



Amity School of Architecture and Planning
Amity University Punjab, Mohali
Syllabus for Bachelor of Architecture (B.Arch.)
Classes (Batch 2025-2030 onwards)

To discuss the recommendations of board of studies in the courses of Architecture and recommend to the academic council for the approval of the program – B.Arch. Batch 2025-30 - 5 years degree

MODEL FRAMEWORK (MFW) FOR B.Arch.: 2025-2030 BATCH, ASAP, AMITY UNIVERSITY PUNJAB, MOHALI

Semester	SUBJECTS										Total Credits
	PC	PC	PC	PC	BS and AE	BS and AE	SEC	AEC	AEC	VAC	
I	Architectural Design - I	Architectural Drawing - I	Architectural Graphics - I	Architectural Model Making Workshop - I	Building Construction and Materials - I	Structures in Architecture - I	Architectural Communications and Photography Skills	Introduction to French Culture and Language / Introduction to German Culture and Language	Punjabi/ History and Culture of Punjab	Environmental Studies - I	26
	6	4	2	2	4	3	1	1	1	2	
II	Architectural Design - II	Architectural Drawing - II	Architectural Graphics - II	Architectural Model Making Workshop - II	Building Construction and Materials - II	Structures in Architecture - II	Computer Graphic Skills - I (Sketchup, Photoshop and Corel Draw)	French Grammar/ German Grammar	Punjabi/ History and Culture of Punjab	Environmental Studies - II	26
	6	3	2	2	4	3	2	1	1	2	
III	Architectural Design - III	History of Architecture - I	Building Construction and Materials - III	Structures in Architecture - III	Climatology and Sustainable Architecture	Computer Graphic Skills - II (AutoCAD 2D)	Parametric Architecture - I (Basics of Web Development)	Regional Sikh Architecture	-	-	26
	8	2	4	3	3	3	1	2	-	-	
IV	Architectural Design - IV	History of Architecture - II	Building Construction and Materials - IV	Structures in Architecture - IV	Surveying and Levelling	Building Services - I (Public Health)	Computer Graphic Skills - III (AutoCAD 3D + 3dsmax/Rhino)	Parametric Architecture – II (Unreal Engine I)	-	-	26
	8	2	4	3	3	2	3	1	-	-	
V	Architectural Design - V	History of Architecture - III	Building Construction and Materials - V	Structures in Architecture - V	Building Services – II (Lighting, Illumination and Electrical)	Building Byelaws	Computer Graphic Skills - IV (Revit/ArchiCAD)	Parametric Architecture – III (Unreal Engine II)	-	-	26
	8	2	4	3	2	3	3	1	-	-	
VI	Architectural Design - VI	History of Architecture - IV	Human Settlement Planning	Building Construction and Materials - VI	Measured and Working Drawing	Structures in Architecture - VI	Building Services – III (Acoustics and Fire Fighting)	-	-	-	26
	8	2	3	4	4	3	2	-	-	-	
VII	Architectural Design - VII	History of Architecture - V	Urban Design	Landscape Architecture	Building Specifications and Estimating - Costing	Building Construction and Materials - VII	Building Services - IV (HVAC)	-	-	-	26
	10	2	3	2	3	4	2	-	-	-	
VIII	Professional Training	Building Study Report	Architectural Documentation and Curation	-	-	-	-	-	-	-	26
	18	6	2	-	-	-	-	-	-	-	

	PC	PC	BS and AE	PAECC	OE	PE1	PE2	-	-	-	
IX	Architectural Design - VIII and Pre-thesis	Contemporary Architecture	Building Construction and Materials - VIII	Construction Management	(Green Buildings/ Intelligent Buildings/ Vaastu Shastra)	(Architectural Conservation/ Housing/ Vernacular Design & Construction Techniques/ MOOC)	(Basic Accounting & Marketing Skills/ Road Safety and Civic Sense/ MOOC)	-	-	-	
	12	2	4	2	2	2	2	-	-	-	26
	PC	PC	PAECC	PE3							
X	Architectural Design Thesis	Architectural Research Methods	Professional Practice	(Architectural Journalism/ Disaster Management)	-	-	-	-	-	-	
	20	2	2	2	-	-	-	-	-	-	26

As per COA (Council of Architecture, New Delhi) Minimum Standards of Architectural Education – 2020	
Broad Category of Course	
Professional Core Courses (PC)	
Building Sciences and Applied Engineering (BS and AE)	
Elective Courses	
Professional Electives (PE)	
Open Electives (OE)	
Professional Ability Enhancement Course (PAEC)	
Professional Ability Enhancement Compulsory Course (PAECC)	
Skill Enhancement Course (SEC)	
Value Added Course (VAC)	

Name of the Program: Bachelor of Architecture, B.Arch. {Session: 2025-2026}

Semester-Wise Program Structure

S. No.	Year 1		Year 2		Year 3		Year 4		Year 5	
	Sem 1	Sem 2	Sem 3	Sem 4	Sem 5	Sem 6	Sem 7	Sem 8	Sem 9	Sem 10
1	Architectural Design – I [CU:06, L-06, P-0] {PC}	Architectural Design - II [CU:06, L-06, P-0] {PC}	Architectural Design - III [CU:08, L-08, P-0] {PC}	Architectural Design – IV [CU:08, L-08, P-0] {PC}	Architectural Design – V [CU:08, L-08, P-0] {PC}	Architectural Design – VI [CU:08, L-08, P-0] {PC}	Architectural Design – VII [CU:10, L-10, P-0] {PC}	Professional Training [CU:18, L-00, P-00] {PAECC (NTCC)}	Architectural Design - VIII and Pre-thesis [CU:12, L-12, P-0] {PC}	Architectural Design Thesis [CU:20, L-20, P-0] {PC}
2	Architectural Drawing – I [CU:04, L-04, P-0] {PC}	Architectural Drawing – II [CU:03, L-03, P-0] {PC}	History of Architecture – I [CU:02, L-02, P-0] {PC}	History of Architecture – II [CU:02, L-02, P-0] {PC}	History of Architecture – III [CU:02, L-02, P-0] {PC}	History of Architecture – IV [CU:02, L-02, P-0] {PC}	History of Architecture – V [CU:02, L-02, P-0] {PC}	Building Study Report [CU:06, L-00, P-00] {PAECC (NTCC)}	Contemporary Architecture [CU:02, L-02, P-00] {PC}	Architectural Research Methods [CU:02, L-01, P-02] {PC}
3	Architectural Graphics – I [CU:02, L-01, P-02] {PC}	Architectural Graphics – II [CU:02, L-01, P-02] {PC}	Building Construction and Materials - III [CU:04, L-04, P-00] {BS and AE}	Building Construction and Materials - IV [CU:04, L-04, P-00] {BS and AE}	Building Construction and Materials - V [CU:04, L-04, P-00] {BS and AE}	Human Settlement Planning [CU:03, L-03, P-00] {PC}	Urban Design [CU:03, L-03, P-00] {PC}	Architectural Documentation and Curation [CU:02, L-00, P-00] {SEC (NTCC)}	Building Construction and Materials - VIII [CU:04, L-04, P-00] {BS and AE}	Professional Practice [CU:02, L-02, P-00] {PAECC}
4	Architectural Model Making Workshop - I [CU:02, L-00, P-04] {PC}	Architectural Model Making Workshop - II [CU:02, L-00, P-04] {PC}	Structures in Architecture - III [CU:03, L-03, P-00] {BS and AE}	Structures in Architecture - IV [CU:03, L-03, P-00] {BS and AE}	Structures in Architecture - V [CU:03, L-03, P-00] {BS and AE}	Building Construction and Materials - VI [CU:04, L-04, P-00] {BS and AE}	Landscape Architecture [CU:02, L-01, P-02] {PC}		Construction Management [CU:02, L-02, P-00] {PAECC}	PE3 (Architectural Journalism/ Disaster Management) [CU:02, L-01, P-02] {PE}
5	Building Construction and Materials - I [CU:04, L-04, P-00] {BS and AE}	Building Construction and Materials - II [CU:04, L-04, P-00] {BS and AE}	Climatology and Sustainable Architecture [CU:03, L-01, P-04] {BS and AE}	Surveying and Levelling [CU:03, L-01, P-04] {BS and AE}	Building Services – II (Lighting, Illumination and Electrical) [CU:02, L-02, P-00] {BS and AE}	Measured and Working Drawing [CU:04, L-02, P-04] {BS and AE}	Building Specifications and Estimating – Costing [CU:03, L-02, P-02] {PC}		Open Elective (Green Buildings/ Intelligent Buildings/ Vaastu Shastra) [CU:02, L-01, P-02] {OE}	
6	Structures in Architecture – I [CU:03, L-03, P-00] {BS and AE}	Structures in Architecture - II [CU:03, L-03, P-00] {BS and AE}	Computer Graphic Skills - II (AutoCAD 2D) [CU:03, L-02, P-02] {SEC}	Building Services - I (Public Health) [CU:02, L-02, P-00] {BS and AE}	Building Byelaws [CU:03, L-03, P-00] {PAECC}	Structures in Architecture – VI [CU:03, L-03, P-00] {BS and AE}	Building Construction and Materials – VII [CU:04, L-04, P-00] {BS and AE}		PE1 (Architectural Conservation/ Housing/ Vernacular Design & Construction Techniques/ MOOC) [CU:02, L-01, P-02] {PE}	
7	Architectural Communications and Photography Skills [CU:01, L-00, P-02] {SEC}	Computer Graphic Skills - I (Photoshop, Corel Draw and Sketchup) [CU:02, L-01, P-02] {SEC}	Parametric Architecture - I (Basics of Web Development) [CU:01, L-00, P-02] {SEC}	Computer Graphic Skills - III (AutoCAD 3D + 3dsmax/Rhino) [CU:03, L-02, P-02] {SEC}	Computer Graphic Skills - IV (Revit/ArchiCAD) [CU:03, L-02, P-02] {SEC}	Building Services – III (Acoustics and Fire Fighting) [CU:02, L-02, P-00] {BS and AE}	Building Services - IV (HVAC) [CU:02, L-02, P-00] {BS and AE}	-	PE2 (Basic Accounting & Marketing Skills/ Road Safety and Civic Sense/ MOOC) [CU:02, L-02, P-00] {PE}	-
8	Environmental Studies – I [CU:02, L-02, P-00] {VAC}	Environmental Studies – II [CU:02, L-02, P-00] {VAC}	Regional Sikh Architecture [CU:02, L-02, P-00] {VAC}	Parametric Architecture – II (Unreal Engine I) [CU:01, L-00, P-02] {SEC}	Parametric Architecture – III (Unreal Engine II) [CU:01, L-00, P-02] {SEC}					



