works.
	Unit 4	Vernacular Architecture (Indian Subcontinent)
		d. To understand evolution of building forms based on function, building material and construction techniques. e. Study of examples of vernacular architecture in history of Indian architecture. f. To understand evolution of building forms based on art and craft, the local conditions, climate and geography, religion and culture in the period when they were built.
	Unit 5	Case Studies (Indian Subcontinent)
		d. Case Study -1: works of architects in contemporary Indian architecture whose works are influenced by the vernacular architecture of the region. e. Case Study – 2 f. Inference from the case study – as what were the factors

		influencing their works.	
	Mode of examination	Jury/Practical/Viva	
	Weightage Distribution	CA	ETE
		50%	50%
	Text book/s*	<ul style="list-style-type: none"> • Vernacular Architecture: An Illustrated Handbook By R.W. Brunskill, 4th ed 2000 Faber and Faber ISBN-10: 0571195032 • Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture by Bernard Rudofsky • Laurie Baker, Life, Work, Writings by Gautam Bhatia , • New Delhi, India,1994, Penguin Books,.ISBN 0-14-015460-4 • Voluntary Agencies and Housing: A Report on Some Voluntary Agencies Working in the Field of Housing in India, by MadhaoAchwal. Published 1979 UNICEF • Handmade Houses and Other Buildings- The World of Vernacular Architecture By John May,,2010, Thames & Hudson • Hassan Fathy- Architectural Monographs, By James Steele, 1988, St. Martin's Press 	
	Other References		

ARJ 211 - ARCHITECTURAL DESIGN IV

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: -		Semester: 4
1	Course Code	ARJ 211
2	Course Title	ARCHITECTURAL DESIGN IV
3	Credits	12
4	Contact Hours (L-P-S)	2-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • The aim of the studio is to introduce students to design of repetitive units 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	<p>CO1: students should develop skills of drawing and representation</p> <p>CO2: to assimilate learning of graphics, construction, structures and computers to apply to basic design.</p> <p>CO3: Explore creative processes and idea generation and demonstrate critical evaluation of these processes in their projects.</p> <p>CO4: Appraise how design can impact, interact with, and improve environments.</p> <p>CO5: Understand spaces with three-dimensional visualization through the use of block models and appropriate softwares.</p>
7	Course Description	<p>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.</p> <p>Introduction to other role players in the Architectural process viz; the client and the user.</p>

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. c. Pre design study -Literature Study, Site Analysis, Case Study.		
	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		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	-		
	Other References			

ARJ 212 - Construction Material & Methods-IV

School: SAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 4
1	Course Code	ARJ 212
2	Course Title	(CMM-IV) Construction Material & Methods-IV
3	Credits	6
4	Contact Hours (L-P-S)	2-2-2
	Course Status	Compulsory
5	Course Objective	<p>To inform students about the wall opening components of a building and their construction details.</p> <p>The students are briefed about the different types of timber and steel door windows in different building types.</p> <p>To introduce them to the conventional and mechanical vertical transport system in a building</p> <p>To cultivate personal observation, self learning in students and better understanding of details, site visits are conducted so as to cover the given syllabus.</p>
6	Course Outcomes	<p>CO1: The students will be able to explain the details of wall opening components in a structure.</p> <p>CO2: The students shall know about the material such as timber and metal in construction.</p> <p>CO3: The students will be able to detail about the different mechanism of vertical transportation system and their construction details.</p> <p>CO4: They will be able to illustrate the construction details of the working of these systems.</p>
7	Course Description	<p>This Construction Studio is designed to introduce the students to the components of a building. The course discuss about the timber and steel door window details, their types and joinery. The students are introduced to the different members and modes of vertical transportation.</p> <p>The students get the basic understanding of the content through workshops, studio work and site exposure.</p>
8	Outline syllabus	
	Unit 1	Vertical Transportation- Stairs
	A	Steel Staircase- Types and details of Steel Staircase, Handrail, Railing , Step (Tread ad Riser)
	B	Timber Staircase- Joinery details of stringer, newel post balustrade , Handrail, Railing , Step (Tread ad Riser)
	C	RCC Staircase- Waist slab staircase, Cantilever step staircase, Staircase

		with Raker beam and Folded staircase with the reinforcement details, R.C.C. railings and Handrails details		
	Unit 2	Vertical Transportation- Lifts & Escalators		
	A	Design considerations and different types of lifts		
	B	Design considerations and different types of Escalators		
	C	Site Exposure		
	Unit 3	Vertical Transportation- Ramps		
	A	Design considerations		
	B	Types and details of Ramp, Landing, Handrail		
	C	Site Exposure		
	Unit 4	Timber Doors & Windows		
	A	Types and details of framed, ledged, braced and batten doors		
	B	Types and details of Panelled door shutters and Mosquito proof door shutter		
	C	Types of Windows / Ventilators and details of glazed window and ventilator shutters and frames		
	Unit 5	Metal Doors & Windows		
	A	Doors: Details and types of doors in steel and Aluminum		
	B	Windows: Details and types of windows in Steel and Aluminum windows		
	C	Site Exposure		
	Mode of examination	Jury /Theory		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*			
	Other References			

ART 215 – Environment Sustainability and Services II

School: SAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch: Architecture		Semester: 4
1	Course Code	ART 215
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 explain the water supply and distribution, requirement of in building 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 water supply, sanitation, electrical that are necessary in a multi-storeyed, large-scale building. It also introduces the concept of energy-efficient building design and the relevant codes and standards.
8	Outline syllabus	
	Unit 1	Water Supply
	A	Distribution of water in an area, Overhead tank, Underground tanks, Pipe appurtenances
	B	Requirements and water distribution system in low rise and high rise buildings. Water fixtures, water meter and storage tanks
	C	Hot and cold water supply system, Pipes types, size, Jointing and different fittings.
	Unit 2	Sanitation

	A	Principles of sanitation, Collection and conveyance of waste matter from buildings- Sanitation systems in a building, Sanitary fittings, Traps & types, manholes, intercepting, chambers and inspection chambers.		
	B	Drainage systems :Types of drainage systems, Dry and wet carriage systems, Sizes of drain pipes and material pipes, Gradients used in laying drains and sewers etc		
	C	Sewage treatment system- septic tank& soak pits, Roof and surface water drainage. Rain water storage and water harvesting principles and methods.		
	Unit 3	Electrical		
	A	Electrical Introduction – Terminology and Distribution of electricity in a building		
	B	Electrical Circuits, Fuse, MCB, MCCB, RCB 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 system for individual spaces e.g. kitchen, toilet, wash area, utility etc.		
	B	Plumbing and drainage layout drawing for a residence.		
	C	Electrical drawings of a building		
	Unit 5	Environmental control & management		
	A	Strom water and Waste water management		
	B	Sewage disposal system and effluent managment		
	C	Solid waste managment		
	Mode of examination	Theory		
	Weightage Distribution	CA 30%	MTE 20%	ETE 50%

