Courses of Study in Bachelor of Architecture Programme

Courses	First Year Sem I &II	Second Year Sem III & IV	Third Year Sem V & VI	Fourth Year Sem VII & VIII	Fifth Year Sem IX & X	
PROFESSIONAL CORE COURSES (PC)	▪ Basic Design and Visual Arts – I & II ▪ Humanities ▪ Design Fundamentals in Architecture ▪ Architectural Drawing and Graphics I & II ▪ History of Architecture – I ▪ Workshop & Model making	▪ Architectural Design – I & II ▪ History of Architecture - II ▪ History of Architecture - III ▪ Site Planning ▪ Architectural Drawing & Documentation (Measured Drawing and settlement study)	▪ Architectural Design III & IV ▪ History of Architecture - IV ▪ History of Architecture - V ▪ Landscape Design ▪ Estimating, Costing & Specification Writing ▪ Working Drawing – I & II	▪ Architectural Design V & VI ▪ Human Settlement Planning ▪ Urban Design ▪ Urban & Regional Planning	Architectural Design Thesis	MOOC COURSE – ONLINE MODE
BUILDING SCIENCE AND APPLIED ENGINEERING (BS&AE)	▪ Building Construction Technology & Materials – I & II ▪ Environmental Science ▪ Theory of Structure - I ▪ Climatology	▪ Building Construction Technology & Materials – III & IV ▪ Theory of Structure – II & III ▪ Building Services – I & II ▪ Climate Responsive Architecture	▪ Building Construction Technology & Materials V & VI ▪ Theory of Structure – IV & V ▪ Building Services – III & IV	▪ Building Construction Technology & Materials VII & VIII		
PROFESSIONAL ABILITY ENHANCEMENT COMPULSORY COURSES (PAECC)	Basic Fundamentals are covered in above listed courses from First year to Third year of B.Arch.			▪ Professional Practice I & II ▪ Project Management ▪ Research in Architecture	▪ Practical Training for 16 weeks (6days per week) ▪ Seminar (Thesis Research Paper writing)	
SKILL ENHANCEMENT COURSES (SEC)	▪ Basics Computer Application ▪ Communication Skills	▪ Computer Application in Architecture ▪ Digital Graphics & Arts ▪ Building Information Modelling ▪ Foreign Language				
ELECTIVE COURSES	Basic Fundamentals are covered in above listed courses of First year of B.Arch.	**PROFESSIONAL ELECTIVE (PE)**				
		▪ Vernacular Architecture ▪ Ergonomics & Furniture Design	▪ Graphic & Product Design ▪ Architectural Conservation ▪ Architectural Journalism	▪ Disaster Mitigation & Management ▪ Transportation Planning ▪ Earthquake Resistant Structures ▪ Intelligent Buildings	▪ Smart Cities ▪ Building Economics ▪ Real estate Management ▪ Green Buildings ▪ Zero-Energy Buildings	
		OPEN ELECTIVE (OE)				
		▪ Pottery & Bidri ▪ Sketching, Painting & Calligraphy ▪ Streetscapes ▪ Dance & Music	▪ Art & Film Appreciation	▪ Industrial Architecture	▪ Geographical Information system	

- Professional Electives are specialized, advanced and supportive subjects to enhance the academic knowledge.
- Open Elective Courses approved by the Institution/University from subjects of study other than Architecture which will add value to the program.

First Year Bachelor of Architecture

Semester -I

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0101D	Basic Design & Visual Arts-I	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0102B	Building Construction Technology & Materials -I TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0103B	Building Construction Technology & Materials -I PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0104H	Humanities	H	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0105D	Design Fundamentals in Architecture	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0106B	Environmental Science	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0107D	Architectural Drawing and Graphics-I	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0108C	Communication Skill	C	0	2	50	Nil	--	Nil	50	100	2
22UAR0109D	Workshop	D	0	2	50	Nil	--	Nil	50	100	2
GS - 01	Gandhian Studies	H	2	0	20	30	01 Hrs	Nil	Nil	50	Audit
	TOTAL		12	20	645	430	--	375	100	1550	30

First Year Bachelor of Architecture

Semester -II

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0201D	Basic Design & Visual Arts-II	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0202B	Building Construction Technology & Materials -II TH	B	1	0	Nil	100	04 Hrs	--	Nil	100	1
22UAR0203B	Building Construction Technology & Materials -II PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0204D	History of Architecture -I	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0205B	Theory of Structure -I	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0206B	Climatology	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0207D	Architectural Drawing and Graphics-II	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0208N	Basics of Computer Application	N	0	2	50	Nil	-	Nil	50	100	2
22UAR0209D	Architectural Model Making	D	0	2	50	Nil	-	Nil	50	100	2
	TOTAL		10	20	625	400	--	375	100	1500	30

Second Year Bachelor of Architecture

Semester -III

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0301D	Architectural Design-I	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0302B	Building Construction Technology & Materials -III TH	B	1	0	Nil	100	04 Hrs	--	Nil	100	1
22UAR0303B	Building Construction Technology & Materials -III PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0304D	History of Architecture -II	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0305B	Theory of Structure -II	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0306B	Building Services-I	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0307N	Computer Application in Architecture	N	0	4	100	Nil	--	Nil	100	200	4
22UAR0308D	Site Planning	D	0	2	50	Nil	--	Nil	50	100	2
	Elective-I		0	2	50	Nil	--	Nil	50	100	2
22UAR0309E	A) Pottery & Bidri	E									
22UAR0310E	B) Ergonomics & Furniture Design	E									
20UAR0311E	C) Sketching, Painting & Calligraphy	E									
ENV - C	Environmental Studies	B	2	0	40	60	03 Hrs	Nil	Nil	100	Audit
	TOTAL		12	20	665	460	--	275	200	1600	30

Second Year Bachelor of Architecture

Semester -IV

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0401D	Architectural Design-II	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0402B	Building Construction Technology & Materials -IV TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0403B	Building Construction Technology & Materials -IV PR	B	0	4	75	NIl	--	75	Nil	150	4
22UAR0404D	History of Architecture -III	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0405B	Theory of Structure -III	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0406B	Building Services-II	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0407B	Architectural Drawing and Documentation	B	0	2	50	Nil	--	Nil	50	100	2
22UAR0408B	Climate Responsive Architecture	B	0	4	100	Nil	--	Nil	100	200	4
	Elective-I		0	2	50	Nil	--	Nil	50	100	2
22UAR0409E	A) Vernacular Architecture	E									
22UAR0410E	B) Sustainable Built Environment	E									
	TOTAL		10	20	625	400	--	275	200	1500	30

Third Year Bachelor of Architecture

Semester -V

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA1	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR0501D	Architectural Design-III	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0502B	Building Construction Technology & Materials -V TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0503B	Building Construction Technology & Materials -V PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0504D	History of Architecture - IV	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0505B	Theory of Structure -IV	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0506B	Building Services-III	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0507D	Working Drawing-I	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0508D	Landscape Design	D	0	2	50	Nil	--	Nil	50	100	2
	Elective-III		0	2	50	Nil	--	Nil	50	100	2
22UAR0509E	A) Graphic & Product Design	E									
22UAR0510E	B) Architectural Conservation	E									
22UAR0511E	C)Foreign Language	E									
	TOTAL		10	20	625	400	--	375	100	1500	30

Third Year Bachelor of Architecture

Semester -VI

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0601D	Architectural Design-IV	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0602B	Building Construction Technology & Materials -VI TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0603B	Building Construction Technology & Materials -VI PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0604D	History of Architecture -V	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0605B	Theory of Structure -V	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0606B	Building Services-IV	B	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0607D	Working Drawing-II	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0608D	Estimating, Costing and Specification Writing	D	0	2	Nil	100	03 Hrs	Nil	Nil	100	2
	Elective-IV		0	2	50	Nil	--	Nil	50	100	2
22UAR0609E	A) Architectural Journalism	E									
22UAR0610E	B)Art & Film Appreciation	E									
22UAR0611E	C) Digital Graphics & Arts	E									
	TOTAL		10	20	575	500	--	375	50	1500	30

Fourth Year Bachelor of Architecture

Semester -VII

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0701D	Architectural Design-V	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0702B	Building Construction Technology & Materials -VII TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0703B	Building Construction Technology & Materials -VII PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0704D	Human Settlement Planning	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0705A	Professional Practice - 1	A	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0706D	Building Byelaws & Code of Practice	A	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0707D	Interior Design	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0708D	Contemporary Architecture	D	0	2	50	Nil	--	Nil	50	100	2
	Elective-V		0	2	50	Nil	--	Nil	50	100	2
22UAR0709E	(A) Disaster Mitigation and Management	E									
22UAR0710E	(B) Industrial Architecture	E									
22UAR0711E	(C) Building Information Modelling	E									
	TOTAL		10	20	625	400	--	375	100	1500	30

Fourth Year Bachelor of Architecture

Semester -VIII

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR0801D	Architectural Design-VI	D	0	8	200	Nil	--	200	Nil	400	8
22UAR0802B	Building Construction Technology & Materials -VIII TH	B	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0803B	Building Construction Technology & Materials -VIII PR	B	0	4	75	Nil	--	75	Nil	150	4
22UAR0804D	Urban and Regional Planning	D	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0805A	Professional Practice - II	A	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0806A	Project Management	A	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0807D	Urban Design	D	0	4	100	Nil	--	100	Nil	200	4
22UAR0808A	Research in Architecture	A	0	2	50	Nil	--	Nil	50	100	2
	Elective-VI		0	2	50	Nil	--	Nil	50	100	2
22UAR0809E	A)Transportation Planning	E									
22UAR0810E	B) Earthquake Resistant Structures	E									
22UAR0811E	C) Intelligent Buildings	E									
	TOTAL		10	20	625	400	--	375	100	1500	30

Fifth Year Bachelor of Architecture

Semester -IX

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR0901A	Practical Training (16 weeks - 6 days per week - 8 hours per day)	A	0	20	Nil	Nil	--	600	400	1000	20
	TOTAL		0	20	Nil	Nil	--	600	400	1000	20

Fifth Year Bachelor of Architecture

Semester -X

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR1001D	**Architectural Design Thesis**	D	0	18	300	Nil	--	600	Nil	900	18
22UAR1002A	**Seminar** (Thesis & Research Paper Writing)	A	2	4	150	Nil	--	Nil	150	300	6
	Elective - 7 (Any One)		2	4	150	Nil	--	Nil	150	300	6
22UAR1003E	(A) Green Buildings	E									
20UAR1004E	(B) Building Economics	E									
20UAR1005E	(C) Geographical Information Systems(GIS)	E									
	TOTAL		4	26	600	Nil	--	600	300	1500	30

List of Abbreviations		
Sr. No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment
7	D	Departmental core/Professional Core
8	B	Basic course/ Building science
9	H	Humanities
10	OE	Open Electives
11	A	Professional Ability Enhancement Courses
12	N	New Skill course
13	C	Communication/ Language
14	E	Elective

Course Code	Starting Year	Graduation	Program name	Semester	Course No.	Course Type
22UAR0101D	**2022**	**UG**	**Architecture**	**1**	**1**	**Departmental Core (D)**
22UAR0406B	**2022**	**UG**	**Architecture**	**4**	**6**	**Basic Course (B)**

Guidelines for Calculating Credits Points

(i) 1 design studio/construction studio/project/thesis period/ hour = 1 credits.
(ii) 1 lecture period/ hour = 1 credit
(iii) 1 lab/workshop/ studio exercises/seminar periods/ hours = 1 credit

BACHELOR OF ARCHITECTURE

FIRST YEAR

SEMESTER I

First Year Bachelor of Architecture

Semester -I

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0101D	Basic Design & Visual Arts-I	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0102B	Building Construction Technology & Materials -I TH	BS &AE	1	0	NIL	100	04 Hrs	100	Nil	100	1
22UAR0103B	Building Construction Technology & Materials -I PR	BS &AE	0	4	75	Nil	-	75	Nil	150	4
22UAR0104H	Humanities	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0105D	Design Fundamentals in Architecture	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0106B	Environmental Science	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0107D	Architectural Drawing and Graphics-I	PC	0	4	100	Nil	--	100	Nil	200	4
22UAR0108C	Communication Skill	SEC	0	4	25	Nil	--	Nil	50	100	2
22UAR0109D	Workshop	PC	0	2	Nil	Nil	--	Nil	50	50	2
GS - 01	Gandhian Studies	H	2	0	20	30	01 Hrs	Nil	Nil	50	Audit
	TOTAL		10	20	645	430	--	375	100	1550	30

List of Abbreviations

Sr.No.	Acronym	Full form
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

First Year Bachelor of Architecture									
Semester -I									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0101D	**BASIC DESIGN & VISUAL ARTS-I**	**0**	**8**	**200**	**Nil**	**200**	**Nil**	**400**	**8**

Course Objective :

1. To make the students familiar with basics of Architectural Arts,
2. To equip students with knowledge of Visual Design and its application in Architecture, to understand the importance of visual arts and it relation with Architectural Design.
3. Exposure to different media and materials studied for visual expressions.

Course Outcome :

1. Students will be aware of basic elements of geometry & its application in design, they will have understanding of principles in nature & their application in day to day life
2. Students will be acquainted with visual grammar surrounding them.

Course Content :

Module -1 INTRODUCTION

Introduction to Basic Design, Definition, need and brief knowledge to visual Arts such as painting, sculpture and Architectural Language expressed in freehand sketching.

Module -2 ELEMENTS OF DESIGN

Basic elements of design via Point, Line, Plane, Form. Their Interrelationship. Organising a large number of identical geometric shapes to express a given theme. Working out geometric and abstract composition with such developed form to express a design.

Module – 3 COLORS

Theory of colors – Hues, values and shades in colors. Wheel of primary, secondary and Tertiary complimentary color scheme. Composition to show contras and harmony.

Module – 4 PRINCIPLES OF DESIGN

Principles of Design – Gestall Principles, Golden Ratio, Comparison of Principles with respect to nature and manmade

Module – 5 VISUAL COMPOSITION

Visual Composition – Poster paintings, Collage making with a given theme.

Module – 6 COMPOSITONS

Composition of solids and voids to evolve scriptural form to define spaces using solid cubes, pyramids, cylinders.

Transformation process of 20-30-20 considering color scheme and textural qualities.
Exercises:
1. Exercises on freehand sketching.
2. Exercises on composition of Basic Elements.
3. Sheet work to understand colour theory
4. Sheet work to showing Principles of Design.
5. Themes oriented posters, collage.
6. Sculptural models prepared in different material.
Mode of Examination
Continuous Assessment throughout the semester, End Semester Sessional Viva.
Reference Books
1. V.S. Pramar: Design Fundamental in Architecture, Somaiya Publication Pvtd. Ltd. New Delhi 1973.
2. Francis D.K.Ching: Architecture : Form, Space and Order, Van Nostrand Reinhod company.
3. John Mills : The technique of sculpturinh B.T. Batsford Ltd, New York.
4. Coldwell Peter: Pen and Ink sketching B.T. Batsford Ltd, London, 1995.
5. Francis D. K. Ching: Drawing – A creative process, Nostrand Reinhod Company, New York 1990.

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0102B 22UAR0103B	BUILDING CONSTRUCTION TECHNOLOGY & MATERIALS – I TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to:

1. Understand principles of construction, Basics building systems and simple elements of buildings and their behaviour. Along with different materials used in construction, their properties, characteristics, behaviour and their specific uses in the Building industry.
2. The course is visualized as having two essential components viz. Methods of construction, and a building workshop, which may be conducted within the college, and / or at specific venues outside.
3. The principles and practices shall be applied in the studio for meaningful working details and drawings.

Course Outcome

1. To define basic building elements –Building Envelop.
2. To recognize the various types of masonry and foundation made up of suitable materials.
3. To be aware of the properties and applications of various materials.
4. To understand the construction of openings in various types of masonry.
5. Distinguish between various types of structures.

Course Content

CONSTRUCTION

Module -1 PRIMARY ELEMENTS IN BUILDINGS

- Primary elements in buildings and their construction: Acquainting students with the terminology and the equipment's used in building construction.
- Components of a building (Building Envelop): Structural and functional components, Introduction of simple tools, plant & machinery used in construction.

Module -2 LOAD BEARING WALLS, BRICKS, STONE MASONARY, BAMBOO

- Load bearing walls type construction –Principles of construction & their properties
- Standard terms in brick, different types of bricks. Bonds in brick-work (English, Flemish, Rat Trap Bond), Brick Pillars & Piers.
- Different types of stone Masonry, the function of through stone/ Headers, Bonder stone Composite Masonry,

Compressed mud brick (Using Rammed earth, adobe blocks) etc.
• Bamboo construction- Methods of construction in bamboo and its joinery details.
Module – 3 FOUNDATION, DAMP PROOFING, WATERPROOFING
• Foundation- Simple footings in bricks. Thumb rules. Foundations for load-bearing walls. Un coursed rubble masonry in foundation and plinth. Formation of Plinth
• Damp proof course, brick steps, Isolated R.C.C.footings plinth beams etc.
• Bearing Capacity of Soil. Methods to find out the Bearing Capacity. Water proofing
• Waterproofing- cement based, chemical based, bituminous and other proprietary system
Module – 4 OPENINGS
• Openings- Study of types of arches and lintels, principles and terminology of arch construction, spanning of openings using brick and stone arches and lintels. Perforated brick walls.
MATERIALS
Module – 5 HISTORY OF BUILDING MATERIALS
• Historical evolution of building materials and construction methods.
• Understanding properties and behaviours of materials.
• Study of Basic materials of construction such as Mud, Clay, Bamboo, Sand-Bulking of sand, Aggregates, their properties, characteristics, behaviour, their specific uses in the Building industry.
Module – 6 STUDY OF BASIC MATERIALS
• Study of Basic materials of construction such as Lime, Cement & Mortar. TheIR properties, characteristics, Types, Grades, proportioning of ingredients, advantages/disadvantages& use.
Module – 7 TIMBER
• Classification of trees, characteristics of good timber, defects in timber, seasoning of timber, uses in building construction.
Module – 8 ARTIFICIAL MATERIALS.
• Study of artificial materials of construction such as- Bricks- Manufacture of Bricks, their properties.
• Principles of construction of walls in bricks, stone and hollow concrete blocks.
• Fly ash: fly ash bricks. Its uses in construction.
• Different types of stones for construction. Quarrying of stone, dressing of stone, Natural Bed, properties of stone etc.
• Cement-Different types of cements, testing of cement, storage of cement, and uses. Importance of cement in construction.
Studio Exercises
1. College shall undertake site visits of construction projects.
2. Term work shall consist of minimum one/two sheets of imperial size on each of the items above i.e. (ii), (iii), (iv).
3. Reports on site visits
4. Journal for notes on Building Materials and market survey of the different materials

Mode of Examination
Continuous Assessment throughout the semester, End semester Sessional VIVA and End Semester Theory Paper of 4 hours
Reference Books
1. *Elements of structure by Morgan*
2. *Building Materials by Rangwala*
3. *Building Materials in India (50 years)*
4. *Structure in Architecture by Salvadori*
5. *Building construction by Mckay W. B., Vol. 1 to 4*
6. *Construction of Building by Barry, Vol. I to V*
7. *Construction Technology by Chudley R. Vol. I to IV*
8. *Building Construction Illustrated – Ching Francis D.K.*
9. *Elementary Building Construction by Michell*
10. *Elements of structure by Morgan*
11. *Building Materials by Rangwala*

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0104H	HUMANITIES	3	0	50	100	Nil	Nil	150	3

Course Objective

1. To make students understand the process of evolution and development in social, economical and cultural environment of human beings.
2. To understand the ever-changing relationship between Man and his environment and its impact on Culture and Architecture.
3. To understand the important concepts of sociology and social behaviour of human beings in order to develop sensitivity as built environment designers.

Course Outcome

1. Understanding of Human development from ancient times till present days
2. Understanding of Culture and its impact on Architecture
3. Understanding of Social behaviour of Human beings and its effect on built environment.

Course Content

Module -1

- Brief history of evolution of human beings and human settlements from ancient times (Prehistoric) to present day.
- Evolution of shelter forms, tools etc.

Module -2

- Man and Society, Stages & Process of Socialization, Social Processes, Social Institutions, Social Groups, Family, Village, Community, State and Nation. Urban and Rural Communities

Module - 3

- Culture and Civilization, Cultural Lag, Material & Non-Material Culture. Outline idea of changing nature of Culture and its impact on built environment.

Module – 4

- Social stratification, Class & Caste system, Status & Role. Effects of British rule on Indian Culture and its impact on Architecture.

Module – 5

- Urbanization – causes and effects, Present Global and Indian scenario
- Effects of living in high rise buildings on Human behaviour, Urban Crimes

Studio Exercises
Suitable exercise and lectures will be delivered for all the modules
Assignments, Quiz, Tests etc will be conducted
Mode of Examination
Continuous Assessment throughout the semester and End Semester Theory Paper.
Reference Books
1. *History of Civilisation, by P.S. Joshi and M.A. Nawab.*
2. *A History of World Civilization, by J. E. Swain.*
3. *Ancient India, by V.D. Mahajan.*
4. *History of India, by Gurubaksh Singh.*
5. *Early History of India, by V. D. Mahajan.*
6. *A History of Economic Thought, by Shrivastava.*
7. *A Text Book of Sociology by Rawat*

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0105D	DESIGN FUNDAMENTALS IN ARCHITECTURE	3	0	50	100	0	0	150	3

Course Objective

1. Course is devised to introduce Architecture as a discipline to develop sensitivity towards the aesthetic and psychological experience of form and space and to make aware of how meaning is created in Architecture.

Course Outcome

1. To introduce Architecture as a discipline and to sensitize the students to the various functional aspects of architecture while looking at factors that contributes to the meaning of architecture and its visual aesthetics.
2. To introduce the students to the ordinary elements and principles of architecture to understand the vocabulary of the architectural language through the analysis of selected buildings.
3. To understand not only the organization of form and space but to understand the organizing elements in a building through the case of selected buildings.
4. To inform students how meaning is created in architecture by analysing case of buildings, architects work, architectural styles.
5. To engage students in seminars, case study, analysis, workshop etc. that will look analytically at architecture.

Course Content

Module -1 INTRODUCTION TO ARCHITECTURE AND MEANING IN ARCHITECTURE.

- Definition of architecture, context for architecture as satisfying human needs, functional, aesthetical and psychological.
- Architecture to be compared with visual and temporal arts.
- Architecture science and technology
- The work of an architect as compared to that of an artist\sculptor technologist. Total scope of architecture
- Introduction factor that lend meaning architecture – architectural expression an symbolism character and style movements philosophies , ideologies theories mining and interpretation of architecture

Module -2 ORDERING ELEMENTS AND PRINCIPLES OF ART AND ARCHITECTURE

- Point ,line , plane , form, shape , patterns , light , colour , texture ,-understanding the elements with respect to architecture .
- The concept of beauty – philosophical and psychological view. Meaning of art, principle visual perception, Form and its visual properties.
- Transformation of form, articulation of forms – mass space - solid void effect.

Module – 3 ORGANIZATIONS OF FORM AND SPACE.
• The concept of mass - mass and space. Types of spaces indoor spaces and outdoor space.
• Space in buildings. Relation between mass and space. Defining space and degree of enclosure. Organization of spaces.
Module – 4 PROPORTION SCALE APPLICATION AND ADVANTAGES
• Proportion definition application of order. golden proportion modular based on golden proportion examples from history of architecture scale and its application in architecture and advantage application of human scale and generic scale in architecture.
Module – 5 BASIC PRINCIPLES OF DESIGN.
• Their need and application in architecture - proportion, scale, balance, rhythm, axis, symmetry, hierarchy, datum, unify, harmony.
• Seven lamps in architecture, its significance.
• Principles of colour and their application and advantages in buildings.
Module – 6 HUMAN ACTIVITYS, THEIR IMPACT ON BUILT ENVIRONMENT.
• Human activities in everyday life. The impact of human activities on the built environment functional as well as aesthetical.
• Architect and the built environment. Architects responsibilities for the betterment of built environment.
• The generation activity from the built environment, example of such activities from classical history and modernist era.
Module – 7. THE IMPACT OF CLIMATE ON THE BUILT ENVIRORMENT.
• The impact of climate on the built environment in hot , hot dry , hot humid, and cold climate in the Indian context as well as in other parts of the world .Examples to be quoted from history, human comfort .
• Materials play an important role for the overall aesthesis of a built environment. Architects role in the choice of appropriate materials based on climate consideration some examples of some of iconic building by famous architects.
Module – 8. CIRCULATION AND APPROACHES- the impact of culture on architecture.
• Circulation as an organizing element, building approach, building entrance, configuration of the path, path and space relationship, form of circulation space.
• The impact of culture on the built environment, example to be quoted form west and Middle East.
• The vernacular architecture from rural India, the impact of culture on the vernacular architecture in India.
Studio Exercises
Detail study of the content of syllabus by the students with help of presentations, case studies or detail study models
Mode of Examination
Continuous Assessment during the semester and End semester Theory Exam
Reference Books

1. *Time saver standards*
2. *Neuferts data*
3. *Form , space and order by ching*
4. *Design fundamentals in architecture –V.S. Prammar*
5. *Paul alan Johnson –the theory of architecture concept an theories.*
6. *Petar van meiss – element of architecture.*

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0106B	ENVIRONMENTAL SCIENCE	3	0	50	100	Nil	Nil	150	3

Course Objective :

- To understand about a variety of environmental concerns, to create awareness about impact of human activities on environment and to create a pro-environment attitude and behavioural pattern in society to protect the environment from further degradation.