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9	Introduction to French Culture and Language / Introduction to German Culture and Language [CU:01, L-01, P-00] {AEC}	French Grammar/ German Grammar [CU:01, L-01, P-00] {AEC}								
10	Punjabi/ History and Culture of Punjab [CU:01, L-01, P-00] {AEC}	Punjabi/ History and Culture of Punjab [CU:01, L-01, P-00] {AEC}								
Cr.	26	26	26	26	26	26	26	26	26	26
Total Credits:										260



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Semester-Wise Structure with Weekly Teaching Hours

First Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - I	6	0	0	6	6
2	PC	Architectural Drawing - I	4	0	0	4	4
3	PC	Architectural Graphics - I	1	0	2	2	3
4	PC	Architectural Model Making Workshop - I	0	0	4	2	4
5	BS and AE	Building Construction and Materials - I	4	0	0	4	4
6	BS and AE	Structures in Architecture - I	2	1	0	3	3
7	SEC	Architectural Communications and Photography Skills	0	0	2	1	2
8	AEC	Introduction to French Culture and Language / Introduction to German Culture and Language	1	0	0	1	1
9	AEC	Punjabi/ History and Culture of Punjab	1	0	0	1	1
10	VAC	Environmental Studies - I	2	0	0	2	2
Total			21	1	8	26	30

Second Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - II	6	0	0	6	6
2	PC	Architectural Drawing - II	3	0	0	3	3
3	PC	Architectural Graphics - II	1	0	2	2	3
4	PC	Architectural Model Making Workshop - II	0	0	4	2	4
5	BS and AE	Building Construction and Materials - II	4	0	0	4	4
6	BS and AE	Structures in Architecture - II	2	1	0	3	3
7	SEC	Computer Graphic Skills - I (Sketchup, Photoshop and Corel Draw)	1	0	2	2	3
8	AEC	French Grammar/ German Grammar	1	0	0	1	1
9	AEC	Punjabi/ History and Culture of Punjab					
10	VAC	Environmental Studies - II	2	0	0	2	2
Total			21	1	8	26	30



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Third Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - III	8	0	0	8	8
2	PC	History of Architecture - I	2	0	0	2	2
3	BS and AE	Building Construction and Materials - III	4	0	0	4	4
4	BS and AE	Structures in Architecture - III	2	1	0	3	3
5	BS and AE	Climatology and Sustainable Architecture	1	0	4	3	5
6	SEC	Computer Graphic Skills - II (AutoCAD 2D)	2	0	2	3	4
7	SEC	Parametric Architecture - I (Basics of Web Development)	0	0	2	1	2
8	VAC	Regional Sikh Architecture	2	0	0	2	2
Total			21	1	8	26	30

Fourth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - IV	8	0	0	8	8
2	PC	History of Architecture - II	2	0	0	2	2
3	BS and AE	Building Construction and Materials - IV	4	0	0	4	4
4	BS and AE	Structures in Architecture - IV	2	1	0	3	3
5	BS and AE	Surveying and Levelling	1	0	4	3	5
6	BS and AE	Building Services - I (Public Health)	2	0	0	2	2
7	SEC	Computer Graphic Skills – III (AutoCAD 3D + 3dsmax/Rhino)	2	0	2	3	4
8	SEC	Parametric Architecture – II (Unreal Engine I)	0	0	2	1	2
Total			21	1	8	26	30

Fifth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - V	8	0	0	8	8
2	PC	History of Architecture - III	2	0	0	2	2
3	BS and AE	Building Construction and Materials - V	4	0	0	4	4
4	BS and AE	Structures in Architecture - V	2	1	0	3	3
5	BS and AE	Building Services – II (Lighting, Illumination and Electrical)	2	0	0	2	2
6	PAECC	Building Byelaws	3	0	0	3	3
7	SEC	Computer Graphic Skills - IV (Revit/ArchiCAD)	2	0	2	3	4
8	SEC	Parametric Architecture – III (Unreal Engine II)	0	0	2	1	2
Total			23	1	4	26	28

Sixth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VI	8	0	0	8	8
2	PC	History of Architecture - IV	2	0	0	2	2
3	PC	Human Settlement Planning	3	0	0	3	3
4	BS and AE	Building Construction and Materials - VI	4	0	0	4	4
5	BS and AE	Measured and Working Drawing	2	0	4	4	6
6	BS and AE	Structures in Architecture - VI	2	1	0	3	3
7	BS and AE	Building Services – III (Acoustics and Fire Fighting)	2	0	0	2	2
Total			23	1	4	26	28



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Seventh Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VII	10	0	0	10	10
2	PC	History of Architecture - V	2	0	0	2	2
3	PC	Urban Design	3	0	0	3	3
4	PC	Landscape Architecture	1	0	2	2	3
5	PC	Building Specifications and Estimating - Costing	2	0	2	3	4
6	BS and AE	Building Construction and Materials - VII	4	0	0	4	4
7	BS and AE	Building Services - IV (HVAC)	2	0	0	2	2
Total			24	0	4	26	28

Eighth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PAECC (NTCC)	Professional Training	0	0	0	18	0
2	PAECC (NTCC)	Building Study Report	0	0	0	6	0
3	SEC (NTCC)	Architectural Documentation and Curation	0	0	0	2	0
Total			0	0	0	26	0

Ninth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VIII and Pre-thesis	12	0	0	12	12
2	PC	Contemporary Architecture	2	0	0	2	2
3	BS and AE	Building Construction and Materials - VIII	4	0	0	4	4
4	PAECC	Construction Management	1	1	0	2	2
5	OE	Open Elective (Green Buildings/ Intelligent Buildings/ Vaastu Shastra)	1	0	2	2	3
6	PE	PE1 (Architectural Conservation/ Housing/ Vernacular Design & Construction Techniques/ MOOC)	1	0	2	2	3
7	PE	PE2 (Basic Accounting & Marketing Skills/ Road Safety and Civic Sense/ MOOC)	2	0	0	2	2
Total			23	1	4	26	28



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Tenth Semester							
S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design Thesis	20	0	0	20	20
2	PC	Architectural Research Methods	1	0	2	2	3
3	PAECC	Professional Practice	2	0	0	2	2
4	PE	PE3 (Architectural Journalism/ Disaster Management)	1	0	2	2	3
Total			24	0	4	26	28
TOTAL CREDITS						260	

FIRST YEAR

FIRST SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - I	6	0	0	6	6
2	PC	Architectural Drawing - I	4	0	0	4	4
3	PC	Architectural Graphics - I	1	0	2	2	3
4	PC	Architectural Model Making Workshop - I	0	0	4	2	4
5	BS and AE	Building Construction and Materials - I	4	0	0	4	4
6	BS and AE	Structures in Architecture - I	2	1	0	3	3
7	SEC	Architectural Communications and Photography Skills	0	0	2	1	2
8	AEC	Introduction to French Culture and Language / Introduction to German Culture and Language	1	0	0	1	1
9	AEC	Punjabi/ History and Culture of Punjab	1	0	0	1	1
10	VAC	Environmental Studies - I	2	0	0	2	2
Total			21	1	8	26	30

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
6	0	0	6	6

ARCHITECTURAL DESIGN - I

Credit Units: 6

Course Level: UG

Course Objectives: To make the students familiar with the mental and visual 3D perception. The students will develop skills to identify and utilize simple geometric shapes for various 2D and 3D compositions.