ART 214 – History, Theory & Criticism -4

School: SUSAP		Batch : 2018-23
Program:B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 4
1	Course Code	ART 214
2	Course Title	History, Theory & Criticism -4
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 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	<p>CO1: Undertake research into architectural history.</p> <p>CO2: Engage in critical and analytical thinking and identify cultural impacts on architectural styles from ancient to modern times</p> <p>CO3: To distinguish the various styles of architecture found in India and develop appreciation for the same.</p> <p>CO4: To apply the needs of a city and its people sensitively in their design.</p>
7	Course Description	This course examines the History of Architecture from the 10 th century through the 16 th 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	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 2	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.		
	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*			
	Other References			

ARJ 213 – DIGITAL DESIGN FABRICATION – 2 (DDF-2)

School: SAP		Batch : 2018-23
Program: B. ARCH		Current Academic Year: 2018-2019
Branch: ARCH		Semester: 4
1	Course Code	ARJ: 213
2	Course Title	DIGITAL DESIGN FABRICATION – 2 (DDF-2)
3	Credits	4
4	Contact Hours (L-P-S)	0-2-2
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • 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: Students will learn how to model complex objects and environments CO2: They will learn how to setup simple dynamic structures in digital space CO3: They learn new modes of digital presentation like VR CO4: hey develop more efficient modes of production which facilitate group projects, i.e. organization CO5: Students can able to produce real 3D Models using VRAY render
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			

ART 216 – ARCHITECTURAL STRUCTURES-2

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 4
1	Course Code	ART 216
2	Course Title	Architectural Structures-2
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> To understand the analysis of indeterminate structures and their use. To understand how different materials interact with each other 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.
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 length, Anchorage Bond, Flexural bond.		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

AEJ218-Animation & Web Designing/Visual Representation

School: SAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: B.ARCH		Semester: 4
1	Course Code	AEJ 218
2	Course Title	Animation & Web Designing/Visual Representation
3	Credits	2
4	Contact Hours (L-T-P)	2-0-0
	Course Status	Elective
5	Course Objective	The course aims to introduce students to the world of graphics, media and animation. The course utilises the sketching, rendering, imagation, verbal as well as sound skills of the students.
6	Course Outcomes	CO1:To identify and interpret various principles and elements of design in varied field of graphics and animation. CO2:To prepare and illustrate various mode of presentation of ideas with respect to topic in question. CO3:To Design and create compositions in various medium of design.
7	Course Description	The course aims to introduce students to the world of graphics, media and animation. The course utilises the sketching, rendering, imagation, verbal as well as sound skills of the students.
8	Outline syllabus	
	Unit 1	STORY BOARDING
		1a) Understanding the character , building a character and interest
		1b) The concept of story boarding
		1c) Application of story boarding
	Unit 2	STOP MOTION ANIMATION
		2a) The world of Animation and types
		2b) Stop Motion Animation
		2c) Application of skills.
	Unit 3	VIRTUAL ANIMATION
		3a) Introduction to animation principles.
		3b) Soft skill development
		3c) Application.
	Unit 4	GRAPHIC DESIGN
		4a) Principles of designs and elements of design
		4b) Concept of compositions
		4c) Application of skills.
	Unit 5	WEB DESIGN
		5a) Effective Web Designing Principles

		5b) Elements of Web Designing		
		5c) Application of skills.		
	Mode of examination	Jury/Practical/Viva		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	- Principles of Graphic Design, D.K Ching		
	Other References	1. Timing for Animation, Harold Whitaker and John halas. 2. The Essential Principles Of Graphic Design, 2008, Debbie Millman. 3. The Animator's Survival Kit, 2009, Richard Williams 4. Animation 1, <i>How to Animate cartoons step by step</i> , 2013, Preston Blair.		

AEJ 219 – Barrier-free Architecture

School: SAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:Architecture		Semester: 4
1	Course Code	AEJ 219
2	Course Title	Barrier Free Architecture
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Elective
5	Course Objective	<ul style="list-style-type: none"> • To sensitize the students to universal accessibility and its implication on built environment. • To promote study of a wide variety of examples that teaches them to appreciate architecture as an outcome of various social and economic values of society. • To identify and promote adoption of barrier free architecture in contemporary architecture and conserve the untapped values and principles in the evolution of new theories for architectural creations.
6	Course Outcomes	CO1: Identify and learn about the barriers in built environment and highlight the need for barrier free architecture. CO2: Discuss the various ways of barrier free application in contemporary buildings. CO3: Interpret & discuss the planning and design aspects, materials used in construction and the details in barrier free architecture. CO4: Describe the barrier free building design practices adopted in countries abroad. CO5: Design and demonstrate barrier free requirements in public spaces and buildings.
7	Course Description	Barrier free architecture has a basic premise that persons with disabilities and elderly should have equal access to all services and facilities in all public buildings and buildings open for general public like Restaurants, hospitals, offices, airports, entertainments facilities, library, etc. It addresses the need for Safety, Dignity and Independence of individuals. The course provides insights into architectural form and typology, the building design, the relationship between built spaces and activity of the differently-abled groups.
8	Outline syllabi	
	Unit 1	Introduction to Barrier Free Architecture.
		h. Introduction to course and topic

		i. Sensitizing to disabilities j. Study of examples of barriers in built spaces and various typologies of buildings	
	Unit 2	Anthropometry and Mobility devices	
		d. Various mobility devices and their measurements e. Use of spaces and functioning of mobility devices in spaces f. Analyzing appropriateness of spaces including selection of material and construction details	
	Unit 3	Site Planning and Signage	
		g. External parking, pavements and street furniture design h. Signage in exteriors and buildings i. Fire evacuation needs	
	Unit 4	Special feature design	
		g. Controls and miscellaneous items h. Level changes and Ramps i. Design of Toilets for the differently abled	
	Unit 5	Design for barrier Free	
		g. International practices h. Access audit checklist i. Sample design of a public space	
	Mode of examination	Jury/Practical/Viva	
	Weightage Distribution	CA	ETE
		50%	50%
	Text book/s*	• Harmonized guidelines and space standards for barrier free built environment for persons with disability and elderly persons, Government of India, Ministry of Urban development, February 2016	
	Other References	Design Manual for a Barrier-free environment Unnati - Organization of Development Education, December 2004	