Course Outcome :

- Awareness of a wide range of environmental concerns and ability to act at their own level to protect the environment we all live in.

Course Content :

Module -1 ENVIRONMENT AND ECOLOGY

1. Concept of ecology and environment.
2. Components of environment and their interactions- Biotic and Abiotic components
3. Eco- Systems – types, characteristics, structure and functions.
4. Energy flow and food chain, food web &

Module -2 BIO DIVERSITY

1. Importance, loss and conservation of bio diversity.
2. Bio geographic zones of India.
3. List of Eco regions of India.

Module – 3 ENVIRONMENTAL ISSUES

1. Various types of pollutions; causes, effects and measures; land, water & air quality degradation.
2. Global warming, Ozone layer depletion, green-house gases, Acid rains
3. Natural resources: depletion and conservation.
4. Waste: sources, classification, impact on human health and resources, waste management

Module – 4 SOCIAL ISSUES AND ENVIRONMENT

1. Urbanization and its impact on environment.
2. Urban problems related to water and energy, Renewable energy, Rain water Harvesting. Water shade management.
3. Disasters: Natural and manmade, Disaster management and mitigation

Module – 5 INITIATIVES FOR ENVIRONMENT PROTECTION
1. Environmental Movements, Environmental Activities
2. Environmental Protection Act.
3. Environmental Impact Assessment
4. Efficient technologies for Environment protection.
Exercises:
Assignments based on all the above modules will be conducted
Illustrated Lectures, Texts, Case Studies and examples will be conducted
Mode of Examination
Continuous Assessment and End Semester Theory paper
Reference Books
1. Barucha, E., 2004. Text Book Of Environmental Studies For Undergraduate Courses. UGC Univ.Press
2. Environmental Education 9 by Beeta publications
3. Environmental Education 10 by Beeta publications
4. Joseph, Benny, 2005. Environmental Studies. Tata McGraw Hill
5. Kaushik, A. and Kaushik, C.P., 2010. Basics of Environment and Ecology. New Age Int. Publishers
6. Agarwal, K.C., 2001. Environmental Biology. Nidhi Publ. Ltd. Bikaner

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0107D	ARCHITECTURAL DRAWING AND GRAPHICS-1	0	4	100	Nil	100	Nil	200	4

Course Objective

1. To introduce and familiarize students with drafting tools and accessories and provide basic knowledge and skill to draft a drawing manually.
2. Developing drafting skills through different types of lines, their intensity and interpretation. Also understanding the scale of drawing, dimensioning, lettering techniques and layout of sheets.
3. Visualizing and drawing geometric forms in different positions using orthographic projections and which will help the student to understand and develop drawings for various design proposals.

Course Outcome

After Successfully completing the course, students will be able to :

1. Recognize and select drawing tools and techniques for drafting basic drawing.
2. Identify a type of line, intensity, thickness, text to draw a shape. .
3. Implement a scale, dimension for a layout of sheet or drawing.
4. Demonstrate a line, plane or solid into drawing using orthographic projections.
5. Integrate the 2 dimensional drawings and 3 dimension form using development of surfaces.
6. Represent interpenetration of solids through Orthographic projections.

Course Content

Module -1 INTRODUCTION

- Introduction to various drawing instruments & its uses.
- Lines, lettering , scales and dimensioning
- Architectural annotation including representation of various building materials & building components.
- Plane and Solid Geometry- Drawing of basic &-simple geometric shapes.

Module -2 ORTHOGRAPHIC PROJECTIONS

- Introduction, concept & methods.
- Orthographic Projections of Point, Line, Plane and simple solids
- Projections of simple Solids in different positions.
- Concept and methods of drawing section of simple solids by Orthographic projections.
- Orthographic projections of true shapes of sectional part of the solids.
- Introduction to intersection of simple objects in various planes.

Module – 3 DEVELOPMENT OF SURFACES
• Introduction methods and its uses
• Development of lateral surfaces of simple solids as cube, cone, pyramids and prism
• Development of truncated simple objects
Module – 4 INTERPENETRATION OF SOLIDS
• Introduction, concept & methods.
• Representing interpenetration of simple solids through Orthographic projections.
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment and Sessional Work with Viva
Reference Books
1. *N.D.Bhatt: Engineering Drawing*
2. Ching Francis D.K.: Architectural Graphics
3. Kelsey W. E.: Geometrical & Building Drawing
4. Leslie Martin: Architectural graphics
5. B. James: Essential of Drafting
6. H. Joseph and Morris: Practical plane and solid geometry
7. Gill Robert: Rendering with pen and ink
8. Burden Ernest: Architectural Delineation.
9. JaxThemier, B.W., "How to Paint and Draw", Thames and Hudson, 1985.

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0108C	COMMUNICATION SKILL	0	2	50	Nil	Nil	50	100	2

Course Objective

1. To Clarify and understand the syntax of English with various grammatical concepts
2. To read and comprehend English language along with effective listening
3. To group the skills of public speaking through various activities like Group Discussions, Presentations, Interviews ,Speeches
4. To develop formal writing skills or drafting skills in English

Course Outcome

1. To construct grammatically correct English sentences
2. Apply various reading and listening techniques to comprehend Spoken and written English Effectively
3. To perform in Group Discussion, Public Speaking and Interviews.
4. To draft Business letters, advertisement, brochures, mails and Resume formally

Course Content

Module -1 OVERVIEW OF MID-LEVEL ENGLISH GRAMMAR

Tenses and aspect, Voice, Direct indirect narration, Clauses and sentence types

Module -2 LISTENING SKILLS & READING SKILLS

Listening : Active and Passive Listening

Reading: Techniques of Reading: Skimming & Scanning,

Comprehension, Summary Paraphrasing, Analysis and Interpretation

Module – 3 SPEAKING SKILLS

Monologue, Dialogue, Public Speech

Extempore, Presentations, Interviews, Group discussions

Module – 4 WRITING SKILLS

Letter writing, Resume writing, Covering letter, Agenda, notices and circulars, Report Writing

Studio Exercises
Suitable studio exercises will be conducted for students depending on the above modules
Mode of Examination
Continuous Assessment will be done
Reference Books
1. *Ashraf Rizvi, Communication Skills for Engineers, Tata McGraw Hill*
2. *Sanjay Kumar, Pushp Lata, Communication Skills, Oxford University Press, 2016.*
3. *Meenakshi Raman, Sangeeta Sharma, Communication Skills, Oxford University Press, 2017.*
4. *Bovee Courtland,L and Thrill, John V. Business Communication, Today McGraw Hill, New York, Taxman Publication (1989).*
5. *Anderson, Kenneth. Joan Maclean and Tossny Lynch. Study Speaking: A Course in Spoken English for Academic Purposes. Cambridge: CUP, 2004.*
6. *Murphy, Raymond. Essential English Grammar, Cambridge: University Press (2000)*
7. *Written Communication in English by Saran Freeman (Orient Longman)*

First Year Bachelor of Architecture

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0109D	WORKSHOP (Carpentry & Smithy)	2	0	50	Nil	Nil	50	100	2

Course Objective

1. Exposing students to various new materials for model making and other practical works in architecture
2. To teach them use of technology, Application of tools, used metal works ,wood works
3. To make them understand suitability and safety precautions for model making Application of tools, suitability and safety precautions

Course Outcome

After successful completion of this course, student should be able to:

1. Understand actual working on fields , in workshops
2. Understand and use different materials, tools and machinery used in workshops
3. Understand the importance of more durable materials in modern model making jobs

Course Content

Module -1 CARPENTRY, CLAY, POP MODELS

- Preparation of minimum 2 utility articles each, involving the use of the various Operations. Carpentry and Clay / POP

Module -2 METALS MODELS

- Preparation of minimum 2 utility articles each, involving the use of the above Operations. Metals

Module - 3

- Visit to various workshops of 3d printing , lesser cutting

Studio Exercises

Group / Individual Assignments, models will be planned .for each material and technique

Mode of Examination

End Semester Sessional Term work.

Reference Books

Semester -I

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
GS - 01	GANDHIAN STUDIES	2	0	20	30	Nil	Nil	50	Audit

Course Objective

1. To orient the students with the basic principles of life, that may enable them to grow as a complete individual and a responsible social being, in a manner that is progressive, inclusive and sustainable.

Course Outcome

After successful completion of this course, student should be able to:

1. Understand and study life and work of Mahatma Gandhi
2. Understand principles and concepts of Mahatma Gandhi about life

Course Content

Module -1 Life and work of Gandhi (Introduction to)

- Childhood, Student life and learnings, S.A experience (socio, political and methodological), Ashram living in India; Satyagrahas in India; Constructive action, Freedom struggle ; Gandhi and his contemporary leaders, Demystify Gandhi: Dispel controversies about Gandhi and his methods

Module -2 Principles and concepts of Gandhi

- **Truth and Nonviolence** (meaning, fundamental; law of nature interrelatedness (unstamped metallic disc); empirical application; Life as the closest manifestation of the Ultimate (Truth).
- **Sarvodaya** : the concept of community (interdependence) ; Sarvodaya through antyodaya.
- **Swaraj** : Self rule; self consciousness; self realization : self through society ; poornaswaraj.
- **Swadeshi** : Neighbourhoodliness; reciprocal – bilateralism.
- **Gandhian Ethics:** Justice, equality and freedom, Rights-Duties consciousness.

Module – 3 Methods (techniques) of Gandhian Action:

- **Satyagraha** (nonviolent resistance): meaning, concept, methodology; Insistence on Life.
- **Satyagraha as a way of life**: ends and means; harmonizing word-thought-deed.
- **Appropriate tech:** Optimization; small is beautiful: concentric circular arrangement; learning by doing.
- **Constructive intervention**: building neighborhood constructively; self-social responsibility, accountability; Khadi a case study for sustainable economics.
- **Gandhian Communication:** Journalist Gandhi and communication.

Studio Exercises

Group / Individual Assignments, Interaction with practitioners, Nonviolence Workshop, Workshop on Conflict Transformation (Satyagraha) or Peace (Welfare of All), Practice of Nonviolence and Truth in day to day life, One Constructive Action, One insistence on truth

Mode of Examination
Continuous Assessment throughout the semester and End Semester Theory Paper.
Reference Books
• M. K Gandhi, The Story of My Experiments with Truth, Navjivan Publishing House, Ahmedabad
• Louis Fischer, Mahatma Gandhi His Life and Times, BharatiyaVidya Bhavan, Mumbai
• M K Gandhi, The Hind Swaraj, Navjivan Publishing House, Ahmedabad
• R K Prabhu and U R Rao (Eds), The Mind of Mahatma, Navjivan Mudralaya, Ahmedabad

BACHELOR OF ARCHITECTURE

FIRST YEAR

SEMESTER II

First Year Bachelor of Architecture

Semester -II

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0201D	Basic Design & Visual Arts-II	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0202B	Building Construction Technology & Materials -II TH	BS &AE	1	0	Nil	100	04 Hrs	-	Nil	100	1
22UAR0203B	Building Construction Technology & Materials -II PR	BS &AE	0	4	75	Nil	--	75	Nil	150	4
22UAR0204D	History of Architecture -I	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0205B	Theory of Structure -I	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0206B	Climatology	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0207D	Architectural Drawing and Graphics-II	PC	0	4	100	Nil	--	100	Nil	200	4
22UAR0208N	Basics of Computer Application	SEC	0	2	50	Nil	--	Nil	50	100	2
22UAR0209D	Architectural Model Making	PC	0	2	50	Nil	--	Nil	50	100	2
	TOTAL		10	20	625	400	--	375	100	1500	30

List of Abbreviations

Sr.No.	Acronym	Full form
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to mid of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0201D	BASIC DESIGN & VISUAL ARTS II	0	8	200	Nil	200	Nil	400	8

Course Objective :

1. To familiarize the students with visual grammar methods of visual composition in various medium and to develop skills in manual presentation techniques.
2. To understand these techniques, that act as catalyst between basic design and architectural design.
3. To develop drafting skills through different types of Lines, their intensity and interpretation. Also, understanding the scale of drawing, dimensioning, lettering technique and layout of sheets.
4. To provide basic knowledge and skills to draft a manual drawing.

Course Outcome :

1. Recognizing and selecting drawing tools and technique for drafting basic drawing.
2. Identifying type of the line, intensity, nature and text.
3. Applying colours in architectural drawings.
4. Knowing the visual grammar and application of Principles in design.

Course Content :

Module -1

Rendering techniques in different media like pencil, charcoal, ink, pastels, water and poster colours.

Module -2

Technique of handling soft and hard material in order to develop aesthetic sense

Module – 3

Technique Study of Anthropometry, human posters and space, types of spaces, scale and proportion of spaces.

Module – 4

Study of single activity viz. Living room, bedroom, kitchen, daily needs shop, bus stop, laundry, etc.

Module – 5

Design process using various methods like matrix, concept mapping, geometry of space and pre-design.

Module – 6

Importance of concept in Architectural Design, positive-negative space, effect of quality of space with degree of enclosure.
Exercises:
1. Exercises on rendering techniques, colouring, etc.
2. Working out models using different materials.
3. Drawing sheets of Anthropometry,
4. Drafting and presentation of different types of spaces.
5. Presentation of concept sheets, pre-design sheets.
Mode of Examination:
Continuous Assessment in the semester and End Semester Sessional Viva
Reference Books:
1. Time saver standards for building types, McGraw Hills Professional 2001
2. Time saver standards for Interior Design and space planning, McGraw Hill Professional 2001
3. Neufert's Architects data, Blackwell 2002
4. Architectural Graphic standards, Wiley 2000
5. Francis D. K. Ching: Drawing – A creative process, Nostrand Reinhod company, New York 1990.
6. John Mills: The technique of sculpturing B.T. Batsford, London, 1995.

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0202B 22UAR0203B	BUILDING CONSTRUCTION TECHNOLOGY & MATERIALS – II TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to:

1. Understand materials used in construction, principles of construction using natural timber, plywood etc.
2. Building systems and simple elements of buildings and their behaviour and Study of Standard Construction practices adopted.

Course Outcome

1. To understand method of construction using natural timber.
2. To recognize the various types of construction of Door & Windows in timber.
3. To understand the construction of different types of timber roofs.
4. To understand the design and terminologies of various types of timber staircase.

Course Content

CONSTRUCTION

Module -1 TIMBER DOORS

- Classification of doors; flush doors, Panelled doors and louvered doors.
- Joinery details of rail and panels, rails and styles.
- Fixtures and Fastenings.

Module -2 TIMBER WINDOWS

- Timber windows; Casement window, French window, Ventilators.
- Joinery details of glass and style, Glass and Timber ventilator.

Module – 3 CONSTRUCTION OF ROOFS- Simple roofs & trusses in wood

- Lean-to roof, Collar roof, Couple roof, close couple roof.
- All joinery details and terminologies.
- Different roofing materials used, their characteristics-properties and fixing details.

Module – 4 STAIRCASE

- **Timber Staircase**- Terms defined, tread riser, stringer, nosing, flights, landing, headroom, hand rail- balusters, newel post etc.
- Types of stairs: straight flight, dog legged, open well, geometrical, circular, spiral, bifurcated, basic knowledge of R.C.C. stairs.

MATERIALS

Module – 5 PLASTERING & POINTING

- Different types and methods of Plastering and Pointing.
- Plastering on Old & New brick work, Different types of pointing's. Method of construction and its uses.

Module – 6 FLOOR FINISHES.

- Floor Finishes - Introduction to basic and contemporary flooring -Brick, Stone, Concrete, and Timber. Various artificial tiles. Indian Patent Stone and external paving. Factory flooring finishes.
- Method of construction, its uses in context

Module – 7 ROOFING MATERIALS

- Detail study of different types of roofing materials - Thatch, Shingles, Mangalore Tiles, Pan Tiles, Slates, Half round country tiles, etc.

Module – 8 PAINTS

- Paints-Base, Vehicles, Distemper's, Enamels, white washing, colour washing, water washing, punning etc.

Studio Exercises

1. College shall undertake site visits of construction projects.
2. Term work shall consist of minimum one/two sheets of imperial size on each of the items above i.e. (ii), (iii), (iv).
3. . Reports on site visits
4. Journal for notes on Building Materials and market survey of the different materials

Mode of Examination

Continuous Assessment throughout the semester, End semester Sessional VIVA and End Semester Theory Paper of 4 hours

Reference Books

1. *Elements of structure by Morgan*
2. *Building Materials by Rangwala*
3. *Building Materials in India (50 years)*
4. *Structure in Architecture by Salvadori*
5. *Building construction by Mckay W. B., Vol. 1 to 4*
6. *Construction of Building by Barry, Vol. I to V*
7. *Construction Technology by Chudley R. Vol. I to IV*
8. *Building Construction Illustrated – Ching Francis D.K.*

9. Elementary Building Construction by Michell
10. Elements of structure by Morgan
11. Building Materials by Rangwala

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0204D	HISTORY OF ARCHITECTURE - I	3	0	50	100	Nil	Nil	150	3

Course Objective

After successful completion of this course, student should be able :

- To study and to understand the process of evolution and Development in social, economical and cultural environment of man.
- To introduce students to the historical architectural events of various civilization till 0C.E. across the world.
- To gain knowledge of the development of the architectural forms with reference to material, technology, style and character in the pre-historic world, ancient west Asia, Greece and Rome.

Course Outcome

- To recognize significance of architectural forms through time in relation to culture
- Describe important historic monumental buildings
- Analyse the contributing factors for the development of different design styles
- Identifying contemporary buildings in the historic architectural styles

Course Content

Module -1 PRE- HISTORIC AGE –

- Introducing concepts of culture and civilization – Paleolithic, Neolithic, Mesolithic, Neanderthal culture
- Hunter gatherer shelter and settled farming
- Settlement locations – River Banks, valleys, fertile soil
- Evolution of shelter and Art forms showing the relationship between Man, nature and Society

Module -2 - RIVER BANK CIVILIZATION -

- Mesopotamia urbanization in the crescent
- Urbanization in the fertile crescent – Sumerian , Babylonian, Assyrian, and Persian culture
- Evolution of City states and their character
- Evolution of the ziggurat – palaces.
- Ziggurat of Urnammu – Palace of Sargon, Khorsabad.- Palace at Persepolis.

Module – 3 - RIVER VALLEY CIVILIZATION

- Landscape and culture of ancient Egypt.
- Religion and Rituals, Beliefs and practices and its impact on Architecture

- Evolution of the pyramid, Tomb structures, types of Temples
- Concluding into Monumentality - Great pyramid of Cheops, Gizeh, Temple of Ammon Ra, Karnak- Temple of Abu Simbel(rock-Cut)

Module – 4 - YELLOW VALLEY CIVILIZATION

- China, Chinese culture and Social system.
- Meso America (Mexican)

Module – 5 - CLASSIC CIVILIZATION PERIOD

- Greek – Culture and landscape of Greece
- Minoan and Mycenaean cultures – Hellenic and Hellenistic cultures
- Greek character and orders
- Greek democracy and Greek city planning
- Classic Periods – Domestic and Public buildings
- E.g. Agora, Stoa, Theatres, temples, Optical illusions

Module – 6 - CLASSIC CIVILIZATION PERIOD

- Roman – republic and Empire
- Roman Life style, religion and Social system
- Roman urban Planning – Art and Architecture as imperial propaganda
- Architectural characters and orders
- Introduction to structural system and materials.
- Domestic and Public building types – E.g. Forum, Theatre, Thermae, Temples, Circus and Aqueducts

Studio Exercises

Suitable exercises on all the Modules mentioned above

Mode of Examination

Continuous Assessment & End SemesterTheory Exam will be conducted.

Reference Books

1. *Sir Banister Fleture : History of Architecture : University of London.*
2. *Spiro Kostof – History of Architecture - Setting and Rituals – Oxford Press*
3. *Leland Emroth – Understanding Architecture - Its Elements ,Meaning.*

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0205B	THEORY OF STRUCTURES I	3	0	50	100	Nil	Nil	150	3

Course Objective

1. The aim of this course is to help the student to attain the following industry identified competency through various teaching learning experiences:
2. Use principles of applied mechanics to solve broad-based engineering related problems.

Course Outcome

1. Knowledge of technical terminology related to the field.
2. Determine the centroid of geometrical plane figures and centre of gravity of the given simple solid.
3. Calculate centroid and M.I of the given composite plane lamina and solids
4. Study of supports and loads for the structure analysis.

Course Content

Module -1 GLOSSARY OF TECHNICAL TERMINOLOGY

- Glossary of technical terminology used related to components of building. Types of engineering materials used for construction
- Functions of structures. Primary and secondary forces acting on structures. Gravitational force, Live load, Wind load. Effect of temperature variations.

Module -2 INTRODUCTIONS TO PRIMARY ELEMENTS OF STRUCTURE

- Supports and Loads
- Supports, Definition, Reactions offered by Simple, Fixed, Hinged and Roller Support.
- Beams classified as Simply Supported, Cantilever, Over Hanging, Propped Cantilever, Fixed and Continuous.
- Loads Classified as U.D.L, Point Load & Varying Load. Loads Classified as Dead, Live, Wind, Snow, Seismic. Introduction to Densities of Material and Calculation of Dead loads on a Beam from slab, Brick work above to act as U.D.L and from a abutting beam as a Point Load
- Support Reactions. For Simply Supported Beams and Cantilevered Beams only. Loading limited to Point Loads and U.D.L only
- Factor of safety and factors affecting it. Characteristics of structures – strength, stiffness and stability.

Module – 3 CENTRE OF GRAVITY

- Definition of Centre of Gravity and Centroid. C.G of Regular Shapes. Computing of C.G of complex Shapes limited to Standard Steel Sections like C, T, L, I and Compound Sections

Module – 4 MOMENT OF INERTIA

- Definition of Moment of Inertia and M.I of Standard Shapes. Parallel Axis Theorem, Perpendicular Axis Theorem, Radius of Gyration. Computing M.I of Complex Shapes Limited to C,T.L,I and Compound Sections using these Shapes

Studio Exercises

Detail study of the content of syllabus by the students with help of presentations, case studies or detail study models

Mode of Examination

Continuous Assessment during the semester and End semester Theory Exam

Reference Books

1. *Applied Mechanics by Khurmi, R.S.*
2. *Engineering Mechanics- Statics, Vol. I by Ram, H. D.; Chauhan, A. K.*
3. *Engineering Mechanics by Ramamrutham, S.*
4. *Foundations and Applications of Applied Mechanics by Meriam, J. L.; Kraige, L.G.*

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0206B	CLIMATOLOGY	3	0	50	100	Nil	Nil	150	3

Course Objective :

- To impart knowledge of climatic elements, their influence on building design and how architecture responds to them architecture in order to develop bioclimatic design in buildings.

Course Outcome :

- Students will be able to interpret climatic data for design, understanding sun path diagrams, shadow angles, daylight factors.
- Students will have basic understanding of climate types in India and the impact on requirements of building design and site planning.
- Students will be able to use climate consultant- software for climatic data collection.

Course Content :

Module -1 CLIMATE, WEATHER & ITS ELEMENTS.

5. Meaning of the term Climate and Weather, Scales of climate - macro-climate, meso-climate and micro climate.
6. Elements of climate: Temperature, Humidity, Vapour Pressure, Precipitation., Driving Rains, Sky Conditions, Solar Radiations, Wind, Vegetation, Special Characteristics.
7. Impact of topography on climate.
8. Introduction of Climate Consultant – a tool for climate data collection.

Module -2 EARTH SUN RELATIONSHIP

4. Apparent movement of sun, earth's tilt of rotational axis & understanding why we have seasons; solar radiation and intensity on surfaces in different latitude(cosine law), global insolation, the impact of solar movement on the climate.
5. Sun path diagram and solar chart.

Module – 3 DAYLIGHTING

5. Principles of daylighting, Impact of fenestration on day lighting, introduction to lighting level required in different spaces. Understanding glare and its impact. daylight quality(illuminance, distribution direction, glare)
6. Sky as a source of light, daylight quality and daylight factor.
7. Shading devices and their types, effect of different types of fenestrations, their size, shape.
8. Bioclimatic Design standards; Building byelaws related to day-lighting
9. Passive Strategies for daylighting.

Module – 4 CLIMATES IN INDIA

1. Global climate classification, Climate zones of India, their impact, characteristics and area of influence.
2. Introduction to passive design strategies in building design to ensure comfortable living conditions in every type of climate in India. Including passive cooling and heating techniques and their guiding principles.
3. Case studies of a building in each of the climate zones.