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit 1: Elements and Principles of Design	18 Hours
<ul style="list-style-type: none">• Understanding Basic Elements – Point, Line, Plane, Shape, Form, Space, Color, Texture, Light• Composition of Shapes & Forms – Division, Addition, Subtraction, Repetition• Gestalt Principles & Visual Grammar – Perception, Unity, Balance, Contrast, Harmony• Color Schemes & Textures – Application in Visual Composition	

<ul style="list-style-type: none"> • Two-dimensional & Three-dimensional Design Exercises – Sketching, Model Making in Paper, Clay, Wires, etc. 	
Unit 2: Spatial Organization & Conceptual Design	18 Hours
<ul style="list-style-type: none"> • Principles of Space & Form Organization – Symmetry, Asymmetry, Hierarchy, Modularity • Understanding Positive & Negative Spaces – Additive & Subtractive Design Strategies • Exploring Scale & Proportion – Using 3D Models of Geometrical Shapes • Multidimensional Design Exercises – Using Solids, Volumes, and Architectural Elements • Study Models & Hands-on Exploration – Different Materials Like Colored Papers, Threads, Matchsticks 	
Unit 3: Anthropometrics & Human Scale in Architecture	18 Hours
<ul style="list-style-type: none"> • Role of Human Dimensions in Design – Measurement, Perception, and Ergonomics • Anthropometrics in Architecture – Human Scale, Body Movement, and Spatial Planning • Understanding Single User Spaces – Study of Functional & Activity Based Spaces • Furniture & Human Interaction – Application of Body Dimensions in Seating, Working, and Resting Spaces • Anthropometrics for Special Needs – Designing for the Physically Challenged 	
Unit 4: Application of Anthropometrics in Space Design	18 Hours
<ul style="list-style-type: none"> • Design of Functional Spaces – Hostel Room, Exhibition Stall, Information Kiosk, Drinking Water Fountain • Layout & Spatial Planning – Furniture Arrangement Based on Anthropometric Studies • Proportion and Body Relation Studies – Understanding Spatial Comfort and Accessibility • Hands-on Exercises & Field Studies – Site Visits for Real Time Observation & Documentation • Final Design Exercise – Integration of Anthropometry, Space Planning, and Visual Composition in a Small Project 	

Site Visits/ Case Studies: 18 hours

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.

- Field visits to enrich students' knowledge of context development for anthropometrics, scale and proportion.

Course Learning Outcomes:

CLO1	Introduce elementary Design (all forms of Art) and delineate Architecture as the origin of all Art forms.
CLO2	Outline Design Principles and its application in Architecture.
CLO3	Harness multi-dimensional volumes through modelling spaces.
CLO4	Evaluate the aptitude of creative imagination under a set of constraints.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No.	Pages
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Francis D.K.Ching	Architecture Form, Space and Order	John Wiley & Sons,	2014	9781118745083	464
V.S.Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt. Ltd., New Delhi	1997.	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley & Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Roger, K. L.	Architect? A Candid Guide to the Profession	Cambridge: The MIT Press	1998	0262621215	304

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

ARCHITECTURAL DRAWING - I**Credit Units: 4****Course Level: UG**

Course Objectives: To enable the students draw 2D drawings manually and develop the understanding of orthographic projections and surface development.

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit I: Drawing tools and Accessories	16 Hours
<ul style="list-style-type: none"> • Introduction to the subject and drawing equipment. Setting of drawing equipment. • Basic technical drawing: Concept and types of lines. Dimensioning and types of Lines. • Scales & its Use in the Architectural Drawing. • Drawing polygons. Inscribing and circumscribing circles in polygons. 	
Unit II: Orthographic Projections	14 Hours
<ul style="list-style-type: none"> • Projection of points lines and planes. • Projection of regular rectilinear and circular solids (prisms, pyramids. cones, cylinders, spheres etc.) in 1st Quarter. 	
Unit III: Orthographic Projections	16 Hours
<ul style="list-style-type: none"> • Sections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) 	
Unit IV: Development of Surfaces	14 Hours
<ul style="list-style-type: none"> • Simple Geometrical Solids e.g. Cube, Cuboids, Cone, Cylinder, Pyramid, Prism etc. • Interpenetration of Solids 	

Course Learning Outcomes:

CL01	Explain and illustrate usage of various manual drafting tools and techniques, used in Architecture profession.
CL02	Identify and develop understanding of interrelationship between 2D and 3D form of simple object, with the help of orthographic Projections
CL03	Analyze the sectional modeling of 3D solids through drawings
CL04	Build and Create, 3D paper models, of simple built form, using surface development technique

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Bhatt, N. D.	Engineering Drawing; Plane and Solid Geometry.	Charotar Publishing House Pvt. Limited.	2010	978-9380358178	720
Dhawan R K	Fundamentals of Engineering Drawing	S Chand	2014	978-121939263	456

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

ARCHITECTURAL GRAPHICS - I

Credit Units: 2

Course Level: UG

Course Objectives: To familiarize with principles and theories in graphics and architectural composition. vis, the development of art in Pencil.

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit I: Pencil as an effective presentation tool.	12 Hours
<ul style="list-style-type: none"> Free hand line work- free hand drawing appropriate to visual & architectural representation, sketching, drawing from observation, terminology & abbreviations used in visual representation compositions patterns with different strokes/grades in pencil-line & shape, tone & texture, figure & ground, colour & value, 	
Unit II: Calligraphy	12 Hours
<ul style="list-style-type: none"> Lettering, writing styles, developing Architectural hand Exercises in graffiti/ posters/ murals etc. Composing Logo Cover page designing for various printed materials 	
Unit III: Architectural Connotations	12 Hours
<ul style="list-style-type: none"> Understanding Architectural Connotations in freehand sketching Representing 2-D drawings of simple landscape features in pencil. Vis- crowns of trees, shapes of trees, textures of grass, rocks, tiles, cladding materials. Depicting scale with the use of human figures in the sketches 	
Unit IV: simple geometrical Volumes	9 Hours
<ul style="list-style-type: none"> Effect of light and shade & textures on solids- shapes and forms; human figures, trees and vehicles Outdoor sketching of simple building forms. Sketches of scenes and activities from memory involving public spaces like markets, festivals, recreational spaces 	

Course Learning Outcomes:

CLO1	Explain and illustrate usage of pencil as a tool in architecture profession
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CLO2	Develop architectural hand using calligraphy
CLO3	Identify and develop understanding of interrelationship between 2D and 3D form of simple object, with the help of sketching
CLO4	Depiction of 3D scenes engaging scale and proportion to determine anthropometric representations.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Pratap Mulick	Sketching	Jyotsna Prakashan	2006	9788179251041	
Gill Robert W	Rendering with pen & ink	Thames & Hudson	1984	9780500680261	400
Francis D.K. Ching	Architectural Graphics	CBS Publishers and Distributers Pvt. Ltd.	6ED	9781119035664	272

L/S	T	P	Total Credits	Total Hours
0	0	4	2	4

ARCHITECTURAL MODEL MAKING WORKSHOP - I

Credit Units: 2

Course Level: UG

Course Objectives: To familiarize students with different types of materials and manufacturing techniques for creating art forms/ models.