ARJ 301- Architectural Design –III

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: -		Semester: 5
1	Course Code	ARJ 301
2	Course Title	ARCHITECTURAL DESIGN V
3	Credits	12
4	Contact Hours (L-P-S)	2-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • The aim of the studio is to introduce students to design of repetitive units 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: students should develop skills of drawing and representation CO2: to assimilate learning of graphics, construction, structures and computers to apply to basic design. CO3: Explore creative processes and idea generation and demonstrate critical evaluation of these processes in their projects. CO4: Appraise how design can impact, interact with, and improve environments. CO5: Understand spaces with three-dimensional visualization through the use of block models and appropriate softwares.
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		
		d. Introduction to Minor project e. Form and material based investigation f. Understanding spatial aspects based on activity, space, form and human scale.		
	Unit 2	Minor Project- finalization		
		d. Pre design study-Case study and functional standards e. Concept formulation and idea investigation f. Final design presentation		
	Unit 3	Major Project- Conceptual		
		d. Introduction to Major project e. Preparation of design requirements, area requirements based on standards and their interrelation and circulation patterns. f. Pre design study -Literature Study, Site Analysis, Case Study.		
	Unit 4	Concept Development		
		d. Concept Formulation, Bubble Diagram and activity zoning. e. Design development- site development f. Design development- floor Plans		
	Unit 5	Finalisation		
		d. Design development- sections and elevations e. Model making on appropriate scale f. Final portfolio submission		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	-		
	Other References			

ARJ 302 – Construction Material & Methods-IV

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: V
1	Course Code	ARJ 302
2	Course Title	CMM-V (Construction Material & Methods-V)
3	Credits	6
4	Contact Hours (L-P-S)	2-2-2
	Course Status	Compulsory
5	Course Objective	<p>1.To generate a basic understanding of the prefab construction</p> <p>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.</p> <p>3.To help them understand the methods of pre-stressing and post-tensioning of concrete, their application in large space structures today.</p> <p>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.</p> <p>5.Study of Trusses- Wooden & Steel, their types,construction details and coverings.</p> <p>6.To cultivate personal observation and self learning in the students, site visits should be conducted so as to cover the given syllabus.</p> <p>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.</p> <p>This shall form part and parcel of the sessional work for internal assessment.</p>
6	Course Outcomes	<p>CO1: Explain the basic construction of steel, wooden and prefab structures.</p> <p>CO2: Illustrate the applications of prefab construction, steel construction, it's components and details from foundation to roofing.</p> <p>CO3:Apply all related details concerned with the material in the components studied.</p>
7	Course	This Construction Studio is designed to study the Precast and Modular

	Description	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	Trusses- Wooden & Steel		
	A	Types of inclined roofs, Lean-to roofs, King Post and Queen Post trusses.		
	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
		50%	-	50%
	Text book/s*			

ART 305 – Environment Sustainability and Services III

School: SUSAP		Batch : 2018-23
Program:B.Arch		Current Academic Year: 2018-19
Branch:Architecture		Semester: 5
1	Course Code	ART 305
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	<p>to explain the importance of good lighting, types, distribution of lamps, lighting effect</p> <p>to introduce concepts of heating, ventilation and air conditioning as a building service and the functioning of varied types of systems, advantages</p> <p>to initiate air-conditioned building design including ducting and distribution</p> <p>to explain the functioning of lifts, types, sizes, standards</p> <p>to inculcate efficient energy design of buildings and the relevant norms and standards</p>
6	Course Outcomes	<p>CO1: Knowledge of the functions of artificial lighting, types, effects, design</p> <p>CO2: Familiarity with air conditioning system, various components, function, working, types of cooling and heating</p> <p>CO3: Make informed choice of appropriate air conditioning system in buildings and incorporate necessary design features</p> <p>CO4: Knowledge on various types of lifts, elevators, escalators, working, components, sizes, standards</p> <p>CO5: Familiarity with Concepts of Energy efficient building practices, relevant code and compliance strategies</p>
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		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	Hall, F., Greeno, R., (2013) Building Services Handbook, 7th ed. Routledge Publication, New York		
	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 304 -History, Theory & Criticism -5

School: SUSAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch:		Semester: 5
1	Course Code	ART 304
2	Course Title	(HTC-5) History, Theory & Criticism -5
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 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	<p>CO1. Identify main characteristics of modern architecture, recognizing Influences and major concepts - identify buildings, ideas, and architects that portray Modern and Contemporary Architecture.</p> <p>CO2. Interpret & discuss the socio-cultural context of the 20th and 21st centuries within which these theoretical approaches to design have developed.</p> <p>CO3. Compare & critique the various approaches to design in relation to their historical context.</p> <p>CO4. Comprehend key architectural works, cultural movements and ideas, their theoretical and cultural context and relevance to design</p>
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. <u>European Architecture 1750-1890 by Barry Bergdoll</u> 2. <u>Modern Architecture by Alan Colquhoun</u> 3. <u>Space, Time and Architecture — Sigfried Giedion</u> 4. <u>Theory and Design in the First Machine Age The MIT Press by Reyner Banham</u>		
	Other References			

ARJ 303 – DIGITAL DESIGN FABRICATION – 3 (DDF-3)

School: SUSAP		Batch : 2018-23
Program: B. ARCH		Current Academic Year: 2018-2019
Branch: ARCH		Semester: 5
1	Course Code	ARJ 303
2	Course Title	DIGITAL DESIGN FABRICATION – 3 (DDF-3)
3	Credits	4
4	Contact Hours (L-P-S)	0-2-2
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • 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	<p>CO1. Ability to create a parametric building information model (“BIM” = a 3d object-oriented model of a building where each component has “intelligent” behaviours 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.</p> <p>CO2. Ability to use CAD/BIM-based tools to solve technical issues (fabrication, energy efficiency, lighting, structural etc.) during the planning process.</p>
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
		Sub unit - a, b and c detailed in Instructional Plan
	Unit 2	Design development process in BIM & Tools of parametric design

		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 3	Building modelling using BIM tools		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	Scheduling and detailing with Advance BIM implementation		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	Output Renders		
		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*	Autodesk 3ds Max 2018 Essentials, Inside Rhinoceros 6, Lumion 3D Cookbook - Brightman Designs		
	Other References			

ART 306 – Architectural Structures-3

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 5
1	Course Code	ART 306
2	Course Title	Architectural Structures-3
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 1. To understand the design elements of Reinforced Cement Concrete 2. To understand the design elements of Steel structures along with Soil mechanics and foundation engineering.
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.
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		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%

AEJ-307- High Rise Building

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 5
1	Course Code	AEJ 307
2	Course Title	High Rise Building
3	Credits	2
4	Contact Hours (L-P-S)	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 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 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 Highrise 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	Jury		
	Weightage	CA	MTE	ETE
	Distribution	50%	-	50%
	Text book/s*			
	Other References			