Exercises:

Assignments based on all the above modules will be conducted

Illustrated Lectures, Texts, Case Studies and examples will be conducted

Mode of Examination

Continuous Assessment and End Semester Theory Paper

Reference Books

1. *Koenisberger, O.H., Ingersoll, T.G., Mayhew A., and Szokolay, S.V, "Manual of Tropical Housing and Building- Part I: Climatic Design", Orient Longman.*
2. *Crichfield Howard J., "General Climatology", Phi Learning, 1998.*
3. *Bansal, N.K., Hauser, G. and Minke G., "Passive Building Design: A Handbook of Natural Climate Control", Elsevier Science.*
4. *Man, Climate And Architecture, Applied Science, Banking Essex by B. Givoni*
5. *Givoni, B., Man Climate and Architecture.*
6. *Krishan, A., Climate Responsive Architecture.*
7. *Olgyay & Olgyay, Design with Climate,*
8. *Lam, W., Sunlighting as Formgiver for Architecture. Van Nostrand Reinhold Company*
9. *Baker, N. & Steemers, K., Daylight Design of Buildings.*

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0207D	ARCHITECTURAL DRAWING AND GRAPHICS - II	0	4	100	Nil	100	Nil	200	4

Course Objective

1. Students will be introduced to a variety of tools and techniques for visual expression with emphasis on manual drawing.
2. To develop essential manual skills such as proficiency in drawing, largely used as primary mode of communication of ideas in architectural design.

Course Outcome

After successfully completing the course, students will be able to :

1. Recognize the need to combine the use of manual drawing tools and techniques for drafting and freehand drawing for architectural design communication.
2. Apply the projected drawing method of exterior and interior perspective.
3. Construct one, two, three and multiple point perspective drawings from floor plans and elevations.
4. Produce by Drawing/sketching 3- Dimensional Architectural drawings using and freehand techniques.
5. Demonstrate an understanding of furniture, people and accessories in one two, Three and Multiple point projected perspective drawing.
6. Construct conceptual and presentation drawings as a design presentation tool for various purposes.

Course Content

Module -ISOMETRIC, AXONOMETRIC & OBLIQUE VIEWS

- Metric Projections in 3D from 2D--Introduction, concept & methods.
- Isometric, Axonometric and Oblique projections/views (3D) of various three dimensional geometrical object forms from Orthographic projection Drawing (2D)
- Isometric, Axonometric and Oblique projections/views (3D) of various three dimensional Furniture units/Building Elements from Orthographic projection Drawing (2D)

Module -2 PRESPECTIVE DRAWING

- Basics of Perspective Drawing , Methods of drawing Perspective
- Anatomy of perspective: Station point, Eye level, Cone of vision, Picture plane, Height line, Ground line, Vanishing points, centre line of vision.etc.
- Types of perspectives: One point, two point, Three point and Multiple point perspectives.
- Introduction to concept of bird's eye view, worm's eye view etc.
- One, Two, Three and Multiple point perspectives of simple objects/composition of objects.

- Interior & Exterior perspective view of a building

Module – 3 BASICS OF SCIOGRAPHY

- Principles of Sciography (shades& shadows) simple solid objects and composition of solids in 2 dimension.
- Sciography of architectural elements & building in 2- dimension.

Module – 4 RENDERING TECHNIQUES

- Introduction to various mediums.
- Rendering with various medium such as Pen & Ink, Water colour, Poster colour , Pencil colour etc.

Studio Exercises

Suitable exercises on all the Modules mentioned above

Mode of Examination

END SEMESTER SESSIONAL WORK WITH VIVA will be conducted

Reference Books

1. *N.D.Bhatt: Engineering Drawing*
2. *Ching Francis D.K.: Architectural Graphics*
3. *Kelsey W. E.: Geometrical & Building Drawing*
4. *Leslie Martin: Architectural graphics*
5. *B. James: Essential of Drafting*
6. *H. Joseph and Morris: Practical plane and solid geometry*
7. *Gill Robert: Rendering with pen and ink*
8. *Burden Ernest: Architectural Delineation.*
9. *Perspective and Sciography by Shankar Mulik.*
10. *JaxThemier, B.W., "How to Paint and Draw", Thames and Hudson, 1985.*

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0208N	BASICS OF COMPUTER APPLICATION	0	2	50	Nil	Nil	50	100	2

Course Objective

1. Introducing basic computer skills as relevant to the architectural profession and to bring all students from different backgrounds up to a common level of computer proficiency.
2. Basic proficiency in architectural office software; transposing textual, numerical and graphic information across software platforms and devices to describe concepts holistically.
3. To learn basic knowledge regarding use of the Computer softwares like Microsoft Office, Autodesk, etc.
4. Acquaint students with Computers. Use computers for word processing, spreadsheets and as a tool for drawing. To learn various software. Develop skills of computer aided drafting.

Course Outcome

1. Ability to do word and image processing to make short reports and seminar presentations and make 2D orthographic projections in CAD.
2. Ability to process numerical data, store, retrieve and present information appropriately for multiple usage across publication and presentation platforms and track editions over a project period, Ability to visualize design concepts in-the-round and make simple and complex 3D objects in CAD.

Course Content

Module -1

- Basics of Computers, Introduction to use of computers in architecture Computer operating systems like word processing: basic templates for creating text documents, editing, formatting, spelling/grammar check, dictionary and thesaurus, page layout, fonts, indentation, inserting tables and images, document review and annotation in software like MS Word in architectural education.

Module -2

- Numerical processing: preparing and editing spreadsheets in software like MS Excel. Collating raw data into numbers for analytical use. Presentation of data as tables, charts and graphs. Inserting tables, text and images in drawings for print and projection formats.

Module - 3

- Slide Presentations in software like MS PowerPoint, insertion of drawings, audio/video clips. Iv, 3D Visualization: Sketch Up software

Module – 4

- Image processing: basic image sourcing, editing and insertion for desktop publishing in Adobe, Photoshop or similar software. etc.

Module – 5

- Simple exercises in to 2D CAD software (AutoCAD/ Revit) specifically for proficiency of, drawing/editing objects, text, dimensioning, making and inserting blocks, etc. and an understanding of units settings, scale, limits, line type, line weight, layers, colours, and print commands..

Module – 6

- Basic exercises in 3D CAD software (AutoCAD/ Revit /Sketch up). Understanding the co-ordinate system, 3D primitives, solid modelling and surface modelling.

Studio Exercises

- Work on Simple word processing, spreadsheets softwares.
- Similar exercises based on softwares as well as from ADG-1 to be done using CAD software
- Softwares: like Microsoft Office, Sketch up, Autodesk,etc.

Mode of Examination

Continuous Assessment & End Semester Sessional Term work

Reference Books

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

First Year Bachelor of Architecture

Semester -II

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0209D	ARCHITECTURAL MODEL MAKING	0	2	50	Nil	Nil	50	100	2

Course Objective:

After successful completion of this course, student should be able to:

1. Understand actual working on Model Making Skills
2. Understand and use different materials, tools and machinery used in Model Making
3. Understand the importance of more durable materials in modern model making jobs
4. Understand use of development models and various model making styles

Course Outcome:

1. Students will be exposed to various materials that can be used for model making in Architecture stream. Students will have knowledge of different design development models and various model making styles
2. Students will have thorough knowledge of different technologies used for model making.

Course Content

Modules:

- Preparation of Basic shapes forms used in model making
- Preparation scaled Models of various architectural elements
- Use of various techniques and material for colouring and enhancement of models
- Combining Design exercises with model making
- Development of concept models and various model making styles

Studio Exercises

Group / Individual Assignments, models will be planned .for each material and technique

Mode of Examination

Continuous Assessment and End Semester Sessional Term work.

BACHELOR OF ARCHITECTURE

SECOND YEAR

SEMESTER III

Second Year Bachelor of Architecture

Semester -III

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0301D	Architectural Design-I	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0302B	Building Construction Technology & Materials -III TH	BS &AE	1	0	Nil	100	04 Hrs	Nil	Nil	100	1
22UAR0303B	Building Construction Technology & Materials -III PR	BS &AE	0	4	75	Nil	--	75	Nil	150	4
22UAR0304D	History of Architecture -II	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0305B	Theory of Structure -II	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0306B	Building Services-I	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0307N	Computer Application in Architecture	SEC	0	4	100	Nil	--	Nil	100	200	4
22UAR0308D	Site Planning	PC	0	2	50	Nil	--	Nil	50	100	2
	Elective-I		0	2	50	Nil	--	Nil	50	100	2
	A) Pottery & Bidri	OE									
22UAR0309E	B) Ergonomics & Furniture Design	PE									
22UAR0310E 22UAR0311E	C) Sketching, Painting & Calligraphy	OE									
ENV - C	Environmental Studies	B	2	0	40	60	03 Hrs	Nil	Nil	100	Audit
	TOTAL		12	20	665	460	--	275	200	1600	30

List of Abbreviations		
Sr.No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Second Year Bachelor of Architecture									
Semester -III									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0301D	**ARCHITECTURAL DESIGN I**	**0**	**8**	**200**	**Nil**	**200**	**Nil**	**400**	**8**

Course Objective

- Develop basic skills of design and design expression. Introduction to design grammar and principles of design. Application & Importance of these in Design. To understand site features, climate and apply those in design.

Course Outcome

After successful completion of this course, student should be able to:

- To Conduct site analysis
- To Understand Conceptual thought process resulting in innovative and creative design

Course Content

Module -1 Introduction to design thought process. Matrix, Idea board & formulating Requirements. Site Analysis. Study of Context, Physical environment, Tradition, Culture w.r.t. site

Module -2 -

Meaning of the term “structure” as organizing principle in a form. Structure as order Light, Movement and Gravity as determinants of structure Ability to see abstraction in a corporeal form of a building. Relationship between materials and structural systems. Program interpretation

Module – 3 -

Case study of similar typology. Working on Conceptual sketches & models.
Finalizing basic concept.

Module – 4 -

Study of Climatic conditions. Studying Climate Responsive solutions as regards to design, materials etc. Freezing basic design strategy .Basic Circulation pattern. Concept to design process. Need of use of innovative materials. Elementary Services like water supply & drainage

Studio Exercises

Studio Exercises suggested: Design of Multi-function spaces as decided by the Institute.
• 1 no Minor Project (can be a Time problem) Ex. Clinic, Café etc (Max. 100 sqm)
• 1 no Major Project based on above Modules with creative presentation of drawings & models. Ex. Residence for a specific user (Max 250 sq.m)
Mode of Examination
Continuous Assessment and sessional work with viva
Reference Books
1. *Ching, Francis D.K.; Architecture Form, Space and Order.*
2. *dofsky, Bernard; Architecture without Architects.*
3. *Rasmussen, Steen Eiler; Experiencing Architecture.*
4. *Watson, Donald / Crosbie,Michael J.; Time Savers Standards for Architectural Design.*
5. *Chiara, Joseph De / Crosbie, Michael J.; Time Savers Standards for Building Types.*
6. *Gideon, Siegfried; Space, time & Architecture.*
7. *Neuferts Architects Data.*
8. *Chiara, Joseph De / Panero, Julius / Zelink Martin; Time Savers Standards for Interior design and Space Planning.*
9. *David Adler,Metric Handbook Planning & Design Data*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0302B 22UAR0303B	BUILDING CONSTRUCTION TECHNOLOGY & MATERIALS – III TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

To introduce the construction methodology of Timber structures

To understand the execution process of each building element using Timber as primary material

Course Outcome

To Understand construction using timber as a material.

To Aquent with the method of construction of different types of timber roofs.

To Aquent with the method of construction of different types of timber partitions.

To Aquent with the construction of false ceiling with different materials.

Course Content

CONSTRUCTION

Module -1 TIMBER CONSTRUCTION

- **Timber Floors** for Badminton hall, Auditorium hall, Dance floor, Ground floor timber flooring, Double joist and single joist flooring .etc.
- Terms defined, bridging joists, binding joists,
- Binders, beams and girders, solid and herring-bone strutting, floor boards, ceiling joists, Latest techniques of wooden floor for residential buildings.

Module -2 TIMBER ROOF

- Timber roof like King post roof truss & Queen post roof truss.
- Terminologies like-king post, queen post, Principle rafter, common rafter, purlin, tie beam, wall plate etc.

Module – 3 TIMBER PARTITIONS

- Timber partition wall with timber frames and timber panel. LAMINTED BOARD/ PLYWOOD
- All joinery details and fixtures.

Module – 4 FALSE CEILING CONSTRUCTION AND TECHNOLOGY

- False ceiling with various materials
- Brief study of teak wood framing, aluminium framing for false ceilings- false ceilings with POP, acoustic boards

with teak wood framing, fixing of POP boards/ acoustic boards including light fittings, etc

MATERIALS

Module – 5 INDUSTRIAL TIMBER

- Processed wood products-Plywood, Veneers, Laminates, Composite boards (Insulating boards, MDF boards, Fiber board, particle board:-The properties, characteristics, Types, Fixing methods, advantages/disadvantages & use

Module – 6 PLASTERING & POINTING

Different types and methods of Plastering and Pointing.

Plastering on Old & New brick work, Different types of pointing's. Method of construction and its uses.

Module – 7 APPLIED FINISHES LIKE PLASTERS-

- Applied finishes like plasters-POP, Gypsum, and wall care putty punning in POP /Gypsum powder etc. The properties, characteristics, Grades, proportioning of ingredients, advantages/disadvantages & use.

Module – 7 ADVANCED ROOFING MATERIALS

- Roofing materials different tiles, GI Sheets, AC sheets, Mangalore Tiles, Pan Tiles, Slates,. Its characteristics, fixing methods, advantages/disadvantages & uses in context.

MODULE – 6 DECORATIVE & PROTECTIVE FINISHES

- Paints -Protective coating, Paints, water paints, distempers & cement based paints, Emulsion paints, Anti corrosive paints, Dam proofing finishes. Constituents of paints, properties, characteristics, Grades, Selection criteria, advantages/disadvantages & uses.
- Varnishes (Oil & Spirit) - Ingredients, properties, characteristics, Selection criteria, advantages/disadvantages & use.

Studio Exercises

- College shall undertake site visits of construction projects.
- Term work shall consist of minimum one/two sheets of imperial size on each of the items above i.e. (ii), (iii), (iv).
- Reports on site visits
- Journal for notes on Building Materials and market survey of the different materials

Mode of Examination

Continuous Assessment throughout the semester, End semester Sessional VIVA and End Semester Theory Paper

Reference Books

1. *Elements of structure by Morgan*
2. *Building Materials by Rangwala*
3. *Building Materials in India (50 years)*

4. Structure in Architecture by Salvadori
5. Building construction by Mckay W. B., Vol. 1 to 4
6. Construction of Building by Barry, Vol. I to V
7. Construction Technology by Chudley R. Vol. I to IV
8. Building Construction Illustrated – Ching Francis D.K.
9. Elementary Building Construction by Michell
10. Elements of structure by Morgan
11. Building Materials by Rangwala

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0304D	HISTORY OF ARCHITECTURE - II	3	0	50	100	Nil	Nil	150	3

Course Objective

1. To understand Indian Architecture as evolving within specific cultural contexts, including aspects of society, religion, politics and climate.
2. To gain knowledge of development of architectural form with reference to technology / material/style in the Indus valley civilization, Aryan inhabitation and Dravidian settlements and its manifest.
3. To study the manifestation of religious structures of Hindu, Buddhist and Jain in various parts of India from 3000B.C to 1600AD.

Course Outcome

1. Identify different styles of Indian Architecture
2. Analysing the contributory factors for the design and development of Different styles (Compare and contrast)
3. Identify different components of the various styles, that prevailed in specific time line.

Course Content

Module -1 EARLY CIVILIZATION (3000-2000 B.C)

- Indus valley – Political, Social and Cultural life
- City planning, pattern of settlement and public buildings
- Vedic – Aryan civilization, village & Dwellings culture
- Maurya Dynasty – Chandragupta to Ashoka
- Ashoka period – Art, Sculptor and Architecture symbolism
- E.g. Great bath, Granary, Water supply and drainage system, Vedic-primitive dwelling, pillars, Stupas, gateways, Pitalkhora

Module -2 - BUDDHIST ARCHITECTURE (ROCK CUT – 200AD TO 600AD)

- Evolution of Buddhism – Buddhist philosophy – Art & Culture
- Hinayana & Mahayana period
- Evolution of Building typology – Chaitya, Viharas
- E.g. Barabar, Hills, Karla, Nashik, Ajanta, Ellora Rock Cut

Module – 3 - JAIN TEMPLE ARCHITECTURE

- Evolution of religion, Social, Cultural and philosophical

- Temple cities of Jain and their Forms & Arts
- E.g. Mount Abu, Givnar

Module – 4 - BRAHAMINICAL RESURGENCE – GUPTA PERIOD

- Evolution of Hindu temple Architecture
- Form of worship, Ritual, Symbolism, Philosophy and Social importance of temples
- Early shrines of Gupta period – elements of temple – Evolution of forms

Module – 5 - INDO ARYAN or NAGARA STYLE

- Temple architecture of Orissa, Madhya Pradesh, Gujarat, Rajasthan and Deccan
- E.g. LingarajaTemple Bhuwaneshwara, Sun Temple Konark, Khajuraho Group,
- Somnath and Sun Temple, Madhera

Module – 6 - DRAVIDIAN STYLE

- Brief – political, Social and Cultural impact
- Evolution and form of gopuram
- Dravidian Dynasties – Chalukyas, Pallavas, Cholas & Pandyas and Madura Temple structure and complexes
- E.g. Ladkhan, Durg-Aihole, Temple complex
- Ellora- Rock cut , Pallava Rock cut pattadakal, Badami-Rock cut, Shore Temple, Briha Temple of Tanjore, Madurai Temple complex
- Brief – political, Social and Cultural impact

Studio Exercises

Suitable exercises on all the Modules mentioned above

Mode of Examination

Continuous Assessment & End Semester Theory Exam will be conducted.

Reference Books

1. History of Architecture by Percy Brown
2. History of Architecture by Sir Bannister Fletcher
3. The Architecture of India – Buddhist & Hindu by Satish Grover
4. The History of Architecture in India by Christopher Tadgell
5. Space, Time and Architecture by Siegfried Gidson
6. Architecture of world, india by Henry Sterlin
7. The Hindu Temple by George Michell

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0305B	THEORY OF STRUCTURES II	3	0	50	100	Nil	Nil	150	3

Course Objective

1. Understand the stresses in the members due to axial and eccentric load
2. Understand shear force and bending moment diagram for simple beams for various external loading on them.
3. Understand the shear force and bending moment diagrams for beams subjected to point load and uniformly distributed load.
4. Understand analysis of columns by Eulers and Rankines.

Course Outcome

Upon completion of the course student should be able to:

Analyze structural members subjected to tension, compression, torsion, bending and combined stresses using the fundamental concepts of stress, strain and elastic behaviour of materials.

Course Content

Module -1 INTRODUCTION TO BASIC STRUCTURAL SYSTEMS

- Introduction to basic structural systems such as post-beam, bearing wall systems, trusses, rigid frames etc.
- Distribution of load through elements of the systems, transfer of loads.
- Elastic, Plastic, Brittle and Ductile Materials. Yield Stress, Factor of Safety and Working or Permissible Stress
- Bending Stresses. Theory of Simple Bending. Assumptions, Flexural Formula, Stress
- Distribution across a Section and across the span of the Beam. Modulus of Resistance.
- Section Modulus, Shear Stresses, Formula, Shear Stress Distribution across a Rectangular, Circular, T, C, L, I Section.(theory only)

Module -2 - SHEAR FORCE AND BENDING MOMENT

- Shear Force and S.F.Diagram & B.M.D and B.M.Diagram for : Simple Support with an U.D.L., Simple Support with a Central Point Load, Simple Support with an eccentric point Load, Cantilever with a full U.D.L, Cantilever with a Point Load.
- S.F.D and B.M.D of a Simple Supported Beam and Over Hanging Beams with U.D.L and Point Loads. Point of Zero Shear, Point Of Max S.F and B.M max. Point of Contra flexure
- Relationship between S.F.D and B.M.D

Module – 3 - ANALYSIS OF COLUMNS

1. Euler's and Rankine's Theory for Buckling and Crushing Failure in Columns. Assumptions and Limitations. Concepts of End Conditions, Slenderness Ratio. No Derivations, Simple Problems only.
Module – 4 - DEFLECTION IN BEAMS
2. Deflection. Concept of Slope and Deflection. Macaulays Method for a S.S Beam with Full U.D.L only. Application in Problems based on point load and UDL only.
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. Strength of Materials by R.S. Khurmi; S. Chand and Company, Delhi.
2. Strength of Materials by DR Malhotra, Satya Prakashan, Delhi.
3. Strength of Materials by RK Rajput, SK Kataria and Sons, Delhi
4. Strength of Materials by Birender Singh.
5. Strength of Materials by Dr. Sadhu Singh.
6. Theory of structures by S. Ramanrutham
7. Theory of Structures by R. S. Khurmi

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0306B	BUILDING SERVICES I	3	0	50	100	Nil	Nil	150	3

Course Objective

1. To acquaint students with the principles of plumbing systems (water supply and drainage), and implementation of these systems along with coordination of other services in their architectural designs.
2. To acquaint students with various environmental factors involved influencing scarcity and depletion of water and introduction to new technologies being developed and implemented in plumbing systems to make their design proposals more environmental friendly by designing self-sufficient buildings.

Course Outcome

- Develop understanding of water supply systems at city levels.
- Develop understanding about Design of plumbing system in buildings (except hydraulics design calculation parts).
- Develop Ability to estimate water demand get acquainted to various standards and codes and draw plumbing layouts, drainage and sewage networks in their architectural designs for simple residential buildings to other different types of commercial and industrial structures from low rise to high rise with implementation of sustainable techniques and ideas.

Course Content

Module -1 INTRODUCTION TO BUILDING SERVICES

- Importance of water supply and sewerage systems.

Module -2 - INTRODUCTION TO WATER RESOURCES

- Present scenario and importance of conservation and reuse is need of the hour.

Module – 3 - WATER SUPPLY FOR URBAN AREA /CITY/ NEIGHBOURHOOD: COLLECTION, PROCESSING, DISTRIBUTION &STORAGE OF WATER.

- Quality of water, impurities in water and quality standards for code compliance.
- Water treatment and new techniques being developed where water scarcity has become a real issue for sustaining lives.
- Water demand calculations and consumption; norms and standards.
- Water distribution system at city/ neighbourhood overview: Collection of water and types of water distribution networks and Guidelines for lying of water mains distribution along with introduction to various hardwares involved: overhead tank/ Water pipe materials, apparatus, joints, fixtures and various control valves.

Module – 4 - WATER SUPPLY TO INDIVIDUAL BUILDINGS:

- Calculation of water (cold and hot) consumption for residential / multi-storeyed individual buildings and design Criteria for daily water requirements based on occupancy and use.
- Service connections to individual buildings from water mains.
- Storage and distribution of Hot-cold water in low- rise and multi-storeyed buildings. Introduction to Circulation network systems i.e. ring system, up feed systems, drop system etc. and techniques used to maintain adequate pressure in the system.
- Systems of hot water supply using conventional and non-conventional energy sources along with Insulation of piping and safety devices.
- Brief introduction to various hardware's and fixtures involved in the distribution system within the building: Internal Plumbing installations. Connection to water mains : water metre/ ferrule and Various control valves throughout the water distribution network within the building, Pipes and piping network, Materials used for piping i.e. Galvanized Iron, P.V.C, Copper, etc. Classification of pipes, specials and joinery used in Plumbing. Determination of pipe sizes for desired distribution, Installation of the network- open and concealed. Flushing cisterns and flush valves. Taps, faucets and other fittings, Bib taps (ordinary, Screw down, half turn, quarter turn using ceramic disks) variations such as pillar taps, angle valves, shower roses etc. Mixing units for wash-hand basins, kitchen sinks, shower units, baths etc. (Both of valve and diverter type and single lever type
- Different types of fixtures being implemented in design schemes in respect to conservation and optimum use of water to minimise wastage.

Module – 5 - SANITATION AND SEWERAGE SYSTEM

- Introduction to various types of waste generated in different types of buildings (solid/ liquid / organic/ inorganic /dry/ wet etc) depending upon usage and necessity for proper disposal of these waste to minimise environmental damage and proper functioning of buildings and factors to be kept in mind while planning such buildings in respect to proper disposal of same.
- Planning of bath rooms, toilets in domestic and multi-storeyed buildings, standard type of sanitary fittings, water Closets, Bidets, Wash Hand Basins, Bath Tubs, Urinals, etc. along with their working & installation.
- Introduction to Sewerage Systems of disposal of Drainage & waste water within a building -different types of pipe systems (Single and double stack systems)its Components and basic terminology: Types of traps their uses and water seal and Various other sanitary fixtures and its connections involved.
- Sewer conveyance network within premises and planning on site for water drainage and sewage disposal along with norms, standards and Calculation for Gradient and slope in sewage disposal, location and use of appurtenances i.e. inspection chambers, intercepting chamber, manholes, etc.
- Sewage disposal to septic tank, cess pool, soak pit or Connection of drainage to public sewer.
- Introduction to sewerage treatment plants, effluent treatment plants and water recycling there application, functions , benefits and uses
- Equipment's & systems for Refuge & garbage disposal i.e. Incinerators, compactors and refuse chute etc.