Course Contents/syllabus:

Unit I: Identifying tools and Materials for Craft Work	15 hours
<ul style="list-style-type: none"> • Introduction to the use of different types of tools used in carpentry/ model making with variety of materials like paper, clay, ceramic, plastic sheet, sheet metal, wood etc. • Rules, safety and precautions • Learning the usage of various materials in 2D and 3D art work • Create an art work with the above materials by hand 	
Unit II: Wooden Joints	15 hours
<ul style="list-style-type: none"> • Different types of joints, joinery details (which are commonly used in timber construction and interiors – furniture, etc.) • Learning to handle machine tools • Application of machine tools for art work 	
Unit III: Brick and Stone Masonry	15 hours
<ul style="list-style-type: none"> • Scaled live examples in construction yard- brick and stone masonry 	
Unit IV: Model Making	15 hours
<ul style="list-style-type: none"> • Models of the different types of structures, studied under structure systems 	

Course Learning Outcomes:

CL01	To sensitize the usage of various materials for production of art work
CL02	To apply different mediums and machine tools for production various types of art work
CL03	To analyze different mediums for creating art forms
CL04	Build and Create, 3D models, of simple built forms, using hand tools and crafting technique

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - I**Credit Units: 4****Course Level: UG****Course Objectives:** To familiarize the properties of brick and stones as building materials**Prerequisites:** Basic knowledge of drawing.**Course Contents/syllabus:**

Unit I: Mud	12 Hours
<p>Stabilization and use for walling and terracing. Types of Mud Bricks.</p> <p>To understand mud as a building material in the context of various construction methods. Focus on mud as a building material would be emphasized based on the performing standards and codes, wherein application of mud material would be discussed in detail, both in the context of historical and contemporary methodology. With time, the topic can also focus on latest trends in practice and usage of contemporary technologies.</p>	
Unit II: Introduction to Brick	12 Hours
<p>Composition and properties of brick, manufacturing of various types of bricks. Brick Bonds – English Flemish (Single and Double) Rat Trap</p> <p>To learn and understand various types of bricks as a building material in the context to the construction methods of walls. Focus on brick as a building material would be emphasized based on the practical methods, wherein application of brick as a material would be discussed in detail, in the context of contemporary methodology & practices. With time, the topic can also focus on latest trends in practice and usage of new technology with this material. Types of brick bond and their application and properties shall be discussed in detail.</p>	
Unit III: Wall Junctions (English & Flemish Bonds)	12 Hours

<p>L, Tee, & Cross Junctions; Construction of brick jallies</p> <p>To understand various types of junctions in bricks in the context to the construction methods of walls. Focus on brick junctions construction method would be emphasized based on the practical codes. Application of brick as a jaali would be discussed in detail, in the context of contemporary methodology & practices. With time, the topic can also focus on latest trends in practice and usage of new technology with this material. Types of brick junctions & jallies with their applications and properties shall be discussed in detail.</p>	
<p>Unit IV: Stones</p>	<p>12 Hours</p>
<p>Building stones, types, properties of good stone, natural bed, Dressing, Laying and Bonding in Stone Masonry</p> <p>Geological Classification of rocks – stones (granite, laterite, quartzite, marble, slates), uses of stone, deterioration & preservation of stone, availability, properties, and application of stones for construction in India. Stone for finishing, cutting & polishing. Granite & Marble. Types of stone masonry.</p>	

Site Visits/ Case Studies:12 hours

- To introduce the students to primary building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

<p>CLO1</p>	<p>Identify types of bricks and stones</p>
<p>CLO2</p>	<p>Draw the wall joints in different bonding styles</p>
<p>CLO3</p>	<p>Compare the structure of various types of masonry</p>
<p>CLO4</p>	<p>Evaluate the structure made out of brick and stone masonry.</p>

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
Sushil kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
Don A. Watson	Construction Materials and Processes,	McGraw Hill Co	1972	978-0070684768	512
W.B.Mckay,	'Building Construction', Vol.1, 2, 3, Longmans, U.K. 1981.	Longman	1970	812500940X, 9788125009405	480
R.Chudley	The Construction of Building (Vol 1)	Longman Scientific & Technical.	1999	9780582413955	192
S.K. Duggal	Building Materials	New Age International Publishers	2021	978-9387788398	600
B.C. Punmia, Ashok K. Jain, Arun K. Jain	Building Construction	Laxmi Publications (P) LTD	2017	978-8131804285	668

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE – I

Credit Units: 3

Course Level: UG

Course Objectives: To develop basic understanding of structures in architecture

Prerequisites: Basic knowledge of geometry and mathematics.

Course Contents/syllabus:

Unit I: Cellular System	12 Hours
<p>Introduction to structural systems and structural design. Structural geometry in nature and in architecture</p> <p>Introduction to structural engineering basic concepts. Role of structural engineering. The Various types of structural systems.</p> <p>The arrangement of structural components for load transfer. Different geometrical shapes in nature and architecture. Symmetrical and unsymmetrical structural systems. Understanding natural structures and compare with manmade structures.</p>	
Unit II: Force Mechanism	12 Hours
<p>Recapitulation of Newton's Laws of Motion. Force and Moment of a Force. Laws of resolution of forces: Parallelogram and Polygon of forces. Concept of direct Force Mechanism in structures, tension & compression. Equilibrium of force and resolution of force. Study of Moments, Moments of forces, Moments of couples.</p> <p>Understanding the Newton's law of forces. Real life problems related to Newton's Law of motion. Concept of Parallelogram and Polygon Law of forces. Different types of forces and concept of stress and strain. Resolution of forces and related numerical problems. Study the concept of force, Moment and moment of forces in structural members.</p>	
Unit III: Loads & Supports	12 Hours
<p>Introduction to type of Loads & Supports (roller, hinge and fixed) and reactions thereof. Moment of a force, a Couple and their physical interpretations. Determination of centre of gravity, Moment of Inertia of square, Rectangle & I shaped cross-section,</p>	

<p>Methods of finding out CG for a regularly shaped body or a system of bodies and MI from first principle</p> <p>Understanding of forces along equilibrium of concurrent forces. Definition of centre of gravity, centroid, moment of inertia. Computing center of gravity of regular and complex shapes such as steel sections like C, T, L I and compound sections. Definition of parallel axis and perpendicular axis theorem, radius of gyration.</p>	
<p>Unit IV: Bulk Active Structure Systems</p>	<p>9 Hours</p>
<p>Trabeated and Arcuated Structures. The simplest structural system (slab, beam and column) and introduction to simply supported and cantilevered beams.</p> <p>Concept of Trabeated and Arcuated Structures. Different structural components used in structures. The role of each structural components in load transfer mechanism. Different types of slabs, beams and columns. Role of simply supported and cantilever beams and load transfer mechanism in these beams.</p>	

Course Learning Outcomes:

<p>CL01</p>	<p>Recapitulate the principles and laws of geometry in nature. And understand Translational and Rotational Equilibrium of Rigid bodies.</p>
<p>CL02</p>	<p>Apply the said laws for simple analytical problem solving</p>
<p>CL03</p>	<p>Comprehend fundamental principles of structural behavior in withstanding gravity and various ways of mitigation of gravitational force.</p>
<p>CL04</p>	<p>Evaluate the transition from physics of rigid bodies to real structural components and apply the concepts in design.</p>

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley, and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576
S. S. Bhavikatti	Strength of Materials	Vikas Publishing House	2013	978-9325971578	512

L/S	T	P	Total Credits	Total Hours
0	0	2	1	2

ARCHITECTURAL COMMUNICATIONS AND PHOTOGRAPHY SKILLS

Credit Units: 1

Course Level: UG

Course Objectives: To introduce the students to the architectural vocabulary in a graded manner.

Prerequisites: Basic knowledge of English

Course Contents/syllabus:

Unit I: Language Fundamentals	8 Hours
<ul style="list-style-type: none"> - Grammar essentials: verb-subject agreement, articles, prepositions, punctuation. - Writing skills: voice, narration, common English errors. - Vocabulary building related to architecture and construction components. - Introduction to communication and language. - Speaking and writing exercises: vocabulary building, sentence construction, pronunciation drills, conversational skills, writing process, thesis writing, paragraph structuring. 	
Unit II: Writing for Architecture and Technical Communication	8 Hours
<ul style="list-style-type: none"> - Writing for architectural events and activities. <ul style="list-style-type: none"> - Paper presentation: theme selection, preparation, and delivery using computer software. - Technical composition: reports, papers, essays on design projects and architectural concepts. - Presenting architectural proposals with text, images, slides, videos, and models. - Public speaking for architectural presentations. 	
Unit III: Photography Basics and Equipment	8 Hours
<ul style="list-style-type: none"> - Components and operation of compact and SLR cameras. - Peripheral equipment: cables, lights, flashguns, lenses, filters, tripods. - Techniques: optics, light, exposure, focus, depth of field, aperture. - Darkroom techniques and digital printing. - Indoor and outdoor photography assignments. 	