ARJ 311- Architectural Design Studio-IV

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 6
1	Course Code	ARJ 311
2	Course Title	Architectural Design-VI
3	Credits	12
4	Contact Hours (L-T-P)	2-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • The aim of the studio is to develop sensitivity to building by laws and to understand varied structural building systems. • To Explore and design systems involving complex services for different requirements • To develop sensitivity to building for large crowds • To sensitise them to observing their environment and incorporating the learning's into their design.
6	Course Outcomes	<p>CO1: students should develop skills of drawing and representation</p> <p>CO2: to assimilate learning of graphics, construction, structures and computers to apply to basic design.</p> <p>CO3: Explore creative processes and idea generation and demonstrate critical evaluation of these processes in their projects.</p> <p>CO4: Appraise how design can impact, interact with, and improve environments.</p> <p>CO5: Understand spaces with three-dimensional visualization through the use of block models and appropriate softwares.</p>
7	Course Description	<p>The studio deals with the study the study of complex projects with intricate building services like- Hospital/ Hotel/Convention Centre/Group Housing Design etc and Integration of Design ideas with structural feasibility The design problem would induce students to sensitivity towards horizontal as well as vertical circulation requirements in a multi-storeyed building. Exercises relating personal experiences to behavioural needs and translating them into documented information that can be used as a basis for design.</p> <p>Introduction to other role players in the Architectural process viz; the client and the user.</p>
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. c. Pre design study -Literature Study, Site Analysis, Case Study.		
	Unit 4	Concept Development		
		a. Concept Formulation, Bubble Diagram and activity zoning. b. Design development- site development c. Design development- floor Plans, circulation, services and landscape		
	Unit 5	Finalization		
		a. Design development- sections and elevations b. Model making on appropriate scale with understanding of structural systems c. Final portfolio submission		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	-		
	Other References	As per studio programme		

ARJ 312 – Construction Material & Methods-VI

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 6
1	Course Code	ARJ 312
2	Course Title	CMM-VI (Construction Material & Methods-VI)
3	Credits	6
4	Contact Hours (L-P-S)	2-2-2
	Course Status	Compulsory
5	Course Objective	<p>1.To make students understand the curtain walling and structural glazing systems used in facade.</p> <p>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.</p> <p>3.To help them understand the methods of wet and dry cladding in different material.</p> <p>4.To introduce students with different types of false ceilings, gypsum false ceilings, it's construction details and incorporation of services.</p> <p>5.The students are taught about the internal partition details,kitchen and toilet details and construction details of furniture.</p> <p>6.To cultivate personal observation and self learning in the students, site visits should be conducted so as to cover the given syllabus.</p> <p>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.</p>
6	Course Outcomes	<p>CO1:Understand and comprehend the facade systems including cladding materials and glazing systems.</p> <p>CO2: Illustrate the construction of interior finishes, flooring, wall and false ceiling,interior partitioning and furniture details.</p> <p>CO3: Apply all related details concerned with the material in the components studied.</p>
7	Course Description	<p>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.</p> <p>The students are taught the curtain walling systems and structural glazings, characteristics of glass as a building material.</p> <p>The students will also study the constructional details of furniture and new composite materials. The students are encouraged to conduct a</p>

		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 and Furniture details		
	A	Introduction to different types of False ceilings and their materials.		
	B	Gypsum Products Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles). Construction details of different false ceilings		
	C	Construction details of furnitures		
	Unit 4	Internal Partitions		
	A	Construction details of Metal Partition		
	B	Construction details of Wooden Partition		
	C	Construction details of Glass Partition		
	Unit 5	Application of materials and techniques in specific areas -Detailed drawings		
	A	Kitchen details etc		
	B	Toilet details etc		
	C	Market research of new materials		
	Mode of examination	Theory/Jury/		
	Weightage Distribution	CA 50%	MTE 0%	ETE 50%
	Text book/s*			
	Other References			

ART 315 – Environment Sustainability and Service-IV

School: SUSAP		Batch : 2018-23
Program:B. Arch		Current Academic Year: 2018-19
Branch:Architecture		Semester: 6
1	Course Code	ART 315
2	Course Title	Environment Sustainability and Service-IV
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 fighting equipments, 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	CA	MTE	ETE
	Distribution	30%	20%	50%

ARJ 313 – Digital Design Fabrication-V

School: SAP		Batch : 2018-23
Program: B. ARCH		Current Academic Year: 2018-2019
Branch: ARCH		Semester: 6
1	Course Code	ARJ: 313
2	Course Title	DIGITAL DESIGN FABRICATION – 5 (DDF-5)
3	Credits	4
4	Contact Hours (L-P-S)	0-2-2
	Course Status	Compulsory
5	Course Objective	<p>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 craftsmanship 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.</p>
6	Course Outcomes	<p>CO1. Explain what characterizes central technologies in digital fabrication.</p> <p>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:</p> <p>CO3. Independently translate an idea into a tangible prototype using techniques and methods in digital fabrication.</p> <p>CO4. 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:</p> <p>CO5. Assess what type or combinations of types of digital fabrication technologies that are appropriate for the task at hand.</p> <p>CO6. Critically review and assess the introduction and shift to digital fabrication in manufacturing organizations.</p> <p>CO7. Analyze organizational implications of digital fabrication.</p>
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			

ART 314 -History, Theory & Criticism -6

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester: 6
1	Course Code	ART 314
2	Course Title	History, Theory & Criticism - 6
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 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 the historical context.
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	Historical background
	B	Architecture
	C	Materials and Technology
	Unit 2	Critical Regionalism
	A	Historical background
	B	Architecture
	C	Materials and Technology
	Unit 3	Late Modernism

	A	Historical background		
	B	Social beliefs and Architecture		
	C	Materials and Technology		
	Unit 4	Deconstructivism		
	A	Historical background		
	B	Social beliefs and Architecture		
	C	Materials and Technology		
	Unit 5	Comparison and Critique		
	A	Comparison - Styles of Architecture 20 th – 21st Century		
	B	Critique - Styles of Architecture 20 th – 21st Century		
	C	Term Paper		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*			
	Other References			

ART 316 - Building, Estimation & Costing

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 6
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 the basic terms used in Estimation , Important considerations while preparing an Estimate
	B	Introduction to various types of Estimates , Understanding various terminologies 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 , Important considerations while Writing the Specifications		
	B	Specifications as per CPWD, PWD etc., and how to read them		
	C	Writing Specifications for Building work Writing Specifications for Interior finishing and Furnishing Works		
	Unit 4	Analysis of Rates		
	A	Introduction to Schedule of Rates , Importance of Rate Analysis, Considerations done while doing the Rate Analysis		
	B	Calculations for basic building materials like RCC, Brick work		
	C	Calculating the various quantities of materials required per unit		
	Unit 5	Valuation of Properties		
	A	Introduction to the concepts of Valuation , Various considerations taken while doing valuation		
	B	Process of Valuation		
	C	Preparing valuation report		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA 30%	MTE 20%	ETE 50%
	Text book/s*			
	Other References			