Module – 6 - RAIN WATER AND STORM WATER COLLECTION AND DISPOSAL SYSTEM.

- Techniques to divide surface area for rain water disposal, Details of collection points , conveyance network of water, catch basin, gully traps, calculation for gradient/ slopes.
- Necessity of Rain water harvesting and its detail functioning and application of rain water harvesting pits.

STUDIO EXERCISES

• Suitable exercises on all the Modules mentioned above
• Suitable Case studies to be conducted
• Design of Domestic Water Supply and Sewage Network for a project designed earlier along with Preparation of drawings
MODE OF EXAMINATION
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. *Rangwala, P.B., Water Supply and Sanitary Engineering (Environmental Engineering)*
2. *Modi, P.N., Water Supply Engineering*
3. *Ratnayaka, D., Twart, A. C., & Brandt, M. J. 1996. Water Supply.*
4. *Shah, C,S. Water Supply and Sanitation.*
5. *National Building Code, Bureau of Indian Standards.*
6. *Plumbing Engineering by Dr. Subhash Patil*
7. *International Plumbing Code by Indian Code Council*
8. *Building Construction Illustrated by Dr. F.D.K Ching*
9. *Building Construction by Sushil Kumar*
10. *Building Construction by B.C Punmia*
11. *Gharpure, sanitary engineering and water supply*
12. *Barry vol-V, sanitation and water supply.*
13. *Various videos and links on YOU TUBE Channel.*

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0307N	COMPUTER APPLICATION IN ARCHITECTURE	0	4	100	Nil	Nil	100	200	4

Course Objective

1. Advanced proficiency in architectural office software; transposing textual, numerical and graphic information across software platforms and devices to describe concepts holistically.
2. Focus is to learn 3D Architectural Drawings with the help of software's.

Course Outcome

- Ability to make photorealistic imagery of architectural objects with 3D CAD software through rendered perspective and walk-through presentations. Basic programming and scripting for architectural applications will be introduced.
- Demonstrate the concepts of CAD drafting methods and techniques in 2D and 3D through various architectural projects of progressive complexity.

Course Content

Module -1

- Advanced proficiency in architectural office software such as Autodesk, Revit, Sketch up, 3D Max, **Rhino** or Rhino3D, etc. Introduction to solid modelling in Auto Cad or similar software. Creating 3D objects- commands, parameters, renders, etc. Use of software's for solid modelling. Generating complex shapes and 3D forms and it's rendering.
- Isometric views, perspectives, manipulation of camera angles, viewpoints, etc.
- Image processing, Image Editing Methods and Techniques basic image sourcing, editing and insertion for desktop publishing in Adobe Photoshop or similar software's.

Module -2

- Rendering 3D views using material palettes, colours, textures, shades and shadows. Inserting objects from digital libraries and other sources, using software such as 3DS Max.

Module - 3

- 3D animation, walk-through sequences, superimposing animated videos over base images.

Module – 4

- Data-base management: Information filing and profiling, Technical Record-keeping and document transmission

Studio Exercises

• Suitable exercises on all the Modules mentioned above..
Mode of Examination
Continuous Assessment & End Semester Sessional Term work
Reference Books
1. *Computer Graphics & Animation by M.C. Trivedi (Jaico Publishing House; First edition, 22 January 2009)*
2. *Representational Techniques for Architecture (Basics Architecture) by Lorraine Farrelly Nicola Crowson, (Bloombury;2nd Revised edition edition,18 Dec. 2014)*

Second Year Bachelor of Architecture									
Semester -III									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0308D	**SITE PLANNING**	**0**	**2**	**50**	**0**	**0**	**50**	**100**	**2**

Course Objective

1. To enable the students to get conversant with locating the object positions in horizontal and vertical plane with desired accuracy as needed for architectural profession.
2. To prepare and interpret survey drawings.
3. Every effort will be made to relate the practical and field work and make it appropriate for the

Course Outcome

1. Profession of Architecture and execution of building projects. Students should be exposed to latest modern gadgets available for precise work in the field and also use of computer software in this subject.

Course Content

Module -1

- Definition of surveying, Objectives and importance of surveying. Classification of surveys. Principles of surveying. Units of measurements, Surveying measurements and errors, types of errors, precision and accuracy. Classification of maps, map scale, conventional symbols, topographic maps, map layout, Survey of India Map numbering systems.

Module -2 -

- Measurement of Horizontal Distances: Measuring tape and types. Measurement using tapes, taping on level ground and sloping ground. Errors and corrections in tape measurements, ranging of lines, direct and indirect methods of ranging, Electronic distance measurement, basic principle. Booking of tape survey work, Field book, entries, Conventional symbols, Obstacles in tape survey

Module – 3 -

- Chain Surveying: Base lines, tie lines, check lines.
- Levelling: Dumpy level, auto and tilting level, principle lines of levelling instrument, axis of telescope, axis of bubble tube, line of collimation, vertical axis recording by collimation plane, method and rise- fall method, B.S/J.S/F.S, change point, level surface, horizontal surface, datum, Reduced Level/ elevation of a point, Bench Marks, GTS,PBM/ABM/TBM. Temporary Adjustments

Module – 4

• Plane Table Surveys; Accessories used in plane tabling, methods of locating objects, methods of table orientation, Advantages and disadvantages.
• Contours: Characteristics, contour interval, direct and indirect methods of contouring, block contour surveys, profile levelling, longitudinal and cross sections, plotting the contours and profiles, gradient.
Module – 5
• Uses of Transit Theodolite and Total Station. Measuring horizontal and vertical angles, calculation height of buildings, use of Theodolite as technometer, techeometric tables, and interpolation of contours.
Studio Exercises
A suitable project/task on all the above mentioned surveys
Mode of Examination
Continuous Assessment & End Semester Sessional Term work
Reference Books
1. “Surveying and levelling vol 1 by B.C.Punmia
2. “Surveying and levelling” by N.Subramaniyan
3. “Surveying and levelling” by N.Basak
4. “Surveying and levelling” by S.Bhavikkati

Second Year Bachelor of Architecture

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
	ELECTIVE I (Any one)	0	2	50	Nil	Nil	50	100	2
20UAR0310E	Pottery & Bidri								
20UAR0311E	Ergonomics & Furniture Design								
20UAR0312E	Sketching, Painting & Calligraphy								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

Module wise course contents to be decided by experts in respective fields.

Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

A. **Pottery & Bidri**
B. **Ergonomics & Furniture Design**
C. **Sketching, Painting & Calligraphy**

Mode of Examination

End semester sessional term work only

Semester -III

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
ENV - C	ENVIRONMENTAL STUDIES	0	2	40	60	Nil	Nil	100	Audit

Course Objective

To understand about a variety of environmental concerns, to create awareness about impact of human activities on environment and to create a pro-environment attitude and behavioural pattern in society to protect the environment from further degradation.

Course Outcome

- Awareness of a wide range of environmental concerns and ability to act at their own level to protect the environment we all live in.
- Need for public awareness

Module -2 Natural Resources (Renewable and non-renewable resources)

Natural resources and associated problems

- Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
- Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- Minerals resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- Food resources: World food problems, changes causes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer – pesticide problems, water logging, salinity, case studies.
- Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources.

Equitable use of resources for sustainable lifestyles

Module – 3 Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:

Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystem

Module – 4 Biodiversity and its conservation
• Introduction – Definition: genetic, species and ecosystem diversity.
• Biogeographical classification of India
• Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
• Biodiversity at global, National and local levels.
• India as a mega-diversity nation,. Hot-sports of biodiversity
•
• Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
Module – 5 Environmental Pollution
• Definition:
• Cause, effects and control measures of: Air, Water, Soil, Marine, Noise, Thermal, Nuclear hazards
• Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
• Role of an individual in prevention of pollution
• Pollution case studies.
• Disaster management: floods, earthquake, cyclone and landslides.
Module – 6 Social Issues and the Environment
• From Unsustainable to sustainable development
• Urban problems related to energy
• Water conservation, rain water harvesting, watershed management
• Resettlement and rehabilitation of people; its problems and concerns
• Environment ethics: Issues and possible solutions
• Climate change, global warming, acid rains, ozone layer depletion, nuclear accidents and holocaust
• Wasteland reclamation, Consumerism and waste products
• Environment protection act, Air act, Water act, wildlife protection act, forest conservation act
• Issues involved in enforcement of environmental legislation
• Public awareness
Module – 7 Human Population and the Environment
• Population growth, variation among nations
• Population explosion – Family Welfare Programme
• Environment and human health
• Human Rights, Value Education
• HIV / AIDS
• Women and Child Welfare
• Role of Information Technology in Environment and human health
Module – 8 Field Work
• Visit to a local area to document environmental assets – river/forest/grassland/mountain
• Visit to a local polluted site – Urban/Rural/Industrial/Agricultural
• Study of common plants, insects, birds
• Study of simple ecosystems – pond, river, hill slopes etc

Exercises
Assignments based on all the above modules will be conducted
Illustrated Lectures, Texts, Case Studies and examples will be conducted
Mode of Examination
Continuous Assessment & End Semester Sessional Term work
Reference Books

SECOND YEAR

BACHELOR OF ARCHITECTURE

SEMESTER IV

Second Year Bachelor of Architecture

Semester -IV

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR0401D	Architectural Design-II	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0402B	Building Construction Technology & Materials -IV TH	BS &AE	1	0	Nil	100	03 Hrs	Nil	Nil	100	1
22UAR0403B	Building Construction Technology & Materials -IV PR	BS &AE	0	4	75	Nil	--	75	Nil	150	6
22UAR0404D	History of Architecture -III	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0405B	Theory of Structure -III	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0406B	Building Services-II	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0407B	Architectural Drawing and Documentation	PC	0	2	50	Nil	--	Nil	50	100	2
22UAR0408B	Climate Responsive Architecture	BS &AE	0	4	100	Nil	--	Nil	100	200	4
	Elective-I		0	2	50	Nil	--	Nil	50	100	2
22UAR0409E	A) Vernacular Architecture	E									
22UAR0410E	B) Sustainable Built Environment	E									
	TOTAL		10	20	625	400	--	275	200	1500	30

List of Abbreviations		
Sr. No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0401D	ARCHITECTURAL DESIGN II	0	8	200	Nil	250	Nil	400	8

Course Objective

After successful completion of this course, student should be able to:

1. To explore complex concepts.
2. To understand building basic bye-laws in strict application
3. To understand services in building design.

Course Outcome

1. To design architectural spaces related to mixed use.
2. To Conduct site analysis

Course Content

Module -1

- Site analysis with respect to surrounding environment, tradition, culture. Zoning, Climatic considerations.

Module -2 -

- Related Case Studies, formatting design brief.

Module – 3 -

- Structure and Construction as disciplines that evolve making of space Structural systems as choices based on program, space, and form character. Space Structure correlation. Conceptual explorations. Complex Architectural spaces.

Module – 4 -

- Considering structural solutions & materials for complex Architectural spaces. Considering use of mechanical vertical transport. Study and Analysis of Natural and Manmade structural systems, correlation between function, structure and form. Different structural models in Building systems. Site, building, space, structure, form, character correlations. Light, view and sensory qualities.

Module – 5 -

- Design development and consideration of building related services. Finalization of Design Proposal.

Studio Exercises

Studio Exercises suggested: Design of mixed functional spaces as decided by the Institute.
• 1 no Minor Project (can be a Time problem)R+C, Ex. Motel, Tourist Centre.
• 1 no Major Project based on above Modules with creative presentation of drawings & models.
• Ex. Shopping center, Sports center, Club house, Resort.
Mode of Examination
Continuous Assessment and End Semester Sessional work with Viva
Reference Books
1. *Robert Sommer. -Design Awareness.*
2. *C.M. Deasy -Design for Human Affairs.*
3. *Pierre Von Meiss -Elements of Architecture from form to place.*
4. *Yatin Pandya- Elements of Space Making.*
5. *Paul Lassau – Graphic Thinking for Architects and Planners.*
6. *Peter Pearce, Structure in Nature – Strategy for Design.*
7. *Peter Streens, Patterns in Nature.*
8. *Anthony Antoniadis - Poetics in Architecture: Theory of design*
9. *Am heim Rudolf, Visual Thinking.*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0402B 22UAR0403B	BUILDING CONSTRUCTION TECHNOLOGY & MATERIALS – IV TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to, understand materials used in construction, principles of construction, building systems and simple elements of buildings and their behaviour.

Course Outcome

1. To introduce construction of building components in reinforced cement concrete
2. To Aquent with the basic fundamentals of the Reinforcement layout of various components of a building-like Slab, Column, Beams, staircase.etc.
3. The students will Aquent with the advance construction systems developed by research institutes in the country and the detailing of the same.

Course Content

CONSTRUCTION

Module -1 FRAMED TYPE CONSTRUCTION IN R.C.C.

- Footings- Isolated (Stepped, Sloped & Box type), Eccentric, Combined, Raft, Strap, Strip.
- Reinforcement detailing of above mentioned R.C.C. foundations
- Temporary supports like formwork, strutting, scaffolding.

Module -2 - FRAMED MEMBERS

- Vertical (Column) –Different shapes like-square, rectangular, circular, Tee, Cross, & L- Shape,
- Horizontal frame members (Beams) - Cantilever, Simply supported, fixed, continuous.

Module – 3 - RCC SLAB & MEMBERS

- R.C.C. Slabs-One way, Two ways, Continuous, Cantilever ,Flat slab etc.
- R.C.C. members -chajjas, pardis, walls, Loft, Poarch, Pergolas.

Module – 4 - R.C.C. STAIRCASES

- R.C.C. Staircases,-Dog legged, Spine beam, Open well, Folded type Cantilever steps etc.
- Description of staircases, technical terminology involved, and classification of staircases based on shape, material and its construction details.

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- Reinforcement detailing of above mentioned Staircases

MATERIALS

Module – 5 – SOUND & THERMAL INSULATION

- Sound insulating, Thermal material, Fiber glass, Rock wool, Foam board, Glass wool.
- Different absorbing and insulating materials available in market. Electrical Insulations: Conductors, non-conductors, properties

Module – 6 – FLOOR FINISHES

- Floor Finishes - Brick, Stone, Concrete, Timber. Various artificial tiles. Indian Patent Stone. Characteristics, Types, fixing methods, advantages/disadvantages & uses.

Module – 7 – GLASS AND GLASS PRODUCTS

- Glass and glass products-Composition and fabrication of glass, Types of glass, wired glass, Glass Crete blocks, Toughen Glass, Sun control Glass, Structural glass, their properties and uses in buildings.

Module – 8 – CONSTRUCTION CHEMICALS

- Construction chemicals, Sealants for Constructional joints: different types, properties, application accessories admixtures, adhesives, the properties, characteristics, Grades, proportioning of ingredients, advantages/disadvantages & use.

Studio Exercises

1. College shall undertake site visits of construction projects.
2. Term work shall consist of minimum one/two sheets of imperial size on each of the items Above i.e. (ii), (iii), (iv).
3. Each module should include market surveys.
4. Journal for notes on Building Materials and market survey of the different materials.

Mode of Examination

Continuous Assessment throughout the semester, End semester Sessional VIVA and End Semester Theory Paper of 4 hours.

Reference Books

1.Elements of structure by Morgan
2.Building Materials by Rangwala
3.Building Materials in India (50 years)
4.Structure in Architecture by Salvadori
5.Building construction by Mckay W. B., Vol. 1 to 4
6. Construction of Building by Barry, Vol. I to V
7. Construction Technology by Chudley R. Vol. I to IV
8.Building Construction Illustrated – Ching Francis D.K.
9.Elementary Building Construction by Michell
10.Elements of structure by Morgan
11.Building Materials by Rangwala

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0404D	HISTORY OF ARCHITCTURE- III	3	0	50	100	Nil	Nil	150	3

Course Objective

1. To understand Islamic Architecture as evolving within specific cultural context including aspects of society, religion, politics, climate.
2. To gain knowledge of the development of architectural form with reference to technology, style and character in the Indian context. Through the evolution of the mosque and tomb of the various phases of the Islamic rule in the country.
3. To gain knowledge of the expertise of the Mughal rulers in city building and garden design.

Course Outcome

1. Students will be able to understand the development of architecture in Asia particularly India through the evolution of Islam as a religion and the cultural and the contextual determinants that produced the architecture.

Course Content

Module -1 HISTORY OF ISLAM

- Birth, Spread, Principal, Symbolism, Materials and Method of Construction.
- Elements of decoration, color, geometry and light
- Islamic Architecture as rising from Islam as a social cultural and political phenomenon
- evolution of building types in terms of form and function; mosque, tomb, minaret, palaces
- Salient characters of Islamic Architecture

Module -2 - ESTABLISHMENT OF DELHI SULTANATE I.E. IMPERIAL STYLE

- Evolution of Architectural Monuments under the Slave, Khilji, Tughlaq, Sayyed and Lodhi dynasties
- Typical examples of each dynasties

Module – 3 - MUSLIM RULER'S PROVINCIAL POWER & IMPACT OF REGIONAL ART, TECHNOLOGY & CULTURE.

- Provinces such as Gujarat, Malwa, Bijapur, Golkonda and Important examples from each region

Module – 4 - MUGHAL RULE IN INDIA AND ITS POLITICAL AND CULTURAL IMPACT.

- synthesis of Hindu Muslim culture
- Evolution of Architecture during Mughal time in form of palaces and gardens.

• Rule of Babur and Humayun and their contribution to architecture, prominent example
Module – 5 - REIGN OF AKBAR, JAHANGIR, SHAHJAHAN AND THEIR CONTRIBUTION-
• Study of Forts, Places and Gardens
• Refinement in Art and Craft
• Important building to know Mughal Style
Module – 6 - CONTEMPORARY MARATHA ARCHITECTURE
• Political, Social, Cultural conditions
• Important Forts/Shore Forts, Palaces, Wada, Royal Residences
• Regional art, Craft, Material, technology and Construction methods
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. *History of Architecture by Percy Brown*
2. *History of Architecture by Sir Bannister Fletcher*
3. *Satish Grower, Islamic Architecture in India*
4. *R.Nath, History of mughal Architecture Vol-I,II,III. Abhinav pub. New Delhi.*
5. *History of Architecture in India by Christopher Tadgell*
6. *The great ages of world Architecture by G.K.Hiraskar.*

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Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0405B	THEORY OF STRUCTURES III	3	0	50	100	Nil	Nil	150	3

Course Objective

1. Be able to perform analysis and design of reinforced concrete members and connections.
2. Be able to identify and interpret the appropriate relevant industry design codes.
3. To introduce the design philosophies of various methods of design

Course Outcome

1. Students will understand the general mechanical behavior of reinforced concrete.
2. Students will be able to analyze and design reinforced concrete flexural members.
3. Students will be able to design various reinforced concrete elements by working stress and limit state method.

Course Content

Module -1 INTRODUCTION TO STRUCTURAL COMPONENTS OF BUILDING

- Introduction to Structural components of Building .RCC Design philosophies. Working stress, limit state method.
- Introduction to different grades of concrete, steel. Characteristic strength of materials. Balanced section, over reinforced sections and under reinforced sections.
- Introduction to IS Code 456 for RCC design.
- Singly Reinforced beams. Stress strain distribution for simply supported beam.
- Problems on
  - Singly Reinforced beam analysis
  - Finding ultimate moment of resistance
  - Finding area of steel.
  - Design of singly reinforced beam using limit state method.

Module -2 - DOUBLY REINFORCED BEAMS

- Doubly Reinforced beams. Situations when doubly Reinforced beams are used.
- Doubly Reinforced beams. Stress strain distribution for simply supported Doubly reinforced beams.
- Problems on
  - Doubly Reinforced beam analysis
  - Finding ultimate moment of resistance.
  - Finding area of steel for the section
  - Design of doubly reinforced beam using limit state method.

Module – 3 - INTRODUCTION TO COLUMNS
• Introduction to columns. Buckling of column for Different end conditions.
• Axially loaded columns, eccentrically loaded columns. Axial and biaxial bending.
• Problems on :
- Design of axially loaded columns
- Design of columns subjected to Bending about axis using limit state method.
Module – 4 - INTRODUCTION TO SLABS
• Introduction to slabs. Different types of slabs. Classification of slabs.
• Types of reinforcement in one way and two way slabs. Sketches for the laying of reinforcement in one way and two way slab.
• Problems on:
- Design of one and two way reinforced slabs (simply supported, restrained continuous) by limit state method only.
Module – 5 - INTRODUCTION TO STAIRCASE.
• Introduction to staircase. Terminologies related to stair case
• Types of staircase.
• Design considerations for simple doglegged stair case using IS Code. Sketches showing Different component parts of staircase with their terminologies.
• Reinforcement placing for major types like Doglegged, folded staircase etc.
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. Design of Reinforced concrete structures by S Ramamurtham.
2. Design of Reinforced concrete structures by M.L.Gambhir.
3. Reinforced concrete Design :Principle and Practice by Krishna Raju

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0406B	BUILDING SERVICES II	3	0	50	100	Nil	Nil	150	3

Course Objective

1. To acquaint students with the different indoor environmental control and air-conditioning systems along with electrical services, wiring, basics of lighting & lighting design.
2. To acquaint students with knowledge of different Architectural lighting and special effects & conveying systems, codes relevant to them, and incorporation of these systems in building design
3. To teach students the implementation of these systems including the design aspects associated with their performance along with coordination of other services in their architectural design.

Course Outcome

1. Student must get aware of science behind an air-conditioning & refrigeration systems.
2. Develop understanding about various air- conditioning systems and their applications.
3. Develop Ability to workout HVAC loads and have knowledge about design issues for the selection of various systems & their incorporation along with space requirements for equipment.
4. Students should gain knowledge about the laws & basics of electricity and wiring systems and fundamentals of lighting & lighting design within domestic and commercial buildings
5. Student must have ability to workout electrical networks for a simple building, determine general lighting as per performance for a space and must gain ability to draw and read electrical layouts for design projects.
6. To help students for applying prediction methods to assess the functional requirements of buildings with respect to light and illumination requirements.
7. To learn the planning for optimum lighting solutions through simulations and design models& acquaint themselves to know the maximum utilization of natural light than artificial lighting through effective, scientific planning strategies, latest technologies and materials etc.

Course Content

Module -1 INTRODUCTION TO HUMAN COMFORT AND VENTILATION ALONG WITH HEAT FLOW WITHIN BUILDINGS.

- What is Human Comfort?
- What is ventilation and importance of Indoor air Quality?
- Brief about Natural Ventilation and Mechanical or artificial Ventilation – (Exhaust system, Supply System, Combination of exhaust and supply systems, Plenum process ,Air conditioning) - Forced ventilation systems, Types of fans and blowers, Mounting, sizes and calculation of fans Unit.

Module -2 - INTRODUCTION TO BASIC THEORY – TERMINOLOGY –THERMODYNAMICS.