Unit IV: Photography Skills and Visual Communication	6 Hours
<ul style="list-style-type: none"> - Understanding subject in photographs: composition basics, light, exposure. - Reading and analyzing photographs for various applications (nature, portraits, wildlife, journalism, etc.). - Incorporating photography into architectural presentations. - Photographic investigation of locations and situations for architectural purposes. - Architectural photography techniques and principles. 	

Course Learning Outcomes:

CL01	Develop proficiency in utilizing visual media, including photography, as a powerful tool for effective communication and documentation in architectural contexts.
CL02	Utilize photography techniques and equipment to visually communicate architectural concepts, ideas, and scenarios, showcasing clarity and precision in visual storytelling.
CL03	Demonstrate familiarity with various camera types, digital technologies, and techniques in photography, applying principles of aesthetics to enhance visual communication in architectural presentations.
CL04	Critically evaluate and analyze the aesthetic qualities of photographs, focusing on composition, lighting, and their impact on conveying architectural themes and concepts effectively and confidently.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Francis D.K. Ching	A Visual Dictionary of Architecture Paperback – Illustrated	Wiley	1995	978-470648858	320
Das	An Introduction to Professional English and Soft Skills	Cambridge University Press	2009	978-8175966727	272
Kul Bhushan Kumar and R.S. Salaria	Effective Communication Skills	Khanna Publishing	2018	9789382609940	404
S. Freeman	Written Communication in English	Orient BlackSwan	1977	8125004262	224

L/S	T	P	Total Credits	Total Hours
1	0	0	1	1

INTRODUCTION TO FRENCH CULTURE AND LANGUAGE

Credit Units: 1

Course Level: UG

Course Objectives: This course enables the students to read, comprehend, and analyze a wide range of texts such as small paragraphs and comprehensions in French. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French as well as demonstrate cultural awareness.

Course Contents/syllabus:

	Teaching Hours
Unit I: Introduction to French Language	4
<ul style="list-style-type: none"> • Brief introduction of French and Francophone countries • Presenting oneself • Getting information about someone else • Greeting and taking leave • Asking/giving personal information 	
Unit II: A rendez-vous ; Visiting a place	4
<ul style="list-style-type: none"> • Pronouncing and writing numbers in French • Spell and count numbers • Telling the time • Temporal expressions • Communicating in class • Fixing an hour, place for a meeting. • Describing a person. • Identifying a person, object and place • Describing relation in a family • A specific person, object and place 	
Unit III: An interview	4
<ul style="list-style-type: none"> • Description of objects, people and places • Nationalities • Speaking about one's professions • Expressing Actions using regular –er ending verbs; avoir, être; reflexive verbs – usage, conjugation • Interview of celebrity 	
Unit IV: At the discotheque	3
<ul style="list-style-type: none"> • Portrait by a journalist • Giving a positive or negative reply 	

<ul style="list-style-type: none"> • Asking questions • Discussion with a person • Activities in a day 	
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Course Learning Outcomes: At the end of this course, the students will be able to express themselves in writing and orally in basic French. This course content focuses on the speech of the students in a lucid and a concurrent manner using appropriate vocabulary and pronunciation techniques. Extra stress will be given on their understanding of grammatical structures and the foreign accent of the language. At the end of the course, the student shall be able to:

CLO1	Understand information; Express in his own words; Paraphrase; Interpret and translate
CLO2	Apply information in a new way in a practical context
CLO3	Analyze and break-down information to create new ideas
CLO4	Evaluate and express opinion in a given context

Text / Reference Books:

Author	Title	Publisher	Year of Publication	ISBN No
Christine Andant, Catherine Metton, Annabelle Nachon, Fabienne Nugue,	A Propos - A1, Livre de l'élève et Cahier d'exercices.	Langers International Pvt. Ltd.	2010	978-9380809069
Manjiri Khandekar and Roopa Luktuke	Jumelage - 1 Methode De Fraincas - French	Langers International Private Limited	2020	978-9380809854
Michael Magne, Marie-Laure Lions-Olivieri	Version Originale 1: Cahier d'exercices	Maison Des Langues	2010	978-8484435617

L/S	T	P	Total Credits	Total Hours
1	0	0	1	1

INTRODUCTION TO GERMAN CULTURE AND LANGUAGE

Credit Units: 1

Course Level: UG

Course Objectives: To help students learn:

- how to tell time
- to write simple sentences and conversations
- to frame sentences
- about the German culture

Course Contents/syllabus:

	Teaching Hours
Unit-I Introduction to German Language (Einführung)	4
<ul style="list-style-type: none"> • Introduction to German as a global language, Self-introduction and Greetings, Die Alphabeten, Phonetics: the sound of consonants and vowels, Wie buchstabieren Sie Ihren Name? 	
Unit-II Numbers and everyday conversation (die Zahl und Gespräche)	4
<ul style="list-style-type: none"> • Counting in German from 1-100, Simple Calculation and verb 'kosten' - Wie viel kostet das? Plural Forms, Vocabulary: Wochentage, Monate, Jahreszeiten, Ordinal numbers and the question - Wann haben Sie Geburtstag? 	
Unit-III Regular verbs and nominative case: articles and pronouns (Regelmässige Verben und Nominativ Kasus: Artikel und Pronomen)	4
<ul style="list-style-type: none"> • Introduction to all personal pronouns and conjugation of Regular verbs Detailed exercise on regular verbs. Reading a text on regular verbs. Introduction to definite. Vocabulary: Schulsachen und Getränke, Nominative case/ Articles (der, die, das) Nominative Pronouns: - Applicability of pronouns for both persons and things. Usage of nominative Personal Pronouns Introduction of nominative possessive pronouns usage of nominative possessive pronouns 	
Unit-IV The Family, Work-life and Professions (Familienmitglieder und Berufe) & Interrogative sentences (W-Fragen)	3

- Vocabulary: Professions and conjugation of the verb 'sein'
Introduction to simple possessive pronouns with the help of the verb 'haben' Usage of possessive pronouns. Interrogative sentences (W-Fragen) W-Fragen: who, what, where, when, which, how, how many, how much, etc. Exercises on the question pronouns

Course Learning Outcomes: After completing these modules, the students will be capable of constructing sentences with possessive and demonstrative adjectives in German. In addition, they will be proficient in formulating meaningful sentences as they will be capable of applying their knowledge of all the irregular verbs they have learnt during the session. They will also have an idea of German culture by studying about various German festivals.

At the end of the course, the student shall be able to:

CLO1	Understand information; Express in his own words; Paraphrase; Interpret and translate
CLO2	Apply information in a new way in a practical context
CLO3	Analyze and break-down information to create new ideas
CLO4	Evaluate and express opinion in a given context

Text / Reference Books:

Author	Title	Publisher	Year	ISBN No	Pages
<u>Rolf Bruseke</u>	Starten Wir A 1	Langers International Pvt Ltd (Max Hueber Verlag)	2017	978-3190160006	<u>Rolf Bruseke</u>
<u>Giorgio Motta</u>	Wir Plus Grundkurs Deutsch fur Junge Lerner Book	Ernst Kleit Verlag	2011	978-8183072120	<u>Giorgio Motta</u>
Heimy Taylor, <u>Werner Haas</u>	Station en Deutsch Self Study Course German Guide	Wiley	2007	978-0470165515	Heimy Taylor, <u>Wernr Haas</u>

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

ENVIRONMENTAL STUDIES - I

Credit Units: 2

Course Level: UG

Course Objectives: To develop basic understanding of the environment and role of humans in shaping it.

Prerequisites: Basic knowledge of environment around us.

Course Contents/syllabus:

	Total Hours
Unit-1- Multidisciplinary nature of environmental studies	8 Hours
<ul style="list-style-type: none"> <i>Multidisciplinary nature of environmental studies:</i> Definition, scope and importance; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. concept of sustainability and sustainable development. 	
Unit-2- Natural Resources- Renewable and non-renewable resources	8 Hours
<ul style="list-style-type: none"> Land resources and land use change, land degradation, soil erosion and desertification. Deforestation: causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal population. Water Resources-Use and over-exploitation of surface and groundwater, floods, drought, conflicts over water (international and inter-state). Heating of earth and circulation of air; air mass formation and precipitation. Energy resources- renewable and non-renewable energy sources, use of alternate energy sources, Growing energy needs, Case studies. 	
Unit-3- Ecosystems	8 Hours
<ul style="list-style-type: none"> What is an ecosystem; Structure and function of an ecosystem; Energy flow in the ecosystem; Food chains, food webs and ecological succession. Case studies of the following ecosystems: Forest ecosystem Grassland ecosystem Desert ecosystem Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries). 	