AEJ 317 - Architectural Criticism and Journalism

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch:		Semester: 6
1	Course Code	AEJ 317
2	Course Title	Architectural Criticism and Journalism
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
Course Status		Elective
5	Course Objective	Identify the twentieth century architectural works & Styles Explain and discuss the methods of evaluation of architectural works Analyze the methods of Criticism Develop a writing skills to evaluate and critic architecture work
6	Course Outcomes	CO1: Recognize different architectural concepts clearly, concisely, and effectively in both speech and writing. CO2: Demonstrate the main theoretical trends of the twentieth century in architecture. CO3: Interpret critical reading and writing skills. CO4: Prepare language with graphics in professional communications, the relationship between image and text. Learning the skills to refine, revise and edit communication projects to meet professional standards.
7	Course Description	This course is designed to help you see the way writing and theory can serve you as tool in the design process, professional practice, and the way you engage in the world around you. Writing can make you a more valuable and effective member of an architectural design team. This course introduces theory and architectural criticism and demonstrates their application to both communication in the field or with other practitioners and clients, and to the development of your personal philosophy as an architect.

8	Outline syllabus	
	Unit 1	
		<ul style="list-style-type: none"> a. Introduction to Architectural criticism. b. Evaluate architectural work, ideologies and approaches. c. Review, interpret and criticize different presentational media in architecture.
	Unit 2	
		<ul style="list-style-type: none"> a. Evaluate Presentations, drawings, reports, articles, documentaries, etc. b. Analyse theoretical texts and architectural examples. c. Recognize modern and contemporary issues in the theory and criticism of architecture.
	Unit 3	
		<ul style="list-style-type: none"> a. Record, analyses and evaluate architecture works. b. Characterize historical and theoretical contexts. c. Investigate contextual background of architectural works.
	Unit 4	
		<ul style="list-style-type: none"> a. Explore theoretical concepts and their application in design work. b. Terminology for the discussion of architecture, both among professionals and the public. c. Examine architectural theories in relation to practice.
	Unit 5	
		<ul style="list-style-type: none"> a. Formulate their future thesis proposal by introducing contemporary discourses. b. Formulate a final paper on a self-defined topic. c. Oral Presentation of final paper.

	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*	<p>Hays, K. M. (ed.) (2000) Architectural Theory Since 1968. Cambridge, Mass.: MIT Press.</p> <p>Le Corbusier. Towards a New Architecture. Mineola: Dover Publications, Inc. 1986.</p> <p>Mallgrave, H. and Christina Contandriouopoulos, C. (2008) Architectural Theory, Volume II, An Anthology from 1871-2005. Malden, MA: Blackwell Publishing.</p> <p>Ada Louise Huxtable. The Unreal America: Architecture and Illusion. New York: The New Press, 1997</p> <p>Kliment, S. (1998) Writing: For Design Professionals. New York City: W. W. Norton & Company.</p> <p>Kruft, Hanno-Walter. A History of Architectural Theory: from Vitruvius to the Present, London: Zwemmer; New York: Princeton Architectural Press, 1994.</p>		
	Other References			

AEJ 320 - TRENDS IN PLANNING AND GIS

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: -		Semester: 6
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 ?

		1. Different components of GIS 2. Different types of vector data , Raster data models and their types 3. TIN data model		
	Unit 2	Advantages and disadvantages associated with vector , raster and TIN		
		1. Raster data compression techniques 2. Different raster data file formats 3. TIN and vector data advantages over raster data		
	Unit 3	Database systems		
		1. Introduction to Data systems and their types 2. Spatial database systems and their types 3. Non-spatial data (attributes) and their type		
	Unit 4	Pre-processing of spatial datasets		
		1. Different map projections 2. Spatial interpolation techniques 3. Different types of resolutions & Digital Elevation Model (DEM)		
	Unit 5	Quality assessment of freely available DEMS		
		1. GIS analysis-1 2. GIS analysis-2 and applications 3. Errors in GIS & Key elements of maps		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text Books	Fundamentals of GIS by Micheal Demers Concepts and Techniques of Geographic Information System by Lo and Yeung.		
	Other References	www.GISdevelopment.net		

ARJ 401- Architectural Design –VII

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch: Architecture		Semester: 7
1	Course Code	ARJ 401
2	Course Title	Architectural Design-VI
3	Credits	12
4	Contact Hours (L-T-P)	2-2-6
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • The aim of the studio is to introduce students to High Density Development, Preferably High Density Housing • Exploring and designing systems involving complex services for different requirements • To develop sensitivity to building for large crowds • To develop sensitivity to building by laws.
6	Course Outcomes	CO1: students should develop skills of drawing and representation CO2: to assimilate learning of graphics, construction, structures and computers to apply to basic design. CO3: Explore creative processes and idea generation and demonstrate critical evaluation of these processes in their projects. CO4: Appraise how design can impact, interact with, and improve environments. CO5: Understand spaces with three-dimensional visualization through the use of block models and appropriate softwares.
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. Project : 250- 600 Dwelling Unit		
	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		
	Mode of examination	Jury		
	Weightage	CA	MTE	ETE
	Distribution	50%	0%	50%
	Text book/s*	-		
	Other References			

ARK 406: LANDSCAPE ARCHITECTURE

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch: Architecture		Semester: 7
1	Course Code	ARK 406
2	Course Title	LANDSCAPE ARCHITECTURE
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> • Describe role and scope of landscape architecture. • Differentiate between garden styles in landscape architecture and its evolution through history. • Demonstrate the methods of representations in landscape architecture designs • 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.
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, Understanding its relationship with earth, water, fire, air, ether/space. Factors affecting landscape design like Climatic/Natural conditions - (soil, water, landforms, vegetation, temperature humidity, rainfall), Scale, Material, Cost, Time.
	B	Elements of Landscape Design - Natural elements (Landform, water, plantscape, microclimate), Design elements (man-made water bodies, landscape furniture, lighting, hardscape and softscape)