- What is Heat, Temperature, Humidity, Relative humidity, heat exchange, heat flow - Conduction, Convection, Radiation, sensible (Specific heat) and insensible (Latent heat) Heat, latent heat of fusion, evaporation

,Conductivity of materials, "K" value, "U" value, transmittance etc.
• Basic laws of Thermodynamics -Boyle's Law ,Charles's Law ,Gay-Lussac's Law
• Concept of Heat Exchange- Heating / cooling loads.
• Heat flow within buildings, steady state conditions and periodic flow, thermal performance of building elements, sun protection of buildings.
Module – 3 - INTRODUCTION TO AIR CONDITIONING BASIC WORKING AND DIFFERENT TYPES OF AIR CONDITIONING SYSTEMS THERE WORKING AND APPLICATIONS.
• What is Air conditioning basic introduction?
• Understanding Air Conditioning and working of an Air conditioner and its components – Basic Principles and refrigeration Cycle.
• Different types of Air Conditioning systems and hardware's involved and their applications - their working, installation requirements and demands in building layout.
- Typical choices for Air- conditioning systems for small buildings :window types, packaged terminal units ,split systems etc.
- Typical choices for Air- conditioning systems for larger buildings: chilled water plant, all air system, variable air volume, all water systems etc.
- Configuring/ sizing of mechanical equipment spaces and sizes for air- conditioning and air distribution systems for larger buildings within the systems along with energy conservation measure
Module – 4 - ILLUMINATION AND LIGHTING
• Introduction and fundamentals of lighting- Physics of light, Photometry- how to measure light with respect to human comfort and workability criteria and transmission of light.
• Illuminance- Definition, Glare, Luminance distribution, co-relation with functions.
• Light ventilation- Planning for daylight, Design methods, Total flux method, Daylight factor method, BIS method, Pepper–pot diagram, Models and introduction to lighting design software and integration with day-lighting and energy conserving strategies.
• Introduction to Lux meter. Simple experiments to measure Lux levels under different sky conditions, Class room Lux measurements, etc.
• Principles of illumination- definitions, visual tasks, factors affecting visual tasks, units of light, definition of flux, solid angle, luminous intensity, utilization factor, depreciation factor, brightness & glare, energy conservation tips.
• Illumination and lighting- Electrical light sources: brief description, characteristics and lighting systems and types of luminaires; lighting design and layouts application of different types of lamps, method of mounting & lighting control. Lamps , Luminaries, reflector, type of lens, cove lighting, valance lighting, cornice lighting, track lighting, light strip, troffer, wall washer, flood light, down light, spot light, spill, point, line and area source. Design methods: Point method, lumen method, IES glare Index system.
• Lab work- Introduction to brightness meter, experiments on colour & light, brightness & colour etc.
Module 5 - INTRODUCTION TO ELECTRICITY- ELECTRICAL WIRING AND DISTRIBUTION SYSTEMS AND SAFETY SYSTEMS IN BUILDINGS; FIXTURES, EQUIPMENT, AND APPLIANCES
• Introduction to Electricity its generation and distribution a journey from power plant to individual connections.
• Electrical wiring systems in domestic and commercial buildings- Electrical circuitry and internal wiring; electrical loads, peak demand, Power Factor, operational costs introduction to electrical wiring systems, single/three phase supply, Determining size of wires, Earthing- types of earthing, ISI specifications, and causes of electrical accidents and preventive measures.

- Details about different materials - conduits, casing and capping, types of wires, diagram for connection, bus way, bus bars, lighting track and conduits (aluminium, metallic, non- metallic) arrangements etc.
- Power handling equipment, switch boards, panel boards, MCB,MCCB, ELCB, etc.
- Lightening conductors: purpose, materials, fixing.
- Space and other requirements along with design criteria in respect to equipment, placements and safety in buildings.
- Communication: Intercoms, Wi-Fi, broadband data cabling, and CCTV and other security systems basic requirements and design needs.
- Uninterrupted power supply systems, generators etc there need and design criteria's for architects.
- Integration of Solar power generation as renewable source of energy with conventional systems its functioning, need and design and space requirement for residential/ commercial buildings Criteria for architects and how to reduce electrical loads with help of passive design techniques and use of modern technology and equipment

Studio Exercises

- Suitable exercises on all the Modules mentioned above
- Suitable Case studies to be conducted

Mode of Examination

Continuous Assessment & End Semester Theory Exam will be conducted.

Reference Books

1. *Air Conditioning & Refrigeration by William Sterms& Julian R. Fellows*
2. *ASHRAE Fundamentals Handbook*
3. *Air Conditioning & Energy Conservation by F. C. Sherrat*
4. *Mechanical and Electrical Equipment for Buildings by Walter T. Grondzik, Alison G. Kwok, Benjamin Stein 3. Basic Refrigeration and Air Conditioning by A. Ananthanarayana.*
5. *Building Construction by Rangwala.*
6. *Philips lighting in Architectural Design*
7. *R. G. Hopkenson& J. D. Kay. The lighting of Buildings*
8. *National Building Code*
9. *Benjamin Evaus- Daylight in Architecture*
10. *Salvan, George S., Architectural Utilities 3: Lighting & Acoustics*
11. *Sage, Russell. The Architecture of Light: Architectural Lighting Design Concepts & Techniques.*
12. *Koenigsberger, Ingersoll, & Mayhew. Manual of Tropical Housing and Building*

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0407B	Architectural Drawing and Documentation	0	2	50	Nil	Nil	50	100	2

Course Objective

1. Study of historically important Architectural Buildings/ Structures. (Design considerations, Construction techniques, materials used etc)
2. Analysis and Documentation of the historical Buildings/ Structures.
3. Study of a small urban/ Rural settlement.
4. Analysis of the Documentation of the settlement study.

Course Outcome

1. Understanding and acknowledging the importance of Heritage structures
2. Acquiring skills of Measurement drawing and Documentation techniques.
3. Preparation of Measured drawings/ Publication of documented work..
4. Understanding and acknowledging the importance of small urban/ Rural settlements
5. Acquiring skills of surveys, drawing and Documentation techniques.
6. Preparation of settlement study drawings and reports/ Publication of documented work.
7. Understanding and acknowledging the importance of Heritage structures

Course Content

MEASURE DRAWING

Module -1 DATA COLLECTION & REPORT WRITING of historic structure

- Identification, selection and study of historically important buildings/ Structures in the City
- Data collection about the history, importance, significance, building construction techniques, building materials, etc
- Report writing.

Module -2 MEASURE DRAWING of historic structure

- Different tools, techniques and methods of measurements and documentation of historic buildings.
- Actual on site work of measurement, study and documentation work to be done in studio.

SETTLEMENT STUDY

Module -3 BASICS OF SETTLEMENT STUDY

- Identification, selection and study of small urban/ Rural settlement,

• Data collection about the history, importance, significance, building construction techniques, building materials, etc
• Surveys for study of settlement pattern, population studies, occupational characteristics, social structure etc. Analysis and Report writing.,
Module -4 CONDUCTING SETTLEMENT STUDY
• Different tools, techniques and methods of surveys for settlement studies.
• Actual on-site work of surveys, photographs, study and documentation work to be done in studio.
Studio Exercises
• Group work – Preparation of set of Measured drawings of historically important structures, Detailed drawings, sketches etc. Publication of the work in the form of paper/ article etc.
Mode of Examination
Continuous Assessment & End semester Sessional Term work

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0408B	CLIMATE RESPONSIVE ARCHITECTURE	0	4	100	Nil	Nil	100	200	4

Course Objective

1. To make students understand the operation of passive systems of environmental control in buildings and their impact on the performance of the interior space and comfort of the occupant, their influence on building design and passive design strategies
2. To make students understand the basics of wind & wind flow, its impact on build environment and learn various strategies of natural ventilation
3. To make student understand heat flow of body and buildings and basics principles of heat transfer.

Course Outcome

1. To make students familiarize with various passive design strategies related to thermal comfort and natural ventilation for planning and designing various building typologies

Course Content

Module -1 WIND AND ITS IMPACT ON THE BUILT ENVIRONMENT.

- The wind-effect of topography on wind patterns-air current around the buildings
- Air movement through building and the principals and physics behind its movement

Module – 2 HUMAN COMFORT

- Understanding heat and its flow, definitions such as conduction convection and radiation.
- Heat generated in the human body and the natural processes by which heat is produced in the body.
- Human heat balance and comfort, heat stress, comfort index.

Module – 3 HEAT FLOW THROUGH BUILDINGS & INSULATION

- Basic principles of heat transfer through buildings, and periodic heat flow through a building
- Understanding definitions such as Conductivity, resistivity, specific heat conductance.
- Building insulation, u-values for wall, roofs, and fenestration; envelope insulation and thermal mass performance; glazing solar heat gain coefficient and visible transmittance.

Module – 4 PASSIVE STRATEGIES

- Passive heating and cooling strategies; courtyards and placement of openings; venturi effect, wind catchers, wind towers, stack and wind assisted natural ventilation; role of landscaping and water elements.

Exercises:
Assignments based on all the above modules will be conducted
Illustrated Lectures, Texts, Case Studies and examples will be conducted
Mode of Examination
Continuous Assessment and End semester sessional term work.
Reference Books
10. Koenisberger, O.H., Ingersoll, T.G., Mayhew A., and Szokolay, S.V, "Manual of Tropical Housing and Building- Part I: Climatic Design", Orient Longman.
11. Crichfield Howard J., "General Climatology", Phi Learning, 1998.
12. Bansal, N.K., Hauser, G. and Minke G., "Passive Building Design: A Handbook of Natural Climate Control", Elsevier Science.
13. Man, Climate And Architecture, Applied Science, Banking Essex by B. Givoni
14. Givoni, B., Man Climate and Architecture.
15. Krishan, A., Climate Responsive Architecture.
16. Olgyay & Olgyay, Design with Climate,
17. Lam, W., Sunlighting as Formgiver for Architecture. Van Nostrand Reinhold Company
18. Baker, N. & Steemers, K., Daylight Design of Buildings.

Second Year Bachelor of Architecture

Semester -IV

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
	ELECTIVE - II (Any one)	0	2	50	0	0	50	100	2
22UAR0409E	**A) Vernacular Architecture**								
22UAR0410E	**B) Sustainable Built Environment**								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

Module wise course contents to be decided by experts in respective fields.

Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

- **A. Vernacular Architecture**
- **B. Sustainable Built Environment**

Mode of Examination

Continuous Assessment and End semester sessional term work only

BACHELOR OF ARCHITECTURE

THIRD YEAR

SEMESTER V

Third Year Bachelor of Architecture

Semester -V

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0501D	Architectural Design-III	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0502B	Building Construction Technology & Materials -V TH	BS &AE	1	0	Nil	100	03 Hrs	-	Nil	100	1
22UAR0503B	Building Construction Technology & Materials -V PR	BS &AE	0	4	75	Nil	--	75	Nil	150	4
22UAR0504D	History of Architecture - IV	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0505B	Theory of Structure -IV	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0506B	Building Services-III	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0507D	Working Drawing-I	PC	0	4	100	Nil	--	100	Nil	200	4
22UAR0508D	Landscape Design	PC	0	2	50	Nil	--	Nil	50	100	2
	Elective-III		0	2	50	Nil	--	Nil	50	100	2
22UAR0509E	A) Graphic & Product Design	PE									
22UAR0510E	B) Architectural Conservation	PE									
22UAR0511E	C) Foreign Language	SEC									
	TOTAL		10	20	625	400	--	375	100	1500	30

List of Abbreviations		
Sr.No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0501D	**Architectural Design-III**	**0**	**8**	**200**	**Nil**	**200**	**Nil**	**400**	**8**

Course Objective

After successful completion of this course, student should be able to:

1. To explore complex concepts
2. To understand services in building design.
3. To understand building basic bye-laws in strict application
4. To understand design with respect to campus planning.

Course Outcome

1. To design complex Architectural spaces
2. To Design a campus & various buildings & their relation with each other
3. To study zoning in campus
4. To apply concepts to campus planning

Course Content

Module -1

- Site analysis with respect to surrounding environment, tradition, culture. Zoning, Climatic considerations. Study of Contours.

Module -2 -

- Related Case Studies & studying building bye-laws. Formatting design brief. Research regarding selected style, Ism or philosophy. Understanding characters of selected style.

Module – 3 -

- Conceptual explorations of character and selected style. Explorations with respect to Zoning, Master plan. Designing various buildings in a campus.

Module – 4 -

- Considering structural solutions & materials for complex Architectural spaces. Considering use of mechanical vertical transport. Understanding of Appropriate Technologies and Methods of Construction. Dwelling and community Unit and Cluster combinational principles.

Module – 5 -

- Design Development. Consideration of bye-laws. Consideration of building related services. Finalization of Design Proposal. Highlighting the character of building as regards to style, Ism or philosophy. Complex Architectural spaces.

- **Studio Exercises**

- Studio Exercises suggested: Design of Complex function spaces preferably Large Public Buildings as decided by the Institute.
- 1 no Major Project based on above Modules with creative presentation of drawings & models.
- Ex. School / College campus, Institutes, IT campus etc.

Mode of Examination

Continuous Assessment and End Semester Sessional Viva

Reference Books

1. *Ching, Francis D.K.; Architecture Form, Space and Order.*
2. *C.M. Deasy -Design for Human Affairs.*
3. *Rudofsky, Bernard; Architecture without Architects.*
4. *Rasmussen, Steen Eiler; Experiencing Architecture.*
5. *Paul Lassau – Graphic Thinking for Architects and Planners.*
6. *Peter Pearce, Structure in Nature – Strategy for Design.*
7. *Peter Streens, Patterns in Nature.*
8. *Anthony Antoniadis - Poetics in Architecture: Theory of design*
9. *Am heim Rudolf, Visual Thinking.*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0502B **22UAR0503B**	**Building Construction Technology & Materials –V TH & PR**	**1**	**4**	**75**	**100**	**75**	**Nil**	**250**	**5**

Course Objective

After successful completion of this course, student should be able to:

1. Understand complex construction systems for large structures.
2. Introduction to special techniques used for modern High-rises, Prefabrication, as well as influence of Vernacular Architecture in development and adaptation of new systems

Course Outcome

1. To understand the detail methods of construction using steel for structural purposes such as foundations, steel columns, Door & Windows, roof trusses with roof coverings etc.
2. To understand methods of construction of curtain wall using various materials.
3. To understand the modular construction and prefabrication construction.

CONSTRUCTION

Module -1

- Construction systems used for high rise buildings in steel, Foundation in steel, Column & beam in steel. STEEL GRILLAGE FOUNDATION, work sheds construction of compound fences, gates, grills in wood, steel etc.

Module -2 STEEL WINDOWS,SLIDING FOLDING DOORS-

- Steel Doors, Windows, and Rolling Shutters Types of doors & windows- open able, sliding, etc.
- methods of constructions using steel design and detailing of steel rolling shutters, collapsible gates and ventilators

Module -3 INDUSTRIAL AND LARGE SPAN BUILDINGS IN STEEL

- Industrial and large span buildings in steel-Types of trusses, long span, north light, space frames, portal frames, space decks, wall cladding in steel, construction details of the above and the context in which they are used.

Module – 4 LATEST TRENDS IN CURTAIN WALL CONSTRUCTIONS

- Latest trends in Curtain wall constructions. Materials like Glass, ACP for single story and multi-story buildings.
- Study of traditional & vernacular systems and materials used in construction.
- Appropriate technology & Modern non-conventional techniques developed by various research institutes in response to the local/regional conditions.

MATERIALS

Module – 5 – DIFFERENT MATERIALS FOR CURTAIN WALLING

- Different materials for curtain walling like glazing, composite aluminium doors, materials used for swimming pools, decks, paving

Module – 6 COMPOSITE MATERIALS;

- Composite materials; classification , properties and uses- linoleum, plastic coated paper, polyurethane sheets, flexicon sheet , reinforced plastic, and PVC.

Module – 7 CAVITY WALLS

- Cavity walls, construction, materials, brick masonry walls, detail of cavity wall near door & window openings

Module – 8 PLASTIC IN BUILDING INDUSTRY:

- Plastic in building industry: Brief history, composition, polymerization, classification of plastics, use of plastics, plastic coating, fibre glass reinforced plastic, etc. Recycle and Reuse of plastic
- Advantages/disadvantages & use in building industry.

Studio Exercises

- College shall undertake site visits of construction projects.
- Term work shall consist of minimum one/two sheets of imperial size on each of the items
  - Above i.e. (ii), (iii), (iv).
- Reports on site visits
- Journal for notes on Building Materials and market survey of the different materials.

Mode of Examination

Continuous Assessment and End semester Theory paper and end semester Sessional Viva

Reference Books

1. *Elements of structure by Morgan*
2. *Building Materials by Rangwala*
3. *Building Materials in India (50 years)*
4. *Structure in Architecture by Salvadori*
5. *Building construction by Mckay W. B., Vol. 1 to 4*

6. *Construction of Building by Barry, Vol. I to V*
7. *Construction Technology by Chudley R. Vol. I to IV*
8. *Building Construction Illustrated – Ching Francis D.K.*
9. *Elementary Building Construction by Michell*
10. *Elements of structure by Morgan*
11. *Building Materials by Rangwala*

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0504D	History of Architecture -IV	3	0	50	100	Nil	Nil	150	3

Course Objective

After successful completion of this course, student should be able to:

- To understand church architecture as evolving within specific context including aspects of society, religion, politics and climate.
- To gain knowledge of the development of architectural form with reference to technology, style and character in the western world through the evolution of the church from early Christian times up to the renaissance period

Course Outcome

- To inform about the development of architecture in western world through the evolution of Christianity as a religion and the cultural and contextual determinants that produced that Architecture and further coarse of time its influence on rest part of the world.

Course Content

Module -1 BYZANTINE ARCHITECTURE-

- Architectural characters, Forms, Dome technology and material used
- Early & Late Christian Era
- Typical examples viz. St. Peters Rome (basilica), Lateran Baptistery Rome, St. Lorenzo Rome and Hagia Sophia

Module -2 ROMANESQUE IN EUROPE –

- Development of style as Architectural characters
- North Italy, central, southern Italy Sicily cathedral
- Typical style illustrating the style – Pisa Cathedral complex, S. Pavia, S. Michelle

Module – 3 - ROMANESQUE IN FRANCE –

- Architectural characters
- North and South France cathedrals
- Typical examples such as Angouleme Cathedral & Abbey Aux Home Cathedral
- Romanesque in British Isles – Secular and Non-Secular Buildings
- Typical examples such as – Canterbury Cathedral, Durham Cathedral, Norman Castles- Tower of London, Windsor Castle and Manor Houses.

Module – 4 - GOTHIC STYLE IN FRANCE.

• Typical example of religious buildings and secular buildings.
• Gothic style in British Isles
• Typical example of religious and secular nature
• Gothic style in Italy – Examples of religion type
Module – 5 - RENAISSANCE IN ITALY –
• Its birth and impact
• Early renaissance – development of style at Florence, Rome and Venice
• Works of Brunelleschi, Leon Albert, Palladio, Bramante, Bernini and Michelangelo
• High renaissance and Proto Baroque – Classical buildings of Florence, Rome and Venice
• Baroque and Rococo – Reformation in style examples of Florence, Rome & Venice
Module – 6 - RENAISSANCE IN FRANCE –
• Architectural character of secular and Religious buildings
• Early period, Classical period and late period
• Typical examples such as Chateau-de-Chambord, Palace Louvre and the pantheon Paris
• Renaissance in British Isles- religious and secular buildings
• Early and Late renaissance and its Examples
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. *History of Architecture by Percy Brown*
2. *History of Architecture by Sir Bannister Fletcher*

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0506B	**Building Services-III**	**3**	**0**	**50**	**100**	**Nil**	**Nil**	**150**	**3**

Course Objective

After successful completion of this course, student should be able to:

- To acquaint students with various types of mechanical transportation systems available like Lifts, escalators, conveyors, and travellators within buildings, depending upon the use of that building ranging from residential, commercial, industrial categories and operation of automated parking systems - applications along with relevant codes, standards, demand criteria, load carrying capacity, travel time, co-ordination of space requirements & installation of such equipment in a building.
- To familiarize students with fundamentals of science of sound along with building acoustics and noise control and make them aware about design aspects associated with building acoustics.
- To acquaint students about the importance of fire resistant structures and exposing them to planning guidelines, associated general rules, latest preventive measures and making them aware about disaster preparedness.

Course Outcome

- Student must get aware of the basic design principles and different types of mechanical transportation systems available for implementation within a building –depending upon the use of that particular building its technical and spatial requirements with knowledge about different codes and standards along with necessary safety measures to be incorporated.
- Student must gain basic understanding about the science behind building acoustics and learn how to apply prediction methods to assess the functional requirements of buildings with respect to acoustics. Student must gain knowledge about acoustical solutions for buildings they are designing with application of scientific planning strategies, latest technologies and application of various materials etc. and must be able to access their designs through simulations and design models for better performance.
- While conceiving the concept of any design student should cater equal attention to the aspect of fire disaster management, safety of the occupants first and then property. They should know that building commissioning is an owner driven requirement whereas, life safety commissioning is a code driven requirement.

Course Content

Module -1 Introduction, different types and technical details about various types of mechanical Transportation systems within buildings.

- Why and where we need such mechanical transportation systems?
- Different types of buildings and different types of transportation systems available to fulfil different requirements.
- Design and operation, demand criteria, load carrying capacity, travel time, co-ordination of space requirements, construction and installation and various codes and rules along with safety measures and precautions to be incorporated for each type of mechanical transportation systems.

Module -2 KNOWING ABOUT BASIC FUNDAMENTALS OF SOUND.

- Introduction to sound- Physics of sound- Sound waves, various units of measurement of sound -intensity, wavelength, measure of sound, decibel scale, speech and music frequencies
- Human perception, addition and subtraction of decibels.
- Behaviour of sound- in enclosed & open spaces - Travel, reflection, refraction, reverberation, absorption, acoustic attenuation-Outdoor noise levels, acceptable indoor noise levels, sonometer,
- Design for good hearing conditions- acoustical requirements for different space types and design planning strategies and Construction details .Calculations for actual reverberation time, coefficients of absorption, Sabine's theory and echo exercises involving reverberation time and absorption coefficient. Selection of building material and as per density, absorption coefficient and measurement, choice of absorption material, resonance, reverberation, Understanding properties of materials: Absorption, reflection, scattering, diffusion, transmission, absorption co-efficient, NRC, sound transmission class (STC), impact insulation class (IIC).

Module – 3 - NOISE CONTROL AND SOUND ABSORPTION

- Noise control and sound absorption Types of noises, transmission of noise, transmission loss, noise control and sound insulation, remedial measures and legislation.
- Constructional measures, Walls/ partitions, floors/ ceilings, window/doors, insulating fittings and gadgets, machine mounting and insulation of machinery.

Module – 4 ACOUSTICS AND BUILDING DESIGN

- Acoustics and building design- Site selection, shape, volume, treatment for interior surfaces, Acoustics of Architectural Spaces Reverberation time sound in enclosed space, basic room acoustics concepts and design,
- Lab: Introduction to sound level meter. Simple experiments to predict RT, Background noise level and frequency analysis.
- Design of auditorium, conference hall, recording studio. Basic principles in designing open air theatres, cinemas, broadcasting studios, concert halls, classrooms.
- Environmental noise and its control.

Module – 5- INTRODUCTION TO CONCEPT OF FIRE FIGHTING

- Basic fundamentals of fire fighting, evolution of regulation
- Formation of regulation for Health and Safety of the inhabitants
- Role of an architect
- Definition of fire fighting
- Precautionary measures to be taken to minimize the danger of fire
- Understanding the facts- the fire protection in building
- Why recommending *'fire resistant'* than *'fire proof'*
- Principles of Fire Behaviour
  - General causes of fires
  - Fire triangle,
  - Effects of fire, Types of fire hazards
- Calculating fire load
  - Definition and explanation of fire load
  - Low fire load
  - Moderate fire load
  - High fire load
- Grading of materials, Responsible material properties of basic construction materials

• Grading of occupancies by fire load
• Grading of structural elements, classification of structural elements
• Grading of buildings according to fire resistance, Types of buildings.
• Fire resisting materials
- What are the characteristics?
- Explain types with examples
- Fire resisting properties of common building materials-Stone, Bricks, Concrete, Steel, Glass, Timber, C.I. and W. I., Asbestos cement, Aluminium, Plaster or mortar
• General fire safety requirements for buildings
- General Recommendations by IS: 1641-1988
- National Building Code- extracts
- Means of escape
- Firefighting equipment
• Fire resistant construction – Walls and columns, Floors and roofs, Wall openings)
- Escape elements (stairs, corridors, lobbies etc.)
- Strong room construction
- Requirement of Water
Module -6 SYSTEMS OF FIRE FIGHTING
• External fire fighting system - Hydrants and their types
• Internal fire fighting system
- Residential / Commercial buildings
- Industrial premises
• Residential premises fire protection systems
• Fire Hose System –
- Dry riser
- Wet riser
- Fire hose/ Cabinet
• Automatic Sprinkler Systems
- Planning and Installation
- Classification- based on release, water distribution, arrangement
- Sprinkler system design
• Industrial premises fire protection systems
- Planning factors
- Methods applied
- Velocity based water spray systems
- Mechanical fire extinguishers- Dry chemical powder, Foam based, Carbon dioxide extinguishers,
- Portable fire extinguishers
- Alarm Gong
- Fire Alarm Systems, Types of alarm systems
• Training, Service and Maintenance -Training to handle a fire situation, Preparation of disaster plan, Healthy
Studio or other Exercises

1. Suitable exercises on all the Modules mentioned above
2. Suitable Case studies to be conducted
3. Students shall be encouraged to do market survey of acoustic materials.
Mode of Examination
Continuous Assessment and End Semester Theory Paper
Suggested References:
1. Air Conditioning & Refrigeration by William Sterms & Julian R. Fellows
2. ASHRAE Fundamentals Handbook
3. Air Conditioning & Energy Conservation by F. C. Sherrat
4. Mechanical and Electrical Equipment for Buildings by Walter T. Grondzik, Alison G. Kwok, Benjamin
5. Stein 3. Basic Refrigeration and Air Conditioning by A. Ananthanarayana.
6. Building Construction by Rangwala.
7. Philips lighting in Architectural Design
8. R. G. Hopkenson & J. D. Kay. The lighting of Buildings
9. National Building Code
10. Benjamin Evaus- Daylight in Architecture
11. Salvan, George S., Architectural Utilities 3: Lighting & Acoustics
12. Sage, Russell. The Architecture of Light: Architectural Lighting Design Concepts & Techniques.
13. V.J.Smith, R.J.Peters and others, Acoustics and noise control.
14. David eagle, concepts in Architectural acoustics.
15. Cyrill Harris Architectural acoustics
16. Barron. M. (2009). Auditorium acoustics and architectural design. 2nd Ed. Taylor & Francis
17. Cox, T. J. and D'Antonio, P. (2009). Acoustic Absorbers and Diffusers. 2nd Ed. Taylor & Francis
18. Eagan, D. M. (2002). Concepts in Architectural Acoustics
19. Harold, B. M. and Goodfriend, L. Acoustics for Architects. Reinhold
20. Koenigsberger, Ingersoll, & Mayhew. Manual of Tropical Housing and Building

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0505B	**Theory of Structure -IV**	**3**	**0**	**50**	**100**	**Nil**	**Nil**	**150**	**3**

Course Objective
After successful completion of this course, student should be able to:

1. Explain the behaviour of various connections and able to solve the problems various fasters (Bolted and welded) used in steel construction.
2. Uses of all loadings and limit state design method for steel structure.