Unit-4- Biodiversity and its conservation	6 Hours
<ul style="list-style-type: none"> Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; biodiversity patterns and global biodiversity hot spots. India as a mega–biodiversity nation; endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; conservation of biodiversity: in-situ and ex-situ conservation of biodiversity. Ecosystem and biodiversity services: ecological, economic, social, ethical, aesthetic and information value. 	

Course Learning Outcomes: At the end of this course, the students will be able to develop:

CL01	Appreciate the multi-disciplinary nature of environmental science.
CL02	Understand natural resources and evaluate limitations surrounding renewable and non-renewable resources.
CL03	Understand the nuances of ecosystem and learn about behavior of various ecosystems.
CL04	Learn about the types, services and threats to our biodiversity and importance of conserving it.

Text / Reference Books:

AUTHOR	TITLE	Publisher	Year of publication	ISBN	Pages
William P. Cunningham, Mary Ann Cunningham	Principles of Environmental Science	McGraw-Hill	2019	9781260219715	--
Dash and Dash	Fundamentals of ecology	Tata McGraw-Hill Education	2009	978-0070083660	--
William P. Cunningham, Mary Ann Cunningham, Barbara Woodworth Saigo	Environmental Science: A global concern,	McGraw-Hill	2021	9781260363821	--
Gaston K.J. and Spicer, J. I.	Biodiversity – An Introduction 2 nd edition	Blackwell Publishing	2004	978-1-405-11857-6	--

FIRST YEAR

SECOND SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - II	6	0	0	6	6
2	PC	Architectural Drawing - II	3	0	0	3	3
3	PC	Architectural Graphics - II	1	0	2	2	3
4	PC	Architectural Model Making Workshop - II	0	0	4	2	4
5	BS and AE	Building Construction and Materials - II	4	0	0	4	4
6	BS and AE	Structures in Architecture - II	2	1	0	3	3
7	SEC	Computer Graphic Skills - I (Sketchup, Photoshop and Corel Draw)	1	0	2	2	3
8	AEC	French Grammar/ German Grammar	1	0	0	1	1
9	AEC	Punjabi/ History and Culture of Punjab	1	0	0	1	1
10	VAC	Environmental Studies - II	2	0	0	2	2
		Total	21	1	8	26	30

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
6	0	0	6	6

ARCHITECTURAL DESIGN - II

Credit Units: 6

Course Level: UG

Course Objectives: To develop the design of single storeyed structure laying the emphasis on form, function and structure systems. The design presentation will be focussed on space analysis with sectional details. The students should be sensitized to design for physically challenged also.

Prerequisites: Basic understanding of scale and drafting sketches

Course Contents/syllabus:

	Teaching Hours
Unit I: Scale, Proportion & Anthropometry in Architecture	
<ul style="list-style-type: none">• Extension of Compositional Principles – Exploring Proportion, Balance, and Harmony• Understanding Scale in Spatial Layouts – Human Scale and its Application• Anthropometry in Design – Application in Residential Spaces (Toilets & Kitchens)	24 Hours

<ul style="list-style-type: none"> • Work Triangle Concept in Kitchen Design – Efficiency in Space Planning 	
<ul style="list-style-type: none"> • Field Study & Site Visits – <ul style="list-style-type: none"> ○ Chandigarh Houses (Different Prototypes & Independent Marla Houses) ○ Taking Measurements & Sketching Toilets & Kitchens to understand human scale 	
Unit II: Design of Single-Cell Units & Behavioural Space Analysis	
Design of Single-Cell Units & Behavioural Space Analysis <ul style="list-style-type: none"> • Architectural Design Methodology – Analysing User Needs, Wants & Desires • Understanding Behavioural Requirements & Space Form – <ul style="list-style-type: none"> ○ Study of Space Adjacency & Proximity Charts ○ Relationship among Spaces – Zoning & Layouts 	24 Hours
<ul style="list-style-type: none"> • Case Studies & Site Visits – <ul style="list-style-type: none"> ○ Visit to 1BHK Residences (EWS housing in Bapu Dham Colony, Studio Apartments) ○ Analysis of Space Interrelationships, Services & Parking 	
Unit III: Barrier-Free Design and Special User Needs	
<ul style="list-style-type: none"> • Universal Design Principles – Creating Spaces for Differently Abled & Elderly • Designing Inclusive Spaces – Cottages for Elderly or Bachelors with physical challenges • Accessibility & Mobility Considerations – Addressing Physical Barriers in Design 	18 Hours
<ul style="list-style-type: none"> • Field Study & Site Visits – <ul style="list-style-type: none"> ○ Visits to Old Age Homes (Senior Citizen Home, Sec-43; Sri Satya Sai Old Age Home, Sec-30; Akal Old Age Home, Mullanpur) ○ Understanding Special Requirements of Elderly & Differently Abled 	
Unit IV: Public Service Zones & Contextual Design	
<ul style="list-style-type: none"> • Design of Small & Simple Spaces – Milk Booths, Snack Bars, Security Check Posts • Architectural Composition – Geometric & Non-Geometric Spatial Arrangements • Use of Materials, Textures, Colours & Light in Space Design 	24 Hours

<ul style="list-style-type: none"> • Exploring Architectural Visualization – Presentation Techniques & Model Making 	
Field Study & Site Visits – <ul style="list-style-type: none"> ○ Visits to Milk Booths (Leisure Valley), Rock Garden, Govt. Arts Museum ○ Documentation through Photographs, Sketches & Critical Analysis 	

Course Learning Outcomes:

CLO1	To understand the application of the architectural design process for small scale projects of human habitat
CLO2	To transform the human behavioural needs into architectural program requirements
CLO3	To analyze the information on context and the human-space relationship
CLO4	To compose the architectural spaces in a design project

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Francis D.K. Ching	Architecture Form, Space and Order	John Wiley & Sons,	2014	9781118745083	464
V.S. Prammar	Design Fundamentals in Architecture	Somaiya Publications Pvt. Ltd., New Delhi	1997.	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley & Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Roger, K. L.	Architect? A Candid Guide to the Profession	Cambridge: The MIT Press	1998	0262621215	304

L/S	T	P	Total Credits	Total Hours
3	0	0	3	3

ARCHITECTURAL DRAWING - II**Credit Units: 3****Course Level: UG****Course Objectives:** To enable the students draw 3D drawings manually and develop the understanding of perspective drawings.**Prerequisites:** Basic knowledge of drawing**Course Contents/syllabus:**

Unit I: Isometric projections	12 Hours
Metric drawings, projections and their dimensions. Types used & advantage • Isometric, Axonometric & Oblique view • Metric drawings, projections and their dimensions • Difference between perspective and metric projections Isometric of simple forms.	
Unit II: Axonometric projections	12 Hours
Axonometric of simple architectural forms and of simple household furniture items Developing Axonometric views at 45 degrees inclination for table, chairs, stools, exterior views of single storeyed structures in different shapes.	
Unit III: Perspective Drawing (One Point perspective)	12 Hours
Anatomy of perspective: Station point, Eye level, Cone of vision, Picture plane, Horizon line, Ground line, Vanishing points • Types of perspectives: One point, Two-point, Three point Parallel Perspective - One point and two points perspectives of interiors • Perspective of different Solids and Building elements	
Unit IV: Perspective Drawing (Two Point perspective)	9 Hours
Introduction to theory of Geometrical Perspective Drawing. Angular (Two Point Perspective) of building exterior and simple architectural forms	

Course Learning Outcomes:

CL01	To understand the types of paraline drawings and their use in architecture
CL02	To understand the importance of perspective views in architecture for project presentation.
CL03	To understand different types and techniques to draw perspective views.
CL04	To be able to do 2D and 3D graphical representation of drawings

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Bhatt, N. D.	Engineering Drawing ; Plane and Solid Geometry.	Charotar Publishing House Pvt. Limited.	2010	978- 9380358178	720
Dhawan R K	Fundamentals of Engineering Drawing	S Chand	2014	978- 121939263	456

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

ARCHITECTURAL GRAPHICS - II

Credit Units: 2

Course Level: UG

Course Objectives: To enable the students in developing appropriate manual skills for visualization and representation of built forms in different types of drawings.

To familiarize the students with the development of art with colour as a medium.

Prerequisites: Basic knowledge of sketching styles appropriate to proportional development of figures.