	C	Principles of Landscape Design - Unity, Symmetry, Balance, Hierarchy, Repetition, Sequence with suitable examples.		
	Unit 2	GRAPHICAL REPRESENTATION		
	A	Landscape Graphics Techniques on making handmade landscape drawings trees of varied textures, landforms, buildings, paving, foliage patterns, to contrast, & balance, rock & water and other landscape features.		
	B	Conventional symbols in landscape presentations.		
	C	Contours, Grading and slopes		
	Unit 3	HISTORY		
	A	Evolution Of Landscape Architecture Evolution of landscape from pre- histo to present day (history of landscape through civilizations).		
	B	Major Garden styles - Hindu, Buddhist, Mughal, Japanese, Italian, Renaissance, their Design and Philosophy in brief.		
	C	Services related to landscape-plumbing, electrical, sewage, water supply		
	Unit 4	PLANT SELECTION		
	A	Planting Design Classification of Plants - Trees, shrubs, groundcovers, flowering plants.		
	B	Selection criteria of plants on the basis of visual, functional, micro climate and ecological aspects.		
	C	Understanding and identification of species		
	Unit 5	DRAWINGS		
	A	Landscape Design Inventory, Site analysis and Site planning.		
	B	Conceptual design, Design development and proposals.		
	C	Landscape constructional details paving, curbs, retaining wall, fountain, decl terrace gardens etc		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	<ul style="list-style-type: none"> • Design With Nature - <i>Ian L. McHarg</i> • Landscape Architectural Graphic Standards - <i>Leonard J. Hopper</i> • The Planting Design Handbook- <i>by Nick Robinson</i> • Landscape Graphics - <i>Grant Reid</i> • <i>Trees of Delhi</i> by <i>Pradip Krishen</i> 		
	Other References			

ARK 402 – Construction Material & Methods-VI

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 7
1	Course Code	ARK 402
2	Course Title	ACS-VII (Architectural Construction Studio-VII)
3	Credits	4
4	Contact Hours (L-P-S)	2 - 4
	Course Status	Compulsory
5	Course Objective	<ol style="list-style-type: none"> 1. The construction studio is taught in conjunction with design studio. 2. The study is designed to work as a support to main design studio. 3. The students are introduced to various properties and use of composite materials. 4. The structural properties of the composite materials are taught to the students. 5. The students are exposed to the use of these materials in building.
6	Course Outcomes	<p>The students will be able to:</p> <p>CO1: Understand and comprehend the property and quality of composite building materials & other new materials.</p> <p>CO2: Illustrate the construction methods of composite materials and there use in construction.</p> <p>CO3: Learn construction details of Partitions, Furniture, Wall Cladding systems, Glass Walls, Floors & Pre-Fabricated systems.</p>
7	Course Description	<p>The Construction Studio is designed to study the Partitions, Panelling, Partitions for Large span Structures, Construction details of fixed and allied furniture for residence and offices. Various types of wall Cladding dry & wet, Glass Walls, Aluminium composite Panels (ACP), Flooring Materials and False Ceiling for residence & office. The students will also study the pre-fabricated construction systems. The students will be encouraged to conduct market research and survey of the above mentioned materials and the applications of other new materials in design and construction.</p>
8	Outline syllabus	
	Unit 1	Partitions and Panelling
	A	Construction Details of Partitions in Timber, Timber Products (Ply, block boards, Fibre and Practical Boards) wood, glass, glass bricks, Partition Systems for large span structures.
	B	Construction details of partitioning systems in the above mentioned

		materials.		
	C	Construction details of Metal Partitions.		
	Unit 2	False Ceiling and Furniture Details		
	A	Introduction to various types of false ceiling and their materials.		
	B	Introduction to Gypsum Products – Gypsum Board suspended ceiling (Board and Tiles). Plaster of Paris cast in situ ceiling. Construction details of different false ceiling.		
	C	Construction details of fixed furniture for office and residence such as cupboards, cabinets, counters, showcase /display window and construction details of interiors.		
	Unit 3	Walls 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 4	Curtain walling/ structural glazing		
	A	Curtain walling- Conventional Stick System, Semi unitized system, Unitized system, etc		
	B	Glass walls with patch fittings.		
	C	Various glazing systems such as Bolted Glazing, Fin Supported Glazing, Cable Stay Glazing.		
	Unit 5	Pre- Fabricated Construction of Buildings		
	A	Origin of Pre Fabrication, its needs and Development.		
	B	Types of Pre Fabrication Construction Systems used in buildings. Post & Pre Stressed Fabrication construction.		
	C	Live and / or Literature survey of pre fabrication construction system of a selected building and analysing the same.		
	Mode of examination	Jury		
	Weightage Distribution	CA	MTE	ETE
		50%	0%	50%
	Text book/s*			
	Other References			

ARK 405: BUILDING MATERIALS V- COMPOSITE & NEW MATERIALS

School: SUSAP		Batch : 2018-23
Program:B. Arch		Current Academic Year: 2018-2019
Branch:		Semester: 7
1	Course Code	ARK 405
2	Course Title	Building materials IV- Composite and New materials
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<p>To understand the properties of Composites and New Materials as building materials</p> <p>To learn about other support materials are used in Composites and New Materials Construction</p> <p>To understand how and where Composites and New Materials are produced.</p>
6	Course Outcomes	<p>CO1: To introduce the composite material and their evolution of hisory to the students</p> <p>CO2: To present an understanding of the need generation, scope and extent of composite materials in different fields/industry.</p> <p>CO3: To illustrate the factors, possible reasons for them to have an edge over other conventional materials in construction industry.</p> <p>CO4: To Describe the merits and demerits of various composite materials. To study different derivatives and their application.</p> <p>CO5: Students will be able to analyse these materials, market research, prepare a compariive analysis.</p> <p>CO6: To evaluate these wide range of materials and interpret their future and advancement with the advent of technology.</p>
7	Course Description	In Conjunction with Design & Construction, the studio looks at composite & New Materials and examines their properties as basic building materials. It also involves the study of some other constituents of construction systems etc. Students are also expected to carry out studies of these building materials.
8	Outline syllabus	
	Unit 1	Definition and Introduction
	A	Definition and understanding the field of a Composite Material.
	B	Need of composite materials in various industries. Their history of evolution and development.