Course Outcome

1. Students will be able to study the structural steel technique
2. To introduce concepts of strength and stiffness considerations.
3. To analyse, and design the riveted, welded and bolted connections

Course Content

Module -1

- Introduction to steel structures, steel table and IS Code IS800 – 2007. Study of different standard rolled steel sections. Advantages of steel structures over RCC. Limitation and advancements.

Module -2

- Steel as structural material, structural systems in steel with case studies.
- Types of connection in steel structures. Types of joints and Types of failures in steel structures. IS code
- Designing & detailing the bolted connections, design of simple welded connection

Module – 3

- Types of trusses for different spans, materials used, load distribution.
- Study of different components of trusses and there functions.
- Introduction to Build up columns
- Types of lacings and battens for steel columns.

Module - 4

- Design of built up beams with flange plates only. Introduction to plate girders (no design calculations)
- Design for grillage foundation for isolated columns only concept and introduction to raft R.C.C foundation (without numerical

Studio exercise
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment and End semester theory exam
Reference Books
1. **"***Design of Steel Structures" by Duggal*
3. *"Design of Steel Structures: By Limit State Method as Per IS: 800-2007" by S S Bhavikatti*
4. *"Steel Structures: Design and Practice" by N Subramanian*

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0508D	**Landscape Design**	**0**	**2**	**50**	**Nil**	**50**	**Nil**	**100**	**2**

Course Objective

After successful completion of this course, student should be able to:

1. To make students aware of architecture beyond buildings, in the outdoor environment and spaces
2. To develop the understanding of site and site planning.
3. To develop the skill of integrated design of open and built spaces.

Course Outcome

1. To make the student familiar with common terms and practices in Landscape Architecture
2. To integrate landscape elements and principles in design.
3. To plan and design services in landscape.
4. To study and analyse past and future trends in Landscaping.

Course Content

Module -1

- Introduction to Landscape and terms & terminology used.
- Elements and Principles of Landscape.
- Factors and Components of Landscape.

Module -2

- History of Landscape Architecture throughout the world.
- Study of native species, Regional vegetation types and Climatic effects on Landscape.

Module - 3

- Lying of basic services like water supply, plumbing, sewage and electricity.
- Placing of natural and manmade elements in design.

Module – 4

- Modern landscape trends.

Studio Exercises

Notes, sketches, A2 size plates and seminars on above modules.

Mode of Examination
Continuous Assessment and End Semester sessional viva
Reference Books
1. *Site Planning by Kevin Lynch,*
2. *Landscape Architecture by J. O. Symonds*
3. *The Landscape of Man by Geoffrey and S. Jellico.*
4. *Landscape Graphics by G. Reid.*

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		Credits
22UAR0507D	Working Drawing -I	0	4	100	Nil	100	Nil	200	4

Course Objective

1. The focus of the course is to impart skills related to the preparation of drawings meant for construction work on the site
2. To improve the student's ability of detailing

Course Outcome

1. To impart training in the preparation of working drawings for buildings (mostly load bearing ground floor structures) and incorporating specifications as complementary to the working drawings.
2. To sensitize the students in preparing finer design details required for buildings

Course Content

Module -1

- Preparation of working drawings: suitable scales of drawing,
- Methods of giving dimensions: on plans, sections, elevations and other standards

Module -2

- Preparation of plans: site plan with all dimensions, center line plan, foundation plan, terrace floor plan

Module - 3

- Elevations & Sections: all side elevations, sections sufficient to explain (1 section through staircase & one through the toilet block) the scheme

Module – 4

- Detail layout for sanitation
- water supply and electrical layout (plans showing internal & external lines of sanitation, water supply & electricity),
- staircase details including railing
- handrail details, details of toilet with fittings kitchen
- platform details with built in cupboards

Module – 5

- Detailing of architectural elements such as balconies, verandas, RCC canopy, other shading devices

Module – 6
• Details of doors & windows, teak wood fully panelled doors/ commercial flush door shutters/ steel/ aluminium glazed windows, joinery details of doors & windows, details of fittings
Studio Exercises
The students have to prepare two working drawing sets of residential buildings (150-200 sq m) of a load bearing structure
Mode of Examination
Continuous Assessment and End Semester sessional viva
Reference Books

Third Year Bachelor of Architecture									
Semester -V									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
	ELECTIVE I	**0**	**2**	**50**	**0**	**0**	**50**	**100**	**2**
22UAR0509E	**A) Graphic & Product Design**								
22UAR0510E	**B) Architectural Conservation**								
22UAR0511E	**C) Foreign Language**								

Course Objective

After successful completion of this course, student should be able to:

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

Acquiring knowledge, hands on experience & skills in subject of choice

Enhancement of professional/ creative abilities and development of personality

Course Content

- Module wise course contents to be decided by experts in respective fields.

List of Elective Subjects offered:

A. Graphic & Product Design

B. Architectural Conservation

C. Foreign Language

Mode of Examination

Sessional Term work only

Reference Books

BACHELOR OF ARCHITECTURE

THIRD YEAR

SEMESTER VI

Third Year Bachelor of Architecture

Semester -VI

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0601D	Architectural Design-IV	PC	0	8	200	Nil	--	200	Nil	400	8
22UAR0602B	Building Construction Technology & Materials -VI TH	BS &AE	1	0	Nil	100	03 Hrs	Nil	Nil	100	1
22UAR0603B	Building Construction Technology & Materials -VI PR	BS &AE	0	4	75	--	--	75	Nil	150	4
22UAR0604D	History of Architecture -V	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0605B	Theory of Structure -V	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0606B	Building Services-IV	BS &AE	3	0	50	100	03 Hrs	Nil	Nil	150	3
22UAR0607D	Working Drawing-II	PC	0	4	100	Nil	Nil	100	Nil	200	4
22UAR0608D	Estimating, Costing and Specification Writing	PC	0	2	Nil	100	03 Hrs	Nil	Nil	100	2
	Elective-IV		0	2	50	Nil	--	Nil	50	100	2
22UAR0609E	A) Architectural Journalism	PE									
22UAR0610E	B)Art & Film Appreciation	OE									
22UAR0611E	C) Digital Graphics & Arts	SEC									
	TOTAL		10	20	575	500	--	375	50	1500	30

List of Abbreviations		
Sr.No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0601D	Architectural Design-IV	0	8	200	Nil	200	Nil	400	8

Course Objective

After successful completion of this course, student should be able to:

1. To explore complex concepts. To understand services in building design.
2. To understand & incorporate various styles, isms and philosophy in architecture.

Course Outcome

1. To design complex Architectural spaces
2. To design experiential Architecture based on Architectural styles and Philosophies.

Course Content

Module -1

- Issues of Identity, Scale, Public spaces, Context, Grouping of buildings, Infrastructure for community formation etc. Site analysis with respect to surrounding environment, tradition, culture. Zoning, Climatic considerations. Study of Contours.

Module -2 -

- Related Case Studies & studying building bye-laws. Formatting design brief. Research regarding selected style, Ism or philosophy. Understanding characters of selected style.

Module – 3 -

- Conceptual explorations of character and selected style. Composing basic structures in Master plan w.r.t. aesthetics

Module – 4 -

- Urban neighbourhoods, traditional and present day composition, structure, density, land use coverage, building controls, urban infrastructure and services. . Considering structural solutions & materials for complex Architectural spaces. Considering use of mechanical vertical transport.

Module – 5 -

- Design Development. Consideration of bye-laws. Consideration of building related services. Finalization of Design Proposal. Highlighting the character of building as regards to style, Ism or philosophy. Complex Architectural spaces.

Studio Exercises

- Studio Exercises suggested: Design of Complex function spaces preferably related to Housing complexes as decided by the Institute.
- 1 no Major Project based on above Modules with creative presentation of drawings & models.
- Ex. Museums, Exhibition spaces, Convention centers.

Mode of Examination

Continuous Assessment and End Semester Sessional work with Viva

Reference Books

1. *Robert Sommer. -Design Awareness.*
2. *C.M. Deasy -Design for Human Affairs.*
3. *Pierre Von Meiss -Elements of Architecture from form to place.*
4. *Yatin Pandya- Elements of Space Making.*
5. *Paul Lassau – Graphic Thinking for Architects and Planners.*
6. *Peter Pearce, Structure in Nature – Strategy for Design.*
7. *Peter Streens, Patterns in Nature.*
8. *Anthony Antoniadis - Poetics in Architecture: Theory of design*
9. *Am heim Rudolf, Visual Thinking.*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0602B 22UAR0603B	Building Construction Technology & Materials –VI TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to:

1. Understand materials used in construction, principles of construction, building systems.
2. Issues related to Remodelling, Repairs, and Temporary structures
3. Issues related to coordination between the detailing and execution on site

Course Outcome

1. To understand the method of construction of swimming pool, with all detailing.
2. To enable the students to develop capacity to design theatre/Auditorium balcony.
3. To understand the method of construction of High rise and composite structures, mechanical vertical transportation like-lifts, elevators, sky walk etc.
4. To understand the method of construction in earthquake prone areas.

Course Content

Module -1 (CONSTRUCTION)

- Waterproofing of Basements, Swimming pools and other water retaining structures.
- Construction of swimming pools with details of raft slab, underwater lighting system, scum gutter, inlet &outlet details, spring board diving details, filtration plant.

Module -2

- Construction details of a balcony slab in an auditorium/ cinema theatre, raker beam details & RCC slab details (showing general reinforcement), longitudinal section of an auditorium

Module -3

- Advanced construction techniques: High rise structures, Composite structures,
- Systems developed in response to- Earthquake zone, adverse site conditions like expansive soils –
- Deep foundations, piles &caisson foundations.

Module -4

- Elevators:-Design criteria for provision of Elevators, Details of construction of Elevators.
- Details of construction of Escalators, Travellators and Auto Walk, Installation, working mechanism of Escalators, Travellators and Auto walks.

(MATERIALS)
Module -5
• Types of swimming pools and method of washing and filtration of pools.
Module -6
• Characteristics, Classification, properties, energy behaviour, intelligent environment. Recycled and ecological materials and energy saving materials
Module-7
• Retaining walls, concepts, masonry / RCC retaining walls, weep hole details, RCC/ masonry retaining walls in basement, disposal of water from the basement floor
Module-8
• Earthquake Zones, Codes, Behaviour and effects of earthquakes. Remedial measures to be studied
Studio Exercises
1. College shall undertake site visits of construction projects.
2. Term work shall consist of minimum one/two sheets of imperial size on each of the items Above i.e. (i), (ii), (iv).
3.And Reports on site visits
4**.** Journal for notes on Building Materials and market survey of the different materials.
Mode of Examination
Continuous Assessment and End semester theory paper and end semester sessional work with viva
Reference Books
1.Elements of structure by Morgan
2.Building Materials by Rangwala
3.Building Materials in India (50 years)
4.Structure in Architecture by Salvadori
5.Building construction by Mckay W. B., Vol. 1 to 4
6. Construction of Building by Barry, Vol. I to V
7. Construction Technology by Chudley R. Vol. I to IV
8.Building Construction Illustrated – Ching Francis D.K.
9.Elementary Building Construction by Michell
10.Elements of structure by Morgan
11.Building Materials by Rangwala

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0604D	History of Architecture -V	3	0	50	100	Nil	Nil	150	3

Course Objective

After successful completion of this course, student should be able :

1. To introduce the condition of modernity and bring out its impact in realm of Architecture.
2. To study modern architecture as evolving from specific aspects of modernity, industrialization
3. Urbanization, material development, modern art as well as society's reaction to them.
4. To create an overall understanding of the architectural development in India by colonial rule.

Course Outcome

1. Industrial revolution fulfilling the materialistic need to serve the secular architecture.
2. The Movements in the form of –isms, brought change in frameworks of buildings
3. Philosophies and theories of the world legends, those contributed to the field of architecture.
4. The colonization was responsible to change the architecture of India.
5. The contribution of Indian icons in the 20th century

Course Content

Module -1 EFFECTS OF INDUSTRIAL REVOLUTION (1800-1880) on construction technology and architectural design-

- Early movements such as Industrial romanticism eclecticism, Art and craft- Art Nouveou,
- Avant- garde, Art deco, De stijl.
- Pioneers of these movements- Joseph Paxton, Gustav Eiffel, Anguste Perret, Tony Garnier
- Antonio Gaudi, Victor Horta, Hector Guimard and their Creations.

Module -2 - CHICAGO SCHOOL AND SKYSCRAPER (1880-1910)

- Bauhaus Design school(1919-1933)
- Movements leke expressionism, constructivism,, cubism, functionalism
- Organic Architecture theory
- Legends of the Era- Adolf Loose, Louis Sulllivan, FL Wright, Walter Gropius, Ludwig van der Rohe,
- Bruno Taut, Peter Behren and their master pieces.

Module – 3 - GROWTH OF INTERNATIONAL STYLE (1940-1970)
• Works of master architects- Ero saarinan, Alvar Aalto, Kenzo Tango, Oscar Niemeyer, Richard Neutra
• Paul Rudolph.Movements like- Post modernism, Brutalism
• Spread and Development of International style under Le Corbusier, Louis-I- kahn, I M Pei, Lucio Costa.
Module – 4 - HIGH TECH ARCHITECTURE (1970 ONWORDS)
• De-constructivism and Regionalism
• Master works of Norman Foster, Renozo Piano, Frank -O- Gehry, Hassan Fatthy, Geoffrey Bawa.
Module – 5 - COLONIAL ARCHITECTURE IN INDIA- cantonments, bungalows etc.
• Colonialism and its impact on India
• Works of British architects in pre- independence.
• Planning of new Delhi- Viceroy house, Parliament etc.
• Saracenic architecture- Town halls, CST, Museums etc.
Module – 6 - PHILOSOPHIES AND WORKS OF INDIAN ARCHITECTS
• Like Dr. B.V. Doshi, A.P. Kanvinde, Charls correa, Raj Rewal.
• Impact of Chandigarh planning on Indian Architecture.
• Contribution of Lawrie Baker & Louis- i- kahn in India
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Theory Exam will be conducted.
Reference Books
1. *The Puzzle of Architecture by Robui Boyd.*
2. *Modern Architecture by Kenneth Frampton.*
3. *The story of Architecture by Patrick Nuttgens.*
4. *Architecture & independence by John T. Lans, Madhavi Desai Miki Desai*

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme				Grand Total	Credits
				Internal marks	External Marks				
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0605B	Theory of Structure -V	3	0	50	100	Nil	Nil	150	3

Course Objective

After successful completion of this course, student should be able :

1. To explain the behaviors of pre-stressed concrete elements under different limit states,
2. To explain fundamentals of pre-stressed concrete design using advanced construction materials
3. To explain the application of prefabrication and its uses.

Course Outcome

1. Students will be Introduced to advanced structural techniques
2. Basic overview of the recent trends in the field of structures

Course Content

Module -1 PRESTRESSING

- Definitions, Principles of Pre stressing ,Pre stressing and post tensioning, Materials of Pre stressing, systems of pre stressing , applications and uses - stresses of pre stressed concrete members , Approximate design of pre stressed concrete members.

Module -2 SHELLS STRUCTURES

- Definition and various forms and classification of shells Advantages and disadvantages, Study of Preformed shells cylindrical shells, Hyperbolic and parabolises, free forms of shells

Module – 3 PREFABRICATIONS:

- Definitions, Principles of Prefabrications, Applications – Prefabrication system for buildings.

Module - 4 CABLE STRUCTURES :

- Cable stayed – cable suspended structures, Simply curved suspended roofs, combination of roofs and struts. The students are encouraged to do case study of advance structural forms and make a presentation.

Studio exercise

Suitable exercises on all the Modules mentioned above

Mode of Examination

Continuous Assessment and end semester Theory exam

Reference Books
1. *"Prestressed concrete" by Krishna Raju.*
2. *"Theory of shells" by C.R.Calladine.*
3. *"Cable suspended roof structures"by Prem Krishna.*
4. *"Prefabricated Structures"by Edward Evans*

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0606B	Building Services-IV	3	0	50	100	Nil	Nil	150	3

Course Objective :

After successful completion of this course, student should be able to:

1. To develop an understanding about Sustainability by exposing students to various concepts of sustainability.
2. Exposing students to ways and means of achieving sustainability by managing energy, waste and water resources

Course Outcome :

1. To understand the importance of Sustainability in construction industry & to equip the students with a value system for selecting environmentally preferable materials & services.

Course Content

Module -1 SUSTAINABILITY

- Introduction to sustainability in Architecture
- Different Aspect of Sustainability in Architecture and sustainable design.
- Tools of sustainability

Module -2 RESOURCE CONSERVATION & MANAGEMENT:

- Study of Energy, waste, water usage in construction industry,
- Introduction to various ways and means of conserving and managing these resources at building, & site level.

Module – 3 ENERGY & ARCHITECTURE.

- Energy scenario in world and India.
- Energy and environmental concerns with respect to building industry.
- Sources of Energy. – Renewable non-renewable.
- NET Zero Energy Buildings and Energy Positive Buildings.
- Introduction to ECBC.

Module – 4 SUSTAINABILITY ASSESSMENT (RATING SYSTEMS)

- Introducing different rating systems in India;
- Strategies to earn credits in energy, waste & water categories of different rating systems.
- Life cycle analysis of materials; Different approaches of studying Life Cycle; Concept of 3 R's (Reduce, Reuse & Recycle).

Studio Exercises

- Suitable studio exercises will be conducted for all above modules
- Assignments relevant to design problem will be conducted.

Mode of Examination

Continuous Assessment and End semester sessional term work.

Reference Books

1. *National Action Plan for Climate Change, Prime Minister's Office, Govt. of India*
2. *Chapter 11, National Building Code by BIS*
3. *Energy Conservation Building Code, 2015,* BEE
4. Jenkins, *Renewable Energy Systems.*

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0607D	Working Drawing-II	0	4	100	Nil	100	Nil	200	4

Course Objective

After successful completion of this course, student should be able to:

1. The focus of the course is to impart skills related to the preparation of working drawings meant for construction work on the site and to improve the student's ability of detailing.

Course Outcome

1. To impart training in the preparation of working drawings for buildings and incorporating specifications as complementary to the working drawings.
2. To sensitize the students in preparing finer design details required for building

Course Content

Module -1 PREPARATION OF WORKING DRAWINGS:

- Suitable scale of drawings, methods of giving dimensions on plans, sections, elevations & other standards

Module -2 PREPARATION OF PLANS:

- site plan with all dimensions, centre line plan, foundation plan, all floor plans (as per the design done in the 5th semester), terrace floor plan

Module - 3 ELEVATIONS & SECTIONS:

- All side elevations, sections sufficient to explain the scheme (1 section through staircase & 1 section through toilet compulsory)

Module – 4

- Detail layout (Internal & external) for sanitation & water supply, electrical layout, staircase details including railing & handrail details, kitchen platform details with built in cupboards

Module – 5

- Details of door & windows, joinery details, fitting details, Specifications to support the types of doors & windows used

Studio Exercises

- Working drawings of two projects is compulsory, out of which one small residential frame structure and other one of the design project done in the 5th semester

Mode of Examination
Continuous Assessment and end semester session viva.
Reference Books

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0608D	**Estimating, Costing and Specification Writing**	**0**	**2**	**Nil**	**100**	**Nil**	**Nil**	**100**	**2**

Course Objective

After successful completion of this course, student should be able to:

1. To enable students understand the method of writing specifications for various items of works involved in the building.
2. To expose the students the procedure involved in estimating costs involved.
3. Simple projects will be introduced for preparation of specifications.

Course Outcome

1. To educate the students the need and importance of specifications, how to write specifications, important aspects of the design of a specification.
2. To inform the students the need for estimation- the concept of abstract & detailed estimates based on measurements of materials & works.
3. To educate the students to work out the rates of important items in building construction based on PWD schedule of rates for the particular year/ current year.

Course Content

Module -1 QUANTITY SURVEYING INTRODUCTION

- Definitions and terms used, principles, units of measurements.
- Methods of preparing approximate estimates (plinth area & cubic content method) basic differences & advantages, approximate estimates based on Bay Area Method, Service unit method etc.

Module -2 DETAILED BUILDING ESTIMATION-

- Method of obtaining detailed quantities of building items worked on measurement sheets (centre line method, long wall & short wall method).
- PWD systems to be followed. Definition of estimate.

Module - 3

- Detailed estimates for load-bearing and framed structures. (Ground floor only).

Module - 4

- Example & exercises in obtaining estimates of all items from excavation to finishes. Percentage for addition of contingencies.

Module – 5 PREPARING ESTIMATES

- Preparing estimates for services like water supply, plumbing, and various fittings for water supply & drainage.

Module – 6 RATE ANALYSIS-

- Cost of materials and labour for various works.
- Current rates of materials & labour to be referred from Schedule of Rates of PWD of the respective year.
- Different methods of execution i. e. piece work, daily basis, lump sum, labour rates and percentages etc. prime cost & provisional sum.

Module – 7 SPECIFICATIONS-

- Specifications- definition, purpose and importance of specifications, general or brief specifications, detailed specifications, writing of specifications for UCR masonry, brick masonry, doors & windows, mortars, plasters, flooring like terrazzo, ceramic tiles, Indian Patent Stone, glazed tiles etc. All RCC items, some major sanitary & water supply fixtures & fittings.

Studio Exercises

- Detail estimates with measurement sheets & rate abstract of at least 2 exercises each of load bearing & frame structures (Only ground floor). Rate analysis of important building items such as brick masonry, UCR masonry, all concrete & RCC items in load bearing & RCC framed buildings

Mode of Examination

Continuous Assessment and end semester theory paper

Reference Books

1. *Professional Practice by Roshan Namawati.*
2. *Schedule of Rates of every year of PWD Govt. of Maharashtra.*
3. *Estimating, Costing & valuation by Rangwala.*
4. *Estimating & Costing (civil engineering) by B. N. Datta.*
5. *Estimating, Costing, Specifications & valuation by M. Chakravarty.*

Third Year Bachelor of Architecture									
Semester -VI									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
	Elective-IV	**0**	**2**	**50**	**0**	**0**	**50**	**100**	**2**
22UAR0609E	**A) Architectural Journalism**								
22UAR0610E	**B) Art & Film Appreciation**								
22UAR0611E	**C) Digital Graphics & Arts**								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

Module wise course contents to be decided by experts in respective fields.

Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

- **A. Architectural Journalism**
- **B. Art & Film Appreciation**
- **C. Digital Graphics & Arts**

Mode of Examination

End semester sessional term work only

BACHELOR OF ARCHITECTURE

FOURTH YEAR

SEMESTER VII

Fourth Year Bachelor of Architecture

Semester -VII

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
20UAR0701D	Architectural Design-V	PC	0	8	200	Nil	--	200	Nil	400	8
20UAR0702B	Building Construction Technology & Materials -VII TH	BS &AE	1	0	Nil	100	03 Hrs	Nil	Nil	100	1
20UAR0703B	Building Construction Technology & Materials -VII PR	BS &AE	0	4	75	--	--	75	Nil	150	4
20UAR0704D	Human Settlement Planning	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0705A	Professional Practice - 1	PAEC C	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0706D	Building Byelaws & Code of Practice	PAEC C	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0707D	Interior Design	PE	0	4	100	Nil	--	100	Nil	200	4
20UAR0708D	Contemporary Architecture	PE	0	2	50	Nil	--	Nil	50	100	2
	Elective-V		0	2	50	Nil	--	Nil	50	100	2
20UAR0709E	(A) Disaster Mitigation and Management	PE									
20UAR0710E	(B) Industrial Architecture	PE									
20UAR0711E	(C) Building Information Modelling	SEC									
	TOTAL		10	20	325	400	--	375	100	1500	30

Fourth Year Bachelor of Architecture

Semester -VII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0701D	Architectural Design-V	0	8	200	Nil	200	Nil	400	8

Course Objective

After successful completion of this course, student should be able to:

1. To explore complex concepts. To understand building basic bye-laws in strict application. To understand services in building design. To design with respect to urban context.