Course Contents/syllabus:

	HOURS
Unit I: Colour Wheel and Colour Schemes	
<ul style="list-style-type: none"> Design of compositions in colour wheel with primary/secondary/tertiary schemes. Rendering schematic layouts with Pencil colours/ water colours/ poster colours 	12 Hours
<ul style="list-style-type: none"> SITE VISIT: To Sector 17 Mural and /or Government model high schools or fine arts college sector 10. 	
Unit II: Pencil Crayons and Oil Pastels as presentation medium	
<ul style="list-style-type: none"> Rendering of various surfaces such as brick, stone, grass, timber etc. Trees, Human figures, Automobiles, Lamp Posts, Street furniture in Plan, Elevation and Perspective in Crayons and Oil Pastels 	12 Hours
<ul style="list-style-type: none"> SITE VISIT: Outdoor sketching and rendering of various surfaces like brick, stone, timber, grass, glass, etc. 	
Unit III: Water Colour Rendering	
<ul style="list-style-type: none"> Outdoor free hand sketching and Color rendering of Trees, Shrubs, Vegetation, buildings, Vehicles etc. 	12 Hours
<ul style="list-style-type: none"> SITE VISIT: Outdoor sketching (plan, elevation, perspective) and rendering of buildings, trees, humans, automobiles, etc. using pencil / water colours. 	
Unit IV: Poster Colour Rendering	

<ul style="list-style-type: none"> Color Rendering of various scenes such as Garden scene, Street Scene, Lake scene, Village scene, etc.. 	9 Hours
<ul style="list-style-type: none"> SITE VISIT: Visit to Leisure Valley / Sukhna Lake / Rock Garden for Colour Rendering of various scenes such as Garden Scene, Street Scene, Lake scene, Village scene, etc. 	

Course Learning Outcomes:

CLO1	Explain and illustrate usage of pencil as a tool in Architecture profession.
CLO2	Develop architectural hand using calligraphy
CLO3	Identify and develop understanding of interrelationship between 2D and 3D form of simple object, with the help of sketching
CLO4	Depiction of 3D scenes engaging scale and proportion to determine anthropometric representations.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Pratap Mulick	Sketching	Jyotsna Prakashan	2006	9788179251041	136
Gill Robert W	Rendering with pen & ink	Thames & Hudson	1984	9780500680261	400
Francis D.K. Ching	Architectural Graphics	CBS Publishers and Distributers PVT. LTD	6ED	978-1119035664	272

L/S	T	P	Total Credits	Total Hours
0	0	4	2	4

ARCHITECTURAL MODEL MAKING WORKSHOP - II

Credit Units: 2

Course Level: UG

Course Objectives: To train the students to prepare building models in various mediums viz. mount board, and various other materials

To understand the constraints and complexities and versatility of Model Making in terms of Sculpture and clay modeling

Course Contents/syllabus:

Unit I: Masonry construction	15 hours
<ul style="list-style-type: none"> Design & Model Making of Furniture and other Interior & Exterior Elements. Modeling with Paper Mache. Erecting garden walls, partition walls and cavity walls in construction yard. Modelling arches and vaults- semicircular arch, corbelled arch, barrel vaults. 	
Unit II: Sculpture Making	15 hours
<ul style="list-style-type: none"> Making three dimensional sculptures involving the basic platonic solids and abstract sculptures using various techniques/ materials such as POP, wire/ matchstick, soap, clay etc., involving the principles of art Working with Pop/soft clay and Introduction to molds – waste mold, press mold etc. Hollow casting – a vase 	
Unit III: Engraving, Carving, Polishing and Painting	15 hours
<ul style="list-style-type: none"> Activity with application of metals in built form – horizontal, vertical and inclined surfaces – elements in architectural environment - products and furniture forms- doors, windows, jallies, railing, stair etc. Metals and other materials – form and joinery 	
Unit IV: Model Making	15 hours
<ul style="list-style-type: none"> Preparation of wooden base for model making. Models of a small multi-cellular unit. Making a study model of a Design Project done during the Semester or of a Small Building. Creating the Basic Model, Adding Doors and Windows, Floors and Floor Openings, Roof and Ceiling and Staircases 	

Course Learning Outcomes:

CL01	Acquaint with mosaic for production of crafts
CL02	Gain hands-on exploration of possible mediums such as ceramics, sculpture, Paper Mache and various combinations of the above
CL03	Analyze case studies for replicating crafting techniques in interiors
CL04	Evaluate methods and mediums for decorating various surfaces in interiors

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - II

Credit Units: 4

Course Level: UG

Course Objectives: To familiarize the students with detail of various components. To introduce the building materials, their properties and application in construction.

Prerequisites: Basic knowledge of drawing.

Course Contents/syllabus:

	Teaching Hours
Unit I: Cementitious Materials	
Lime, Cement & Aggregate- sources, classification, properties and method of manufacturing, mixing and uses, applications & functions of Good Mortars/ Concrete. Damp-proofing- methods of Horizontal and Vertical DPC	15 Hours
Site Visits: Visit to nearby construction site and material testing lab to see different materials like lime, cement, aggregate. Audio-video documentation of the process of laying DPC / plastering. Visit to Ambuja Knowledge Centre Sec-5, Panchkula	
Unit II: Introduction to Shallow Foundations	
Types, and Design of Shallow Foundations- spread footings, Mat Foundations, Raft Footings	15 Hours
Site Visits: Visit to nearby construction site to observe process of casting shallow / deep foundations. Documentation of site(s) visited with photographs and sketches. Visit to Aerocity projects/ JLPL/ HLP Galleria on Zirakpur-Patiala highway.	
Unit III: Introduction to Deep Foundations	
Pile Foundations, Grillage Foundations, Caisson Foundations & their materials.	15 Hours
Site Visits: Visit to nearby construction site to observe process of excavation and construction of foundations Documentation of site(s) visited with photographs and sketches.	

Unit IV: Sectional Details of a Building		
Cutting a section through the wall- single storey building showing various components of building including kitchen, toilet and stairs	15 Hours	
Site Visits: Visit to nearby construction site to observe and document process of construction of stairs – laying of landing beam & slab, waist slab, treads & risers, finishing, balustrade & railing, etc. Drawing sectional details of a building.		

Course Learning Outcomes:

CLO1	To develop understanding about cementitious materials and complex foundations and the constructions techniques involved.
CLO2	To comprehend the constructions techniques involved in foundations and damp proofing
CLO3	To analyse the properties of various construction materials used for mortars and damp-proofing
CLO4	To evaluate the best suitable materials and techniques for erection of single storey building

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
Don A. Watson	Construction Materials and Processes,	McGraw Hill Co	1972	978-0070684768	512
W.B. Mckay,	'Building Construction', Vol.1, 2, 3, Longmans, U.K. 1981.	Longman	1970	812500940X, 9788125009405	480
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific & Technical.	1999	9780582413955	192
S.K. Duggal	Building Materials	New Age International Publishers	2021	9789387788398	600
Dr. B.C. Punmia, Er. Ashok K. Jain, Dr. Arun K. Jain	Building Construction	Laxmi Publications (P) LTD	2017	9788131804285	668

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE – II

Credit Units: 3

Course Level: UG

Course Objectives: To create awareness of concepts of Static Analysis, Strength of materials, their behaviour & structural analysis leading to application-based learning as required for Architectural Design.

Prerequisites: Basic knowledge of geometry and mathematics.

Course Contents/syllabus:

Unit I: Design for 4S	12 Hours
Synergy, Strength, stiffness & Stability. Stress & Strain - Stress, strain, Hooke's law, Stress strain Curve, stresses in simple & composite section. Modulus of elasticity (Young's Modulus). Constitutive relationship between stress and strain • Analysis of bars of varying sections • Analysis of uniformly tapering circular rod • Analysis of uniformly tapering rectangular bar. • Analysis of bars of composite sections • Thermal Stresses • Thermal stresses in composite bars • Elongation of bar due to its own weight • Analysis bar of uniform strength	
Unit II: Temporary Stresses	12 Hours
Longitudinal strain • Lateral Strain • Poisson's Ratio • Volumetric Strain • Volumetric strain of cylindrical rod • Bulk modulus • Principle of complementary shear stresses	
Unit III: Bending Moment & Shear Force	12 Hours
Basic concepts, B.M. & S.F. Centroid or centre of gravity of simple plane figures. Parallelogram Law of Forces • Resolution of forces- Triangular Law of forces, Polygon Forces. Diagram for simple beam & frames for various type of Loading & support condition Bending stress in beams- Theory of simple bending, section Modulus. Relationship between load, shear force and bending moment diagrams	
Unit IV: Strength of Sections	9 Hours

Bending stresses in symmetrical & asymmetrical section, shear stress in beams in symmetrical structure. Fixed & continuous beams. Working out structure systems for Layout of a small building.	
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Course Learning Outcomes:

CLO1	Study of stresses and strains and their effect in various elements.
CLO2	Analytical method for determining stresses and strains in the oblique section.
CLO3	Apply the knowledge of resolution of forces and theorems related with equilibrium
CLO4	Evaluate the method to draw and make shear force and bending moment diagrams.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley , and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek , Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576
R.K. Bansal	Strength of Materials	Laxmi Publications	2011	978-8131808146	
Sadhu Singh	Strength of Materials	Khanna Publications	1978	978-8174090485	1250

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

COMPUTER GRAPHIC SKILLS - I (SKETCHUP, PHOTOSHOP AND COREL DRAW)

Credit Units: 2

Course Level: UG

Course Objectives: Introduction and the use of Sketchup, Photoshop and Corel Draw software for architectural applications.