	C	Constituents and types of different composite materials, factors affecting composite materials		
	Unit 2	Reinforcement: Materials and Forms		
	A	Functions of a reinforcing agent		
	B	Functions of a matrix material		
	C	Types of fibres used in composite materials		
	Unit 3	Matrix Materials		
	A	Matrix Material used in Composites		
	B	Different forms of composites		
	C	Factors that affect the composite properties		
	Unit 4	Application of Composite Material		
	A	Advantages of the composite materials and their usability		
	B	Disadvantages or challenges of composite materials		
	C	Applications of the composite materials		
	Unit 5	Composite Material In Building Construction – Types, Availability, processing & usability, advantages & disadvantages		
	A	Different derivatives of Engineered Wood		
	B	Glass Fibre Reinforced Concrete & Fibre Glass		
	C	Sandwich panel category Aluminium Composite Panels & Steel Fibre Reinforced Concrete		
	Mode of examination	Theory/Jury		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	Introduction to Composite Materials, Volume 1, Hong T. Hahn, Stephen W. Tsai Composite Materials, Science and Engineering, Chawla, Krishan K.		
	Other References			

ARK 414- BUILDING SERVICES III: ACOUSTICS & LIGHTING

School: SUSAP		Batch : 2018-23
Program: B.Arch		Current Academic Year: 2018-19
Branch:Architecture		Semester: 7
1	Course Code	ARK 414
2	Course Title	Building Services III: Acoustics & Lighting
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Theory Exam
5	Course Objective	<ul style="list-style-type: none"> • Understanding the advanced service requirements of buildings- Acoustics and lighting • To teach the schematic layout for Acoustics • To teach the importance and emphasis on lighting in buildings.
6	Course Outcomes	<p>CO1: Introduce Acoustics and Lighting as a phenomenon, its need and scientific facts related to them.</p> <p>CO2: Discuss the various methods to measure sound and light; and its behaviour.</p> <p>CO3: Interpret & discuss the factors of sound and light transmission.</p> <p>CO4: Analyze the importance and relevance of Acoustics and Lighting in Architecture.</p>

7	Course Description	This class will outline the requirements of advanced Building Services and their application to buildings. The main thrust of the module is to familiarize the students with advanced building services that are necessary in a large-scale building.
8	Outline syllabus	
	Unit 1	Introduction of the subject - Acoustics
		a) Need of this special service. b) Inter space noise c) Science of sound, Control and acoustical solutions (ABC)
	Unit 2	Measurement of Sound
		a) Cycles/sec, Decibels (dB), Effects & behaviour of sound b) Reverberation, Sound waves, Squeeze, Flanking, calculation c) Reverberation time
	Unit 3	Sound transmission
		a) Class (STC) , Ceiling Attenuation, Class (CAC) b) Transmission Loss (TC), Impact Isolation Class (IIC) c) Noise Reduction, Co- efficient etc.
	Unit 4	Introduction of the subject - Lighting in Architecture
		a) Introduction - What is Light, Measurement of light such as Luminous Intensity, Luminous Flux, Solid angle or Steradian & Illumination units. b) Light Absorption, Reflection and Transmission c) Theory of colour, Laws of Light -Reflection. Need of various, Types of lighting in Architecture

	Unit 5	Special Lectures from experts and site visits		
		a) Special talk by an expert on Acoustics, followed with site visit. b) Special talk by an expert on Lighting, followed by site visit. c) Class assignments and tests for C.A.		
	Mode of examination	Theory Exam		
	Weightage Distribution	CA	MTE	ETE
		30 %	20%	50%
	Text book/s*	<ul style="list-style-type: none"> • Fundamentals of Acoustics, Lawrence E. Kinsler, Austin R. Frey, Alan B. Coppins and James V. Sanders • Architectural Acoustics, Marshall Long 		
	Other References			

ARK 433 – Theory of Urban Design

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch:		Semester:7
1	Course Code	ARK 433
2	Course Title	Theory of Urban Design
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	<ul style="list-style-type: none"> To understand the basic elements, principles and techniques of urban design. To understand the broader aspects and issues that bear upon the conception and built environment and public spaces at urban level.. To familiarise students with socio-economic issues and historical aspects of cities.
6	Course Outcomes	CO1: Demonstrate Knowledge of Urban Design Theories CO2: Demonstrate knowledge of ideas of shaping the cities CO3: Demonstrate broad knowledge of the interdisciplinary character of Urban Design, Architecture and Planning.
7	Course Description	The course aims to familiarise the students with the concept urban design and its importance and relevance in the present day Context.
8	Outline syllabus	
	Unit 1	Introduction to Urban Design
		a. Relationship between Urban Design, Architecture & Urban Planning b. Elements of Urban Design c. Urban morphology, urban form, urban design principles.
	Unit 2	Form, Space and Monumentality
		a. Design of the cities- Early 17 th century to 21 st century b. Historical cities c. Socio economic issues in the city- Planet of Slums
	Unit 3	Industrialisation
		a. The Industrial Revolution b. Zoning/ Land Use and their problems d. Utopians ideal cities
	Unit 4	Urban Design and Sustainability
		a. Sustainability concept; Relationship of urban design with

		economic, environmental and social sustainability b. Urban renewal and urban sprawl c. Concepts of Transit Oriented Development, Compact City, Healthy City and Walkable City;		
	Unit 5	Urban Design Implementation		
		a. Urban design and its control; Institutional arrangements for design and planning, their roles, powers and limitations b. Types of planning instruments, structure plans, master plans and local area plans and zoning guidelines c. Design communication and role of public participation;		
	Mode of examination	Theory		
	Weightage	CA	MTE	ETE
	Distribution	30%	20%	50%
	Text book/s*	Image of the city, by Kevin Lynch 1980 Planet of Slums, by Mike Davis Concept of urban design, By Gosling D & Mattes, 1985 Design of cities, By Edmund Bacon		
	Other References			

ARK 409: ARCHITECTURAL STRUCTURES V

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch:		Semester:7
1	Course Code	ARK 409
2	Course Title	ARCHITECTURAL STRUCTURES V
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Compulsory
5	Course Objective	To impart knowledge about the necessity and techniques prefabricated building components
6	Course Outcomes	CO1: To understand the design elements of Reinforced Cement Concrete CO2: Steel structures along with soil mechanics CO3: foundation engineering
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	Design of Column
		1a. Detail of axially loaded short and long columns by working stress and the limit state methods Elements of Urban Design 1b. Detail of eccentrically loaded short and long columns by working stress and the limit state methods. 1c. Design for direct and uni-axial bending, use of design aids.
	Unit 2	Foundation Design
		2a. Soil mechanics (characteristics, bearing capacity, lateral pressure due to soil and underground water, soil investigation report and safe bearing capacity of soil). 2b. Types of foundation system and relation with SBC (Spread footing, Strap footing, Combined footings, Raft foundation and Pile foundation, simple isolated footing). 2C. Retaining walls.
	Unit 3	Types of R.C.C. framed structure classification
		3a. Framed structure for low rise buildings. 3b. Framed structure for high rise buildings. 3c. Behaviour of structure under wind load and seismic load.