Course Outcome

1. To design large complex Architectural spaces.
2. To design and understand the factors that make an Architectural Project Iconic or Landmark in Urban context

Course Content

Module -1

- Issues of Identity, Scale, Public spaces, Context, Grouping of buildings, Infrastructure for community formation etc. Site analysis with respect to surrounding environment, tradition, culture futuristic approach required for the project. Zoning, Climatic considerations. Study of Contours.

Module -2 -

- Related Case Studies & studying building bye-laws. Formatting design brief. Research regarding selected style, Ism or philosophy. Understanding characters of selected style. Understanding basic architectural solutions with respect to technology and futuristic needs of project.

Module – 3 -

- Conceptual explorations of character and selected style. Occupation and meanings of various spaces within the dwelling. Dwelling and its immediate external context. Street, Gully, Aangan, Mohalla etc. issue of changing lifestyles.

Module – 4 -

- Considering structural solutions & materials for complex Architectural spaces.Considering use of mechanical vertical transport. Understanding of Appropriate Technologies and Methods of Construction. Dwelling and community Unit and Cluster combinational principles. Urban neighbourhoods, traditional and present day composition, structure, density, land use coverage, building controls, urban infrastructure and services.

Module – 5-

- Design Development. Consideration of bye-laws. Consideration of building related services. Finalization of Design Proposal. Highlighting the character of building as regards to style, Ism or philosophy. Complex Architectural spaces.

-

- **Studio Exercises**

- Studio Exercises suggested: Design of Complex function spaces preferably Large Public Building complexes as decided by the Institute.
- 1 no Major Project based on above Modules with creative presentation of drawings & models.
- Ex. Multi-speciality Hospitals, Star category Hotels, Malls with Multiplex

Mode of Examination

Continuous Assessment and end semester Sessional work with Viva

Reference Books

1. *Robert Sommer. -Design Awareness.*
2. *C.M. Deasy -Design for Human Affairs.*
3. *Pierre Von Meiss -Elements of Architecture from form to place.*
4. *Yatin Pandya- Elements of Space Making.*
5. *Paul Lassau – Graphic Thinking for Architects and Planners.*
6. *Peter Pearce, Structure in Nature – Strategy for Design.*
7. *Peter Streens, Patterns in Nature.*
8. *Anthony Antoniadis - Poetics in Architecture: Theory of design*
9. *Am heim Rudolf, Visual Thinking.*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Fourth Year Bachelor of Architecture

Semester -VII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0702B 22UAR0703B	Building Construction Technology & Materials –VII TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to:

1. Understand complex construction systems for large structures
2. Introduction to special techniques used for modern High-rises, Prefabrication, as well as influence of Vernacular Architecture in development and adaptation of new systems.

Course Outcome

1. In the advanced stage of construction, the students will be aware of methods of retrofitting, repairing of old
2. Students will be aware of the construction, uses, and types of retaining walls.
3. Students will be Aquent with to find out the causes of failure of construction and give suitable remedial

Course Content

(CONSTRUCTION)

Module -1 BUILDING REPAIRS & REMODELLING

Building repairs & remodelling: Procedure of carrying out repairs, construction details for building services. Additions and alterations in existing buildings:-

1. Residential
2. Commercial
3. Industrial

Module -2

Issues of clear coordination in construction to relate between the design and construction, causes for failures in

Case studies to illustrate coordination and cases of failure.

Module -3

Retaining walls, concepts, masonry / RCC retaining walls, weep hole details, RCC/ masonry retaining walls in

Module -4

Modular co-ordination, Modular construction, Pre-fabricated elements for structures, specialized plant & machinery used for on-site installation, sequence of operations in construction.

(MATERIALS)

Module -5

Expansion Joints in construction.

Module -6
Smart and green building materials .Methods of application of it.
Module-7
Pre cast floor system with RCC beams, RCC Channels, and infilling floor blocks of various materials Connections and assembly of various building elements (prefab walls, beams, columns, chajjas, staircase flights, floor units, etc.)
Module-8
Retaining walls, concepts, masonry / RCC retaining walls, weep hole details, RCC/ masonry retaining walls in basement, disposal of water from the basement floor.
Studio Exercises
1. College shall undertake site visits of construction projects.
2. Term work shall consist of minimum one/two sheets of imperial size on each of the items Above i.e. (ii), (iii), (iv).
3.And Reports on site visits
4. Journal for notes on Building Materials and market survey of the different materials.
Mode of Examination
Continuous Assessment, end semester session viva and theory paper
Reference Books
1.Elements of structure by Morgan
2.Building Materials by Rangwala
3.Building Materials in India (50 years)
4.Structure in Architecture by Salvadori
5.Building construction by Mckay W. B., Vol. 1 to 4
6. Construction of Building by Barry, Vol. I to V
7. Construction Technology by Chudley R. Vol. I to IV
8.Building Construction Illustrated – Ching Francis D.K.
9.Elementary Building Construction by Michell
10.Elements of structure by Morgan
11.Building Materials by Rangwala

Fourth Year Bachelor of Architecture									
Semester -VII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0704D	**Human Settlement Planning**	**3**	**0**	**50**	**100**	**Nil**	**Nil**	**150**	**3**

Course Objective

After successful completion of this course, student should be able to:

1. To Study Evolution of concepts of Human Settlement Planning from Ancient times till the Modern Age.
2. To provide an overview of importance, need, scope of Architecture discipline in Human Settlement Planning.

Course Outcome

1. To study History of Evolution of Human Settlement.
2. To study Historic Development of Human Settlement in Early Civilizations
3. To study causes and Effects of Industrial Revolution on Human settlement Planning
4. To study Modern Trends and Planning Theory in Human Settlement Planning.

Course Content

Module -1

HISTORY OF EVOLUTION OF HUMAN SETTLEMENT.

- Early settlement of Man, Start of Civilization and History of planning with respect to purpose and intent.
- Principal Aspects for consideration in the Development of Human Settlement planning.
- Division of Labour with increased settlement: Art Economy, Specialization, Formation of Leadership.
- Type of culture in the early Historic period till the emergence of permanent settlement.

Module -2

HISTORIC DEVELOPMENT OF HUMAN SETTLEMENT IN EARLY CIVILIZATIONS.

- Study of Human settlement in River valley civilizations like Egypt, Sumerian, Mesopotamia and Indus valley civilizations
- Study of Human settlement in Greeks and Roman civilization.
- Changes of concept during following periods: Medieval, Renaissance and Baroque.

Module - 3

THE INDUSTRIAL REVOLUTION

- Causes of Industrial Revolution.
- Industrial Revolution and basic changes in productive system, socio-cultural, political and Geographical Aspects
- Process of Industrialization and Urbanization in Western countries and its effects on Human settlement Planning.
- Urbanization in India and its effects on Human settlement planning in Pre and Post-Independence period.

Module – 4

- **MODERN TRENDS AND PLANNING THEORY IN HUMAN SETTLEMENT PLANNING.**

• Planning Theory of 1)Patrick Geddes,2)Ebenezer Howard, 3)Clarence A. Perry ,Clarence Stein.4) Radburn, 5)Henry Wright
• Contribution of Planners/Architects like 1) Le-Corbusier 2) F.L.Wright 3) Soria Mata 4) Lucio Costa 5) Lewis Mumford 6) C.A.Doxiadis
Studio Exercises
Suitable Notes on all the Modules mentioned above
Mode of Examination
Continuos Assessment and End Semester Theory Examination
Reference Books
1. *Text Book of Town Planning by Bandyopadhyay.*
2. *Study of Town & Country Planning in India by N.K.Gandhi.*
3. *Town Planning by Rangwalla.*
4. *The Urban Pattern by Galion*
5. *Town Planning – Principles, Practice and Law by Diwan and Kopardekar.*
6. *The City in History by Lewis Mumford.*
7. *Principles and Practices of Town and Country Planning by Lewis Keeble*
8. *Urban Planning Theory by Melville C.Branch.*
9. *History of Human Settlement by B.C,Chattopadhya*
10. *Design of Cities by Bacon Edmond N...*
11. *Ekistics by C.A.Doxiadis*

Fourth Year Bachelor of Architecture									
Semester -VII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0705A	**Professional Practice – 1**	**3**	**0**	**50**	**100**	**Nil**	**Nil**	**150**	**3**

Course Objective

After successful completion of this course, student should be able to:

1. To expose the students to issues concerning architectural practice.
2. Details of various parts of building including interiors with materials.

Course Outcome

1. To enable the students to understand the issues of professional practice.
2. To expose the students to various professional bodies and their note in professional practice in India.
3. To expose the students on some of the important legislations concerning architectural practice in India.

Course Content

Module -1

- Tender: Its meaning and significance. Invitation to Tender – Private Invitation. Public notice and negotiations. Tender notice and its characteristics. Opening of Tender. Acceptance of Tender. Types of Tenders characteristics, advantages & disadvantages of various type of tenders.

Module -2

- Contract General Principles: The Articles of Agreement and Appendix. Definition & scope of some of the terms.

Module - 3

- Scope Of Contract: Contractors' Duties & liabilities Architects' Duties and liabilities. Determination of contract, certificates and payments.

Module – 4

- ARCHITECTS ACT 1972: Architects Act 1972 and its implications. Council of Architecture and its role. The Indian Institute of Architects and its role. Code of Professional conduct as laid down by Council of Architecture and Indian Institute of Architects.

Module – 5

- Architectural Competitions: Purpose of Architectural competitions. Council of Architecture guidelines on Architectural competitions. Types of competition. Single stage competition & two stage competition.

Module – 6

- Conditions Of Engagement: Normal Services – Construction stage & Supervision Stage – Additional Services.

Special services and partial services. Total construction cost. An overview of the calculation of fees & professional charges. The underlying basis for the calculation of fees.
Module – 7
• Social Role Social responsibilities of Architects. Architect & office and its management. Location of office, organization structure, responsibilities towards employees, consultants & associates elementary accounts, tax liabilities. Filing of records, correspondence & drawings, Presentation in meetings, recording minutes of meetings.
Studio Exercises
Notes on the above topics to be submitted in a file to be signed by the Teacher periodically. A small report to be prepared by each student after visiting, Architects' office.
Mode of Examination
Continuous Assessment and end semester theory paper
Reference Books
1. *Architects Act 1972*
2. Publication of Hand book of Professional Practice by IAA
3. Roshan Namavali – Professional Practice –Lakhani Book Depot, Mumbai
4. Ar. V. S. Apte, Architectural Practice & procedure - Padmaja Bhide, Pune 2008

Fourth Year Bachelor of Architecture									
Semester -VII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0706D	**Building Byelaws & Code of Practice**	**3**	**0**	**50**	**100**	**Nil**	**Nil**	**150**	**3**

Course Objective

After successful completion of this course, student should be able to:

1. To make Student aware, understand and relevance of Building Codes, Norms, Bye-laws and Development Control & Promotion regulations to be applied to Building and Land Development Projects.

Course Outcome

1. Introduction of Building Codes, Norms, Bye-laws and Development Control & Promotion regulations.
2. Understanding of importance, necessity and relevance of Building Codes, Norms, Bye-laws and Development Control & Promotion regulations.
3. Ability to understand impact of Building Codes, Norms, Bye-laws and Development Control & Promotion regulations on Built environment.

Course Content

Module -1

Introduction To National Building Code:

- Importance, need and nature of National Building Code.
- Study of basic term/Terminology, use and relevance of NBC to Building Projects.

Module -2

Introduction of Development Control & Promotion regulations :

- Importance, need and nature of Development Control & Promotion regulations..
- Study of Definition of different terminology, applicability of regulations and administrative processes for obtaining Building permission and completion for different Building projects.

Module - 3

General Land Development Requirements :

- Land Development regulation for requirement of site.
- Regulation for Means of Access.
- Regulations for Land Sub-Division and Layout. Procedure to obtain permission of it.

Module – 4

Land Use Classification and Permissible Uses:

- Classification of Land uses and its Colour codes as per Development Plan
- Permissible Uses in different Land uses as per Development Control & Promotion regulations
- Development of Reserved site in DP like TDR and Accommodation Reservation concept.

Module – 5

General and Special Provisions in Building Requirements :

- Marginal Distances, Permissible FSI, Interior & Exterior Chowk, Projections in Marginal open spaces.
- Additional FSI, Special schemes and their regulations, Special provisions in certain Buildings.

Module – 6

Requirements of Parts of Buildings:

- Requirements of various parts of Buildings
- Requirements of Lighting & Ventilation of Rooms, General Exit requirement and for Housing Scheme.

Module – 7

Requirements of different Services:

- Requirements of Parking Spaces.
- Requirements of Fire Protection.
- Requirements of Water Supply, Drainage & Sanitation.

Module – 8

Introduction to Local Planning/Development Authorities and Building development Acts :

- Study of Development control Regulations of Local Authorities like AMC,CIDCO,MIDC,ADA,MHADA,PCB etc.
- Study of Maharashtra Real Estate Regulatory Authority (General) Regulations 2017 (MRERA)
- Study of The Maharashtra Housing (Regulation and Development) Act, 2012
- Maharashtra apartment Ownership Rules, 1972.

Studio Exercises

Suitable Notes on all the Modules mentioned above

Mode of Examination

Theory Examination

Reference Books

1. *National Building Code Of India 2019*
2. *Development Control & Promotion regulations of AMC,CIDCO,MIDC,ADA,MHADA*
3. *Maharashtra Real Estate Regulatory Authority (General) Regulations 2017 (MRERA)*
4. *The Maharashtra Housing (Regulation and Development) Act, 2012*
5. *The Maharashtra apartment Ownership Rules, 1972*

Fourth Year Bachelor of Architecture									
Semester -VII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**				**Grand Total**	**Credits**
				Internal marks	**External Marks**				
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0707D	**Interior Design**	**0**	**4**	**100**	**Nil**	**100**	**Nil**	**200**	**4**

Course Objective

After successful completion of this course, student should be able to:

1. To study the Interior design principles and their respective applications, and to foster creative ability and inculcate skills while personalizing the internal spaces of architectural design.
2. To expose students to interior designing as a discipline this is so closely associated with field of architecture.

Course Outcome

1. To let students understand the vocabulary of interior design through interior projects, space arrangements, furniture design, material knowledge, treatments and finishes etc.
2. To familiarize students with lighting, landscaping, acoustical treatments- as interior components- with respect to functional requirements.

Course Content

Module -1 Introduction

- Definition of interior design, Interior architectural design process, vocabulary of design in terms of principles and elements.
- Introduction to the design of interior spaces as related to typologies and functions, themes and concepts - Study and design.

Module -2

Elements of Interior Architecture - Space Programming :

- Study of the relationship between furniture and spaces, human movements & furniture design as related to human comfort.
- Function, materials and methods of construction, changing trends and lifestyles, innovations and design ideas.

Module - 3

Elements of Interior Design and Decoration:

- Introduction to various elements of interiors like floors, ceilings, walls, staircases, openings, interior service elements, incidental elements etc.,
- Methods of treatment involving use of materials and methods of construction in order to obtain certain specific functional, aesthetic and psychological effects.

Module – 4

Interior Accessories

- Study of materials, Do market surveys and study interior lighting, different types of lighting their effects types of lighting fixtures.
- Other elements of interiors like accessories used for enhancement of interiors, paintings, objects-de-art, etc.
- Interior landscaping, elements like rocks, plants, water, flowers, fountains, paving, artefacts, etc. their physical

properties, effects on spaces and design values.

Studio Exercises

- Interior scheme of different function -1. Residential project- living room, bed room, dining and kitchen etc. inclusive of all working details of all interior elements, material specifications, treatment specification etc.
- Furniture designing of any context other than residential- for example- office space, coffee shop, individual library or workspace going in-depth of designing any product, material specification, construction/ working details, quantity and estimation etc complete

Mode of Examination

Continuous Assessment and End Semester sessional Viva

Reference Books

1. Ching, F. D. K. (1987). Interior Design Illustrated. New York : V.N.R. Publications.

2. Doshi, S. (Ed.) (1982). The Impulse to adorn - Studies in traditional Indian Architecture. Marg Publications.

3. Penero, J. and Zelnik, M. (1979). Human Dimension and Interior space: A Source Book of Design Reference Standards. New York: Whitney Library of Design

4. Kurtich, John and Eakin Garret – Interior Architecture Van Nostrand Reinhold New York 1993

Fourth Year Bachelor of Architecture									
Semester -VII									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0708D	Contemporary Architecture	0	2	50	Nil	Nil	50	100	2

Course Objective

After successful completion of this course, student should be able to:

1. To introduce to the context for the critiques of modern Architecture and the evolution of new approaches.
2. To study in detail the different postmodern direction in Architecture.
3. To study the effect of technology on Architecture.

Course Outcome

- These trends will change the angle of vision with the change in skyline
- Modest technology signifying the style of Architecture.
- Technology oriented architecture becomes need of the time
- Knowing the impact of culture on Regional Architecture and role of regional architecture.

Course Content

MODULE I- NOVELTY ARCHITECTURE-

- A type of architecture in which buildings and other structure are given unusual shapes as advertising notoriety as landmark, or simple electricity of the owner.

Module -2 - CONCEPTUAL ARCHITECTURE-

- It is characterized by an introduction of ideas or concepts from outside of architecture often as a means of expanding the discipline of Architecture.

Module – 3 - BLOBITECTURE-

- A movement in architecture in which buildings have an organic, amoeba shaped building

Module – 4 - FUTURISTIC ARCHITECTURE-

- It is characterized by anti-historicism, strong chromatics long dynamic lines, suggesting speed, motion, regency and lyricism.

Module – 5 - De-constructivism-

- Characterized by ideas of fragmentation, an interest in manipulating ideas of a structure surface or skin, non-rectilinear shapes which serve to distort and dislocate some of the elements of architecture such as structure and envelope.

Module – 6 - Advanced Post Modernism-
• The functional and formalized shapes and spaces of the modernist style are replaced by diverse aesthetics; styles collide, form is adopted for its own sake and new ways of viewing familiar styles and space abound.
Studio Exercises
Suitable exercises on all the Modules mentioned above
Mode of Examination
Continuous Assessment & End Semester Sessional Term work will be conducted.
Reference Books
1. Ballard B and Rank V.P "Material for Architectural Design " Lawrence King 2006
2. Frampton K " Modern Architecture- A Critical History" 3rd edition Thames & Hudson 2002
3. Goessel P and Lent Hauser G. "Architecture in the 20th century" vol 1 & 2 Taschen

Third Year Bachelor of Architecture									
Semester VII									
Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
	Elective-V	0	2	50	0	0	50	100	2
22UAR0709E	(A) Disaster Mitigation & Management								
22UAR0710E	(B) Industrial Architecture								
22UAR07011E	(C) Building Information Modelling								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

Module wise course contents to be decided by experts in respective fields.

Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

(A) Disaster Mitigation & Management

(B) Industrial Architecture

(C) Building Information Modelling

Mode of Examination

End semester sessional term work only

BACHELOR OF ARCHITECTURE

FOURTH YEAR

SEMESTER VIII

Fourth Year Bachelor of Architecture

Semester -VIII

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE-SV	ESE-STW		
						Marks	Duration				
22UAR0801D	Architectural Design-VI	PC	0	8	200	Nil	--	200	Nil	400	8
20UAR0802B	Building Construction Technology & Materials -VIII TH	BS &AE	1	0	Nil	100	03 Hrs	Nil	Nil	100	1
20UAR0803B	Building Construction Technology & Materials -VIII PR	BS &AE	0	4	75	Nil	--	75	Nil	150	4
20UAR0804D	Urban and Regional Planning	PC	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0805A	Professional Practice - II	PAEC C	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0806A	Project Management	PAEC C	3	0	50	100	03 Hrs	Nil	Nil	150	3
20UAR0807D	Urban Design	PC	0	4	100	Nil	--	100	Nil	200	4
20UAR0808A	Research in Architecture	PAEC C	0	2	50	Nil	--	Nil	50	100	2
	Elective-VI		0	2	50	Nil	--	Nil	50	100	2
20UAR0809E	A)Transportation Planning	PE									
20UAR0810E	B) Earthquake Resistant Structures	PE									
20UAR0811E	C) Intelligent Buildings	PE									
	TOTAL		10	20	325	400	--	375	100	1500	30

List of Abbreviations		
Sr.No.	**Acronym**	**Full form**
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Fourth Year Bachelor of Architecture									
Semester -VIII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0801D	**Architectural Design-VI**	**0**	**8**	**200**	**Nil**	**200**	**Nil**	**400**	**8**

Course Objective

After successful completion of this course, student should be able to:

1. To explore complex concepts. To understand building basic bye-laws in strict application. To understand services in building design in housing projects. To design Housing Proposals.

Course Outcome

1. To design large scale Housing projects
2. To understand the requirement and nature of Housing w.r.t. context and community.

Course Content

Module -1

- Issues of Identity, Scale, Public spaces, Context, Grouping of buildings, Infrastructure for community formation etc. Site analysis with respect to surrounding environment, tradition, culture. Zoning, Climatic considerations. Study of Contours.

Module -2 -

- Related Case Studies & studying building bye-laws. Formatting design brief. Research regarding selected style, Ism or philosophy. Understanding characters of selected style.

Module – 3 -

- Conceptual explorations of character and selected style. Detailing of all required Services. Suitable landscape design for the project.

Module – 4 -

- Urban neighbourhoods, traditional and present day composition, structure, density, land use coverage, building controls, urban infrastructure and services. Considering structural solutions & materials for complex Architectural spaces. Considering use of mechanical vertical transport.
- Design Development. Consideration of bye-laws. Consideration of building related services. Finalization of Design Proposal. Highlighting the character of building as regards to style, Ism or philosophy. Complex Architectural spaces.

Studio Exercises

- Studio Exercises suggested: Design of Housing as decided by the Institute.
- 1 no Major Project based on above Modules with creative presentation of drawings & models.
- Eg. Housing with minimum 150 tenements.

Mode of Examination

Continuous Assessment and End Semester sessional Viva

Reference Books

1. *Robert Sommer. -Design Awareness.*
2. *C.M. Deasy -Design for Human Affairs.*
3. *Pierre Von Meiss -Elements of Architecture from form to place.*
4. *Yatin Pandya- Elements of Space Making.*
5. *Paul Lassau – Graphic Thinking for Architects and Planners.*
6. *Peter Pearce, Structure in Nature – Strategy for Design.*
7. *Peter Streens, Patterns in Nature.*
8. *Anthony Antoniadis - Poetics in Architecture: Theory of design*
9. *Am heim Rudolf, Visual Thinking.*
10. *Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.*
11. *William J.J. Synectics: The Development of Creative Capacity*
12. *Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution*
13. *Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought*

Fourth Year Bachelor of Architecture

Semester -VIII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0802B 22UAR0803B	Building Construction Technology & Materials –VIII TH & PR	1	4	75	100	75	Nil	250	5

Course Objective

After successful completion of this course, student should be able to:

1. Understand Special structural forms resulting from special technologies.

Course Outcome

1. To help students understand advanced construction methods with respect to the smart materials and its implicational methods.
2. To help students understand High tech constructions like PEB, Cable structures and Membrane structures.

Course Content

CONSTRUCTION

Module -1

- Geometry of forms. Shell structures and their structural behaviour. Space frames and Geodesic domes – derivation of form and construction. Folded plate structures

Module -2 -

- Tensile structure, Pre stressed and post tension structures.Re-bar technologies and structural steel materials and jointing. Modular coordination. Design and detailing of joints. Quality assurance in jointing.

Module – 3 -

- Construction Details of semi-permanent structures such as exhibition pavilions, temporary viewing galleries

Module – 4 -

- Membrane structures. Form finding methods. Planar grid and curved grid structures. Development of simple forms and scale models.

MATERIALS

Module – 5 -

- Study of all kinds of Advanced Construction equipment's used on site, for different situations and materials. Tractors, bulldozers, shovels draglines, cableways and belt conveyors, batching plants, transit mixers and agitator trucks for ready mix concrete, guniting equipment, air compressors, welding equipment, cranes and other lifting devices.

Module -6

- Fire resisting construction details, methods and material used.

Module 7

- Construction Planning: Planning for construction and site facilities using networks; Preparation of construction schedules for jobs, materials, equipment, labour and budgets using CPM.

Module-8

- Control of Construction: Construction quality control and inspection; Significance of variability and estimation of risks; Construction cost control; Crashing of networks.

Studio Exercises

- College shall undertake site visits of construction projects.
- Term work shall consist of minimum one/two sheets of imperial size on each of the items
- Above i.e. (ii), (iii), (iv).
- And Reports on site visits
- Journal for notes on Building Materials and market survey of the different materials.

Mode of Examination

Continuous Assessment and End Semester Theory Paper and sessional Viva

Reference Books

1. *Elements of structure by Morgan*
2. *Building Materials by Rangwala*
3. *Building Materials in India (50 years)*
4. *Structure in Architecture by Salvadori*
5. *Building construction by Mckay W. B., Vol. 1 to 4*
6. *Construction of Building by Barry, Vol. I to V*
7. *Construction Technology by Chudley R. Vol. I to IV*
8. *Building Construction Illustrated – Ching Francis D.K.*
9. *Elementary Building Construction by Michell*
10. *Elements of structure by Morgan*
11. *Building Materials by Rangwala*

Fourth Year Bachelor of Architecture

Semester -VIII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0804D	URBAN AND REGIONAL PLANNING	3	0	50	100	Nil	Nil	150	3

Course Objective

1. Introduce basic concepts, scope, need, purpose, and content of urban and Regional Planning,
2. Reading the city, understanding urban issues with the intent of resolving the interface of Urban and regional linkages with each other.
3. To study Comprehensive approach of urban and Regional Planning this includes different disciplines including important role of Architect.

Course Outcome

1. Ability to understand basic concepts, importance, scope and relevance of urban and Regional Planning in Architecture discipline with role of Architect in planning process.
2. Ability to understand urban problem with planning process of Development Plan, Regional Plan and Planning Legislation.

Course Content

Module -1 INTRODUCTION TO URBAN AND REGIONAL PLANNING:

- Urban and Rural settlements, meaning and types, factors causing evolution and growth, importance of site and situation, problem identification of Urban settlement, need and importance of settlement planning, evolution of planning thought, various disciples involved and role of Architect in Planning process.

Module -2 - URBAN AND REGIONAL PATTERN :

- Major functions of a city, city forming and city's serving functions, Activity pattern & lanuse, traffic & road network, density of population, Central Business District of a city, urban nodes, fringe area & suburbs. The problems caused due to slums, internal spatial structure, concentric theory, sector theory, multi nuclear theory, inverse concentric theory..
- Pattern of settlements in a region and their major function, the relationship between geographic characteristics of a region, economic activity and culture of the inhabitants, basic principles of regional planning, satellite towns

Module – 3 – DEVELOPMENT PLAN

- Planning process, concept of master plan, its elements, preparation and implementation.
- Surveys: Various surveys like, physical, social and economical, types and techniques, importance of surveys for development planning.
- Development Control Rules: Importance and need, study of norms and standards, differences if any, study of local byelaws and regulations.

Module – 4 – REGIONAL PLAN

- Concept of Region, types of regions, objectives of Regional Planning, delineation of a region, Theories of Regional Planning and its importance in Indian context, Concept of balanced development, Scope and Contents of a Regional Plan, and its Salient Features.
- Regional plans, master plans, zonal development plan, structure plan and transportation plan, land use plans, local development plans & their components
- New towns and cities in India. (Administrative, Tourism Potential Areas, Industrial Town, Railway Town, Religious Activities, Project Based Areas etc.)

Module – 5– PLANNING LEGISLATION AND ADMINISTRATION/INSTITUTIONAL FRAMEWORK IN INDIA:

- Review of the development of planning legislation in India.
- Introduction to M.R.T.P. Act of 1966, Land Acquisition Act of 1894, Maharashtra Slum Redevelopment Act, Urban Arts, Commission Act, Maharashtra Tree Act, Municipal Act, Urban Ceiling Act, M.I.D.C. Act, Mhada Act. Introduction to 73rd and 74th amendment to the constitution, Importance of public participation in Urban planning
- Levels of Planning : Various levels like National, State, Region, District, Local level, General out-line and scope at each level, Agencies and their roles
- Introduction about Professional Bodies in planning profession such as T.C.P.O. and I.T.P.I. etc. Various Planning authorities like D.D.A., CIDCO, MMRDA, and PCNTDA etc. Introduction to Local and Self Government in urban as well as rural areas.
- Review of the development of planning legislation in India.

Module – 6 - RURAL/VILLAGE PLANNING:

- Introduction to need, scope and importance of Rural/Village planning in India. Pattern of Rural settlement considering Geographic, Economic, Socio-cultural and Political aspects within the context of rural settlement.
- Study of activity patterns, movement systems/physical linkages, land uses, building/Housing pattern, User patterns, perceptions and behaviour. Identification of problems of rural settlement.
- Policies and Programmes needed for Rural/village development /planning.

Studio Exercises

Suitable exercises on all the Modules mentioned above

Mode of Examination

Continuous Assessment and End semester Theory Exam

Reference Books

1) *Urban and Regional Planning:Principles,Practice and the Law by Dr.H.D.Kopardekar and G.R.Diwan*
2) *Fundamentals in Town Planning by Bandopadhyay.*
3) *Town Planning by Hiraskar and by Rangwala*
4) *Study of Town & Country Planning in India by N.K.Gandhi.*
5) *The City in History by Lewis Mumford.*
6) *Principles and Practices of Town and Country Planning by Lewis Keeble*
7) *Urban Planning Theory by Melville C.Branch.*
8) *History of Human Settlement by B.C,Chattopadhya*
9) *Design of Cities by Bacon Edmond N..*

10) Ekistics by C.A.Doxiadis
11) M. R. T. P. Act 1966 published by the State Government, revised up-to-date.
12) Maharashtra Slum Redevelopment Act
13) Urban Arts Commission Act
14) Land Acquisition Act of 1894
15) Ramachandran H, 'Village Clusters and Rural Development', Concept Publications, 1980.
16) Hassan Fathy, 'Architecture for the Poor', University of Chicago Press, 1973
17) R. C. Arora, 'Integrated Rural Development', S. Chand, 1979
18) Rajendra Kumar Sharma, 'Rural Sociology', Atlantic, 2011
19) Transportation Planning by Kadiyali..
20) The Urban Pattern by Galion

Fourth Year Bachelor of Architecture

Semester -VIII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0805A	Professional Practice - II	3	0	50	100	Nil	Nil	150	3

Course Objective

1) To Expose the students to advance issues concerning architectural practice such as Valuation of Immovable properties, Acquisition, Arbitration, Standard rent etc.

Course Outcome

1) Students understanding of Professional practice and knowledge of advance issues in the profession.
2) To explore the students on some of the important issues like Arbitration, Land acquisition, Easements etc.

Course Content

Module -1 VALUATION:

- Definition-Is it art or science -Examples from everyday life.
- Cost, Price & Value-Essential characteristics of Value-classification of Value.
- Market Value and its characteristics.

Module -2 - PURPOSE OF VALUATION:

- Income tax, Wealth tax, Acquisition of property, Mortgage of property, Loans from bank and other institutions.

Module – 3 - METHODS OF VALUATION.

A) Land and Building method.-

- Situation, locality, area, shape, Ratio of frontage to depth,
- Return frontage Encumbrances.
- Deprecations-straight line method.
- Belting method of Valuation of land.
- Leasehold Lands-Tenure. Free hold and Lease hold Tenures, Types of Leases.

B) Rental Method:-

- Gross rent and net rent- Capitalised Value-Years Purchase, Outgoings-Repairs, NA- Assessments and Annuity.
- Sinking fund, Physical & Economic life of Buildings Revisionary Value of Land. Examples to be solved for Valuation.

Fourth Year Bachelor of Architecture

Module – 4 - A**RBITRATION**

- Arbitration : Introduction, Mediation and conciliation:-
- Arbitration:- Arbitration clause in contract. Advantages, Arbitration, Arbitrator, Appointment, Qualification.
- Powers and Duties:-Terms and condition of Arbitration agreement.
- Arbitral Award, Reasoned and Unreasoned award- Scott's Schedule.
- Conduct of Arbitration Proceedings.
- Accepted matters- Development-Legal position.

Module – 5 LAND ACQUISITION:

- Land Acquisition: Introduction, Basic principles of land Acquisition Act. Investigation-objections and confirmation. Claim and Award.

Module – 6 RENT ACTS

- Rent control act, Standard rent, Methods of Ascertaining standard. Theory of comparable, Standard rent by investment theory.
- Period of first Letting, Apportioned Area of Land.
- Architect as an expert witness.
- Calculation of standard rent.

Module – 7 EASEMENT

- Easement: Meaning, Dominant and Servient heritage. Characteristics of easement.
- Natural rights –Customary rights
- Continuous and discontinuous easements. Methods of acquiring Easement.
- Essential conditions of enjoyment of easements. Easement of supports and drainage.

Studio Exercises

Suitable exercises for all modules will be conducted.

Mode of Examination

Continuous Assessment and End semester Theory Exam

Reference Books

1) *Apte, V.S. 2008. Architectural Practice and Procedure. Padmaja Bhide, Pune*
2) *Piotrowski, A. and Williams, J., 2001. The Discipline of Architecture. Univ. of Minnesota Press.*
3) *Nanavati, Roshan, 1984. Professional Practice. Lakhani Book Depot, Mumbai*
4) *Scott, J.J., 1985. Architects Practice, Butterworth, London*
5) *COA 2013. Handbook of Professional Documents. Council of Architecture.*
6) *AIA- Guidelines for Professional Practice*
7) *RIBA - Handbook on Practice of Architecture*
8) *Eldred, G.W. 2008. The Beginner's Guide to Real Estate Investing. John Wiley & Sons.*
9) *Rangwala, S.C. Valuation of Real Properties. Charottar Publications.*
10) *Raman, M., Sharma, S Technical Communication: Principles and Practice, 2nd Edition by*

Semester -VIII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0806A	PROJECT MANAGEMENT	3	0	100	100	Nil	Nil	150	3

Course Objective

1. Introduce students to the construction industry practices and project management techniques needed for coordinating building projects
2. To enable understanding of management systems for accomplishing the task efficiently in terms of quality, time and cost.

Course Outcome

1) Ability to understand a project from concept to commissioning, feasibility study and facility programme, design, construction to commissioning.
2) Ability to apply project management techniques in achieving objectives of a project like client needs quality, time and cost.
3) An understanding of principles of management, construction scheduling, scope definition and team roles.

Course Content

Module -1 INTRODUCTION TO PROJECT MANAGEMENT PERSPECTIVE:

- Project as capital investment decisions'
- Projects as business
- Definitions and terms

PROJECT SCOPE DEFINITION

- Project scope
- Project scope statement
- Role of project manager

Module – 2 - UNDERSTANDING CONSTRUCTION PRACTICES

- Work breakdown structure
  - wbs forms, common pitfalls and misconceptions
  - wbs dictionary and codes

Module – 3 - PROJECT SCHEDULING TECHNIQUES

- Introduction
- Gantt charts
- Line of balance
- Time chainage charts

Module – 4 - NETWORK METHODS OF PROJECT PLANNING

- Background of project planning
- Network development

- Network diagrams
  - ADM – ARROW DIAGRAMMIMG METHOD (AOA METHOD)
  - PDM - PRECEDENCE DIAGRAMMING METHOD(AON METHOD)

Module – 5 - INTRODUCTION TO NETWORK SCHEDULING METHOD

- CPM – critical path method and pert techniques
- Resource scheduling
- Introduction to project cost estimation and budgeting

Module – 6- INTRODUCTION TO MICROSOFT PROJECT SOFTWARE

Studio Exercises

Assignments , charts, presentations, case studies of unique projects

Mode of Examination

Continuous Assessment and End Semester Theory Paper.

Reference Books

1) *Dr. B.C. Punmia and K.K. Khandelwal, 'Project Planning and Control with PERT and CPM',*
2) *Laxmi Publications, 2018.*
3) *Elaine Marmel, 'Microsoft Project 2016 Bible', Prentice Hall, 2016.*
4) *GUIDE TO PROJECT MANAGEMENT BODY OF KNOWLWDGE (PMBOK): PROJECT MANAGEMENT INSTITITE, USA*
5) *Programming and scheduling techniques : THOMAS E.UHER,UNSW PRESS*
6) *Project management for construction – fundamental concepts for architects and builders – Chris Hendrickson, department of civil and environmental engineering, Carnegie Mellon university, Pittsburgh , PA I5213*

Fourth Year Bachelor of Architecture									
Semester -VIII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0807D	**URBAN DESIGN**	**0**	**4**	**100**	**Nil**	**100**	**Nil**	**200**	**4**

Course Objective

1. To introduce students to discipline of Urban Design.
2. To sensitize the students about the concept of public realm, understanding of the city as a three-dimensional entity and perception of spaces at multiple scales.
3. Study Urban Design examples (ancient times till present day) through case studies

Course Outcome

1. Understanding the importance of Urban Design as a separate discipline and its relation with Architecture and Planning.
2. Understanding of Urban Design principles, Practical implications of Urban Design through case studies.

Course Content

Module -1.

- Introduction, scope & relationship of urban design with architecture.
- Brief review of the evolution of the urban design as a discipline
- Broad understanding of urban forms and spaces at various spatial scales through examples from historic cities.
- Elements of Urban Design Understanding the city as a three-dimensional element.

Module -2 -

- Introduction to Concepts of public and private realm. Concept of public open space.
- Understanding of the city as a three-dimensional entity and perception of spaces at multiple scales.
- Urban form as determined by interplay of masses, voids, order, scale, harmony, symmetry, colour and texture
- Organization of spaces and their articulation in the form of squares, streets, vistas and focal points

Module – 3 -

- Image of the city and its components such as edges, paths, landmarks, street features
- Study of Concepts of Transit Oriented Development, Compact City, Healthy City, Walkable City, Futuristic City etc.
- Concept of Sustainability and Sustainable City.

Module – 4 -

- Urban renewal and urban sprawl

- Urban Design Implementation and control
- Observational and analytical studies of important urban/ public spaces in your city.

Studio Exercises

Field studies- important urban/ public spaces, roads; Imageability and townscape of selected areas/ settlements

Mode of Examination

Continuous Assessment and End semester sessional viva

Reference Books

1. Larice, M. and Macdonald, E. Ed. (2013). The Urban Design Reader. 2nd Ed. The Routledge Urban Reader Series, Abingdon, Oxon : Routledge.
2. Carmona, M., Heath, T., Oc, T. and Tiesdell, S. (2010). Public Places Urban Spaces. Oxford : Architectural Press.
3. Marshall, S. (2009). Cities design and evolution. New York : Routledge.
4. Lang, J. T. (2005). Urban Design: A Typology of Procedures and Products. Oxford : Elsevier/Architectural Press.
5. Moughtin, C., Cuesta, R., Sarris, C. and Signoretta, P. (2003). Urban Design - Methods and Techniques. Oxford : Architectural Press.
6. Watson, D., Plattus, A. and Shibley, R. (2003). Time-Saver standards for urban design. New York : McGraw Hill.
7. Spreiregen, P. D., “Urban Design; Architecture of Towns & Cities”, McGraw Hill.

Fourth Year Bachelor of Architecture									
Semester -VIII									
Subject Code	**Subject**	**Teaching Scheme/Week**		**Evaluation Scheme**					**Credits**
				Internal marks	**External Marks**			**Grand Total**	
		L	**S**	**CA**	**ESE-Paper**	**ESE-SV**	**ESE STW**		
22UAR0808A	**RESEARCH IN ARCHITECTURE**	**0**	**2**	**50**	**Nil**	**Nil**	**50**	**100**	**2**

Course Objective

1. Enable students to comprehend the need and importance of research.
2. Help them to introspect, read and then find out their area of interest and within that select a topic regarding which they wish to do Design Dissertation.
3. To write and present a research proposal.

Course Outcome

1. To impart knowledge to the students on the tools and methods needed to handle a design project of reasonable complexity.
2. To make students understand various components of a research proposal in the field of Architectural design.
3. To write and publish a research paper

Course Content

Module -1

- Introduction to the architectural thesis project. Selection of the topics for the architectural design thesis ,design thesis Topics based on building typologies, preparation of synopsis, methodology of the design thesis

Module -2

- Emerging concepts in architecture due to the changes in social, economic, technological variables. Review of projects of design complexity, involving themes, sub-themes and architectural expression.

Module - 3

- Tools & methods required to handle a design projects. Scientific methods of research with special emphasis on the architectural research methods. Architectural enquiry, visual observations, questionnaire format of enquiry. Literature review & case studies- data analysis, techniques, interpretation of data.

Module - 4

- Formats of presentation of data, case studies and analysis. Formats for presentation of thesis design- media appropriate in the architectural profession such as 2- dimensional drawings, physical models, 3-dimensional computer models.

Module – 5

- Techniques in report writing, presentation of contextual information relevant to interpretation of the data collected, reporting the design collected, reporting the design development from concept to design solution explain the relation of the design to existing knowledge on the topic in the form of coherently written thesis

report. The inputs to the students on various design thesis topics would be in the form of Expert / Guest Lectures. Each student in consultation with the faculty shall choose thesis topics necessary data, review literature on the chosen topic & present a written paper at the end of the semester.

Studio Exercises

Each student will select a thesis topic in consultation with the faculty. Collect necessary data, review literature on the chosen topic and present a research paper at the end of the semester

- Choice of Topic.
- Synopsis.
- Case studies.
- Data collection.
- Site selection.
- Concept.

Mode of Examination

Continuous Assessment and End semester sessional viva

Reference Books

1. Ian Border : Kurt Rueidell – The Dissertation, An Architectural students handbook. Architecture Press 2000
2. Linda Grant & David Wang – Architectural Research Methods.
3. Mukhi H.R. Technical Report Writing Specially prepared for Technical & competitive examinations. New Delhi Satya Prakashan 2000.

Fourth Year Bachelor of Architecture

Semester -VIII

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
	ELECTIVE-VI (Any 1)	0	2	50	0	0	50	100	2
22UAR0809E	**A) Transportation planning**								
22UAR0810E	**B) Earthquake resistant structures**								
22UAR0811E	**C) Intelligent buildings**								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

Module wise course contents to be decided by experts in respective fields.

Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

A)Transportation planning

B) Earthquake resistant structures

C) Intelligent buildings

Mode of Examination

End semester sessional term work only

BACHELOR OF ARCHITECTURE

FIFTH YEAR

SEMESTER IX

Fifth Year Bachelor of Architecture

Semester -IX

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR0901A	Practical Training (16 weeks - 6 days per week - 8 hours per day)	PAECC	0	20	Nil	Nil	--	600	400	1000	20
	TOTAL		0	20	Nil	Nil	--	600	400	1000	20

List of Abbreviations

Sr.No.	Acronym	Full form
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Final Year Bachelor of Architecture

Semester -IX

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR0901A	PRACTICAL TRAINING	0	20	Nil	Nil	600	400	1000	20

Course Objective

- The student shall work at an Architect's office (Internship) as per the guidelines of CoA, and approved by the Institute, for duration of one semester.

Course Outcome

- After successful completion of this course, student should be able to Understand on-going construction work on sites, supervisory controls of an Architect in a Project.

Course Content

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

Mode of Examination

End Semester Sessional Viva and Sessional Term work will be conducted

BACHELOR OF ARCHITECTURE

FIFTH YEAR

SEMESTER X

Fifth Year Bachelor of Architecture

Semester -X

Course Code	Course Title	Course Type	Teaching Scheme/ Week		Evaluation Scheme						Credits
					Internal marks	External Marks				Grand Total	
			L	S	CA	ESE-(TH)Paper		ESE -SV	ESE-STW		
						Marks	Duration				
22UAR1001D	**Architectural Design Thesis**	PC	0	18	300	Nil	--	600	Nil	900	18
22UAR1002A	**Seminar** (Thesis & Research Paper Writing)	PAECC	2	4	150	Nil	--	Nil	150	300	6
	Elective - 7 (Any One)		2	4	150	Nil	--	Nil	150	300	6
22UAR1003E	**(A) Green Buildings**	PE									
22UAR1004E	**(B) Building Economics**	PE									
22UAR1005E	**(C) Geographical Information Systems (GIS)**	PE									
			4	26	600	Nil	--	600	300	1500	30

List of Abbreviations

Sr.No.	Acronym	Full form
1	L	Lecture Periods/Hours per week
2	S	Studio Periods/Hours per week
3	CA	Continuous Assessment up to end of semester
4	ESE-(TH) Paper	End semester Examination -Theory Paper
5	ESE-(SV)	End semester Examination -Sessional Viva
6	ESE-(STW)	End semester Examination Sessional Term Work Assessment

Final Year Bachelor of Architecture

Semester -X

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR1001D	ARCHITECTURE DESIGN THESIS	0	18	300	Nil	600	Nil	900	18

Course Objective

1. Pursue an idea of research with depth of inquiry, criticality and logic and carry out an in-depth investigation of an area of architecture that he/she is interested in.

Course Outcome

1. Ability to independently handle an Architectural Design Project, research the requirements of a project, Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensive proposition.

Course Content

- Dissertation is seen as a culmination of the development of the student knowledge attitude and skills over the course of studies of Architecture.
- Students are expected to develop of his/her choice of subject and to demonstrate his/her ability to use effectively the tools of independent investigation and judgment to evolve design culture. The application these may be original design of research oriented work. Student shall choose a subject related to Architecture only, by considering following aspects:
  - Data collection and Analysis.
  - User's requirement and justification
  - Socio-Economic issues.
  - Climatic Considerations/Environmental issues.
  - Selection of Site.
  - Method of Construction/Advance Technology, etc.
  - Integrated building Services.
  - Constructional technologies/Structural systems.
  - Landscape and Town planning.
- At the end of the semester, each student is expected to submit all original drawings prepared as per the specifications of the department. Three copies of the report in the specified format along with the model submitted to the Department, after obtaining the approval of the respective guides.
- The university shall schedule the final Viva-Voce at its convenience only after the receipt of the thesis submission by students. The performance sheet submitted by the department. Thesis committee should be the basis for allowing student to appear for the final Viva Voce.
- For the end exams, Viva Voce will be conducted by jury comprising of Two external examiners and, Head of the department of the respective colleges will be internal examiner.

Mode of Examination
Continuous Assessment and End Semester sessional Viva
Reference Books
1. Robert Sommer. -Design Awareness.
2. C.M. Deasy -Design for Human Affairs.
3. Pierre Von Meiss -Elements of Architecture from form to place.
4. Yatin Pandya- Elements of Space Making.
5. Paul Lassau – Graphic Thinking for Architects and Planners.
6. Peter Pearce, Structure in Nature – Strategy for Design.
7. Peter Streens, Patterns in Nature.
8. Anthony Antoniadis - Poetics in Architecture: Theory of design
9. Am heim Rudolf, Visual Thinking.
10. Jonathan A. Hale -Building Ideas. An introduction to Architectural Theory.
11. William J.J. Synectics: The Development of Creative Capacity
12. Elvadine R. Seligmanann : Reaching Students through Synectics: A Creative solution
13. Jyoce, Bruce and Weil Marsha .Synetics Involving creative thought

Final Year Bachelor of Architecture

Semester -X

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
22UAR1002A	SEMINAR	2	4	150	Nil	Nil	150	300	6

Course Objective

1. To introduce through group research into a topic of architectural significance, critical appraisal skills.
2. Enable students to present the conclusions drawn to an informed live audience

Course Outcome

1. Ability to source information on a chosen topic, clearly understand, collate, analyse, reflect upon it by means of a strategic discussion within the research group.
2. Ability to synthesize research outcomes in a well-documented report and seminar presentation using multimedia techniques.
3. Ability to effectively participate in seminars as a member of the audience.

Course Content

Module - 1

- The Seminar Coordinators will select a theme for the semester relating to issues in architecture and planning. Students will conduct data collection in groups on the topic of their choice within the larger theme. It may involve both secondary and primary data collected from field studies.

Module – 2

- The collected data will be presented in the form of a seminar presentation, followed by a printed report. Overall supervision will be provided by the Seminar Coordinators from the internal faculty and each group will be guided for the work by internal faculty/ external experts.

Studio Exercises

- Preparation of a report (Group work)
- Seminar Presentation in group using multimedia techniques.

Mode of Examination

Continuous Assessment and End semester Sessional Term work

Reference Books

Final Year Bachelor of Architecture

Semester -X

Subject Code	Subject	Teaching Scheme/Week		Evaluation Scheme					Credits
				Internal marks	External Marks			Grand Total	
		L	S	CA	ESE-Paper	ESE-SV	ESE STW		
	ELECTIVE VII (Any 1)	2	4	150	Nil	Nil	150	300	6
22UAR1003E	**(A) GREEN BUILDINGS**								
22UAR1004E	**(B) BUILDING ECONOMICS**								
22UAR1005E	**(C) GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**								

Course Objective

1. To provide opportunity to students to study allied subjects/ other than Architecture subjects of their interest
2. To impart knowledge and hands on experience, acquire skills about allied subjects/ other than Architecture subjects of interest.
3. To help overall personality development of the students

Course Outcome

1. Acquiring knowledge, hands on experience & skills in subject of choice
2. Enhancement of professional/ creative abilities and development of personality

Course Content

- Module wise course contents to be decided by experts in respective fields.
- Suitable studio exercises can be designed and conducted by the experts in respective fields.

LIST OF ELECTIVE TOPIC

(A) Green Buildings

(B) Building Economics

(C) Geographical Information Systems

Mode of Examination

End semester sessional term work only