	Unit 4	Types of joints and water proofing systems		
		4a. Construction joints in R.C.C. framed building. 4b. Expansion joints in R.C.C. framed building. 4c. Various types of water proofing systems		
	Unit 5	Types of Slabs		
		5a. Coffered slab 5b. Shells & Folded Plates 5c. Pre stressed beams/slabs		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	<ul style="list-style-type: none"> Ramamurtham.S and Narayan.R Reinforced Concrete Structures, Dhanpat Rai Publications, New Delhi 1997 Bryan Stafford and Alex Coull, Tall Building Structures, Analysis and Design John Wiley & Sons, New York 1991. 		
	Other References			

ARK 430: COMPUTER SKILLS: ADVANCED 3D VISUAL REPRESENTATION

School: SUSAP		Batch : 2018-23
Program: B. Arch		Current Academic Year: 2018-19
Branch:		Semester:7
1	Course Code	ARK 430
2	Course Title	COMPUTER SKILLS: ADVANCED 3D VISUAL REPRESENTATION
3	Credits	3
4	Contact Hours (L-P-S)	1-0-2
	Course Status	Compulsory
5	Course Objective	The idea behind this module is to enable the student to be at par in terms of construction and planning softwares. This would enable them to be at par with market needs.
6	Course Outcomes	<p>CO1.Understand a parametric building information model (“BIM” = a 3d object-oriented model of a building where each component has “intelligent” behaviours 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.</p> <p>CO2.Create CAD/BIM-based tools to solve technical issues (fabrication, energy efficiency, lighting, structural etc.) during the planning process.</p> <p>CO3: Design BIM based Project</p>
7	Course Description	<p>Introduction to Camera in motion.</p> <p>Introduction to Animation</p> <p>Introduction to Primavera & Revit</p> <p>Advantages of Revit over Autocad</p> <p>Learning various commands with suitable exercise</p> <p>Learning Strategy: Studio based collaborative learning</p>
8	Outline syllabus	
	Unit 1	Introduction to BIM and BIM tools
		Sub unit - a, b and c detailed in Instructional Plan
	Unit 2	Design development process in BIM & Tools of parametric design
		Sub unit - a, b and c detailed in Instructional Plan

	Unit 3	Building modeling using BIM tools		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 4	Scheduling and detailing with Advance BIM implementation		
		Sub unit - a, b and c detailed in Instructional Plan		
	Unit 5	Output Renders		
		Sub unit - a, b and c detailed in Instructional Plan		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	<ul style="list-style-type: none"> Ramamurtham.S and Narayan.R Reinforced Concrete Structures, Dhanpat Rai Publications, New Delhi 1997 Bryan Stafford and Alex Coull, Tall Building Structures, Analysis and Design John Wiley & Sons, New York 1991. 		
	Other References			

ARK 508: PROFESSIONAL PRACTICE

School: SUSAP		Batch : 2018-2023
Program: B.ARCH		Current Academic Year: 2018-19
Branch: -		Semester: 10
1	Course Code	ARK 508
2	Course Title	PROFESSIONAL PRACTICE
3	Credits	2
4	Contact Hours (L-P-S)	2-0-0
	Course Status	Core
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 within the Architecture profession.
7	Course Description	The idea behind this module is to understand the basic principles Town planning. The students would be exposed to the various kinds of surveys involved in planning and relevance of the same. To understand though case studies the techniques used in planning.

8	Outline syllabus	
	Unit 1	Architectural Profession Today
		<ol style="list-style-type: none"> 1. Registration under Architect Act 1972. 2. Main provision of Architects Act, AICTE Act, Architects role in society and careers in Architectural Profession, 3. Scale of professional fees, mode of payment, professional conduct and ethics.
	Unit 2	Indian Institute of Architects
		<ol style="list-style-type: none"> 1. Its role as a professional body for promotion and regulation of the Architectural profession and assisting its members 2. Role in architecture education in India 3. ARCASIA (Architects Regional Congress of Asia), Commonwealth Architects Association, UIA (Union International des Architects)
	Unit 3	Law related to the profession
		<ol style="list-style-type: none"> 1. Introduction to the Acts such as Contracts and Arbitration. 2. Environmental, Consumer Protection and Negotiable Instrument act. 3. Easement, Partnership, Income Tax, Service Tax, Professional Tax.
	Unit 4	Procedures involved in architectural profession
		<ol style="list-style-type: none"> 1. Tenders and Contracts 2. Valuation & Arbitration 3. Local body approvals
	Unit 5	Introduction to agencies related to Architectural profession

		1. Role of Architect with client 2. Role of Architect with Contractor and Project management services. 3. Role of Architect with local authorities		
	Mode of examination	Based on Internal and External Exams		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%

ARK 509 – Town Planning

School: SUSAP		Batch : 2018-23
Program: B.ARCH		Current Academic Year: 2018-19
Branch:		Semester:10
1	Course Code	ARK 509
2	Course Title	Town Planning
3	Credits	4
4	Contact Hours (L-T-P)	1-0-3
	Course Status	Compulsory
5	Course Objective	Introduction to settlement and town planning
6	Course Outcomes	CO1 To understand the planning theories. CO2 To understand the various town planning patterns CO3 To undergo various process of data collection and survey CO4 To analyse the data and plan according to the users.
7	Course Description	The idea behind this module is to understand the basic principles of Town planning. The students would be exposed to the various kinds of surveys involved in planning and relevance of the same. To understand through case studies the techniques used in planning.
8	Outline syllabus	
	Unit 1	Introduction to settlement and town planning
	A	a. Planning theories of the twentieth century
	B	b. Industrial revolution
	C	c. Garden City, Satellite town and Democratic city
	Unit 2	City Plan Patterns- Linear, Radial and Grid Iron layout patterns etc.
	A	a. Pioneers of modern town planning- Patrick Geddes, Kevin lynch, Clarence Perry, Frank Lyod Wright, Ebenezer Howard, Le Corbusier, Soria Mata
	B	b. Case studies of old planned towns and cities
	C	c. Modern city planning of New Delhi, Canberra, Brazillia, Chandigarh etc.
	Unit 3	Master Plan and DCR
	A	a. Current theories on physical planning
	B	b. Preparation of Master plans.

	C	c. Zoning and development controls		
	Unit 4	Data collection and Surveys		
	A	a. Methodology of conducting town planning surveys		
	B	b. Analysis of data collected		
	C	c. Use of GIS		
	Unit 5	Traffic Characteristics		
	A	a. Composition, speed, volume and direction of movement.		
	B	b. Urban road systems and geometry.		
	C	c. Capacity of roads and intersections		
	Mode of examination	Theory		
	Weightage Distribution	CA	MTE	ETE
		30%	20%	50%
	Text book/s*	<ul style="list-style-type: none"> • Town Planning, Hiraskar • Urban Pattern , A.B. Gallion • Town Planning Techniques, Lewis Keeble • Town Planning , Rangwala 		
	Other References			