To introduce tools and softwares for comprehensive modelling, animation, simulation, and rendering solution for architectural visualization and images.

Prerequisites: Basic knowledge of sketching styles appropriate to proportional development of figures.

Course Contents/syllabus:

Unit I: 3D Modeling Basics (SketchUp)	12 hours
<ul style="list-style-type: none"> • SketchUp interface, navigation, and toolbars • Creating 3D forms: Push/Pull, extrude, rotate, and follow-me tool • Working with components, groups, and layers • Applying materials and textures to surfaces • Importing and exporting CAD files for architectural workflows • Basic rendering techniques for realistic presentations 	
Unit II: Fundamentals of Digital Design & Raster Graphics (Photoshop)	12 Hours
<ul style="list-style-type: none"> • Introduction to digital graphics: Raster vs. Vector • Photoshop interface, tools, and workspace customization • Image adjustments: Cropping, resizing, and resolution settings • Colour correction: Levels, curves, hue/saturation, and filters • Selection tools: Magic wand, lasso, and quick selection • Layers, masks, and blending modes for non-destructive editing 	
Unit III: Vector Graphics & UI Design (CorelDRAW / Figma)	12 Hours

<ul style="list-style-type: none"> • Introduction to vector-based design: CorelDRAW (for print media) / Figma (for UI design) • Creating shapes, paths, and working with the pen tool • Typography: Font selection, kerning, tracking, and alignment • Creating logos, icons, and simple illustrations • Introduction to UI/UX design in Figma: Frames, components, and prototyping • Exporting vector graphics for print and digital use 	
Unit IV: Presentation & Workflow Integration	9 Hours
<ul style="list-style-type: none"> • Combining Photoshop, CorelDRAW/ Figma and SketchUp for design presentations • Creating a project layout: Digital posters, portfolio pages, and mockups • Basic rendering techniques in SketchUp with lighting and shadows • Exporting files for web, print, and presentations • Introduction to collaboration tools and file-sharing formats • Presentation of data and information using text, images, diagrams with animations, transitional effects, and audio movie input, etc. using different softwares 	

Course Learning Outcomes:

CLO1	understand the illustration and editing of images as a presentation tool in Architecture profession
CLO2	Develop architectural presentation and 3-dimensional sense.
CLO3	Develop understanding of interrelationship between 2D and 3D form of simple objects, with the help of software.
CLO4	Create futuristic and enhance sensitive designs.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No.	Pages
Thomas Mooney	3ds Max Speed Modeling for 3D Artists	Packet Publishing Limited	2012	184969236X	422
Linkan Sagar/ Nisha Gupta	3D Max 2019 Training Guide	BPB	2019	9388511158	102

DT Editorial Services	CorelDRAW 2018 in Simple Steps	Dreamtech Press	2018	9388425251	284
Pratap Mulick	Sketching	Jyotsna Prakashan	2006	9788179251041	
Gill Robert W	Rendering with pen & ink	Thames & Hudson	1984	9780500680261	400
Scott Onstott	Enhancing Architectural Drawings and Models with Photoshop	Sybex; Pap/Dvdr edition	2010	978-0470916568	360
Horst Sondermann	Photoshop® in Architectural Graphics	Springer; 2009th edition	2009	978-3211715918	328

L/S	T	P	Total Credits	Total Hours
1	0	0	1	1

FRENCH GRAMMAR

Credit Units: 1

Course Level: UG/PG

Course Objectives: This course enables the students to read, comprehend, and analyze a wide range of texts such as small paragraphs and comprehensions in French. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French as well as demonstrate cultural awareness.

Course Contents/syllabus:

	Teaching Hours
Unit-I: My family and my house	4
Descriptors/Topics <ul style="list-style-type: none"> • Talk about your family members • Usage of possessive adjectives • Describe your house/apartment • Prepositions of location • Negation 	
Unit-II: Lifestyle	4
Descriptors/Topics <ul style="list-style-type: none"> • Talk about your hobbies and pastimes • Usage of appropriate articles: definite and contracted • Talk about your daily routine • Usage of pronominal verbs 	
Unit-III: In the city	4
Descriptors/Topics <ul style="list-style-type: none"> • Filling up a simple form • Ask for personal information • Usage of interrogative adjectives • Give directions about a place • Ordinal numbers • Usage of demonstrative adjectives 	
Unit-IV: Week-end	3
Descriptors/Topics <ul style="list-style-type: none"> • Talk about your week-end plans • Usage of disjunctive pronouns • Usage of Near Future tense • Talk about weather • Write a simple post card 	

Course Learning Outcomes: At the end of this course, the students will be able to interact in a simple way on everyday topics. This course content focuses on the speech of the students in a lucid and a concurrent manner using appropriate vocabulary and pronunciation techniques. Extra stress will be given on their understanding of grammatical structures and the foreign accent of the language. At the end of the course, the student shall be able to:

CLO1	Understand information; Express in his own words; Paraphrase; Interpret and translate
CLO2	Apply information in a new way in a practical context
CLO3	Analyze and break-down information to create new ideas
CLO4	Evaluate and express opinion in a given context

Text / Reference Books:

Author	Title	Publisher	Year of Publication	ISBN No
Christine Andant, Catherine Metton, Annabelle Nachon, Fabienne Nugue,	A Propos - A1, Livre de l'élève et Cahier d'exercices.	Langers International Pvt. Ltd.	2010	978-9380809069
Collins Dictionaries	Easy Learning French Complete Grammar, Verbs and Vocabulary	Collins	2016	978-0008141721
Nikita Desai, Samapita Dey Sarkar	Apprenons La Grammaire Ensemble - French	Langers International Pvt. Ltd.	2017	978-8193002681

L/S	T	P	Total Credits	Total Hours
1	0	0	1	1

GERMAN GRAMMAR

Credit Units: 1

Course Level: UG/PG

Course Objectives: To help students learn:

- how to tell time.
- to write simple sentences and conversations using irregular verbs.
- to frame sentences with one subject and direct objects also revising the Nominative case done in the previous semester.

Course Contents/syllabus:

	Teaching Hours
Module I: Time (Uhrzeit); People and the World: Land, Nationalität und Sprache	4
<ul style="list-style-type: none"> • Introduction of time • Read text related to time and teach the students the time expressions • Exercises related to Time • Adverbs of time and time related prepositions • Vocabulary: Countries, Nationalities, and their languages • Negation: "nicht/ kein" • Ja/Nein Fragen. • All the colors and color related vocabulary, adjectives, and opposites • Exercises and comprehension for the same. 	
Module II: Irregular verbs (unregelmässige Verben)	4
<ul style="list-style-type: none"> • Introduction to irregular verbs and their conjugation e.g. fahren, essen, lesen etc • Read a text related to the eating habits of Germans • Vocabulary: Obst, Gemüse, Kleiderstück with usage of irregular verbs • Free time and hobbies • Food and drinks 	
Module III: Accusative case: articles and pronouns (Akkusativ Kasus: Artikel und Pronomen)	4

<ul style="list-style-type: none"> • Introduction to the concept of object (Akkusativ) • Formation of sentences along with the translation and difference between nominative and accusative articles • Usage of accusative Definite articles • Usage of accusative Indefinite articles 	
Module IV: Accusative case: possessive pronouns (Akkusativ Kasus: Possessivpronomen) Family and Relationship	3
<ul style="list-style-type: none"> • Accusative Personal Pronouns: - Revision of the nominative personal pronouns and introduction of accusative. Applicability of pronouns for both persons and things. • Usage of accusative Personal Pronouns • Introduction of accusative possessive pronouns • Difference between nominative and accusative possessive pronouns usage of accusative possessive pronouns 	

Course Learning Outcomes: After completing these modules, the students will be capable of constructing sentences with possessive and demonstrative adjectives in German. In addition, they will be proficient in formulating meaningful sentences as they will be capable of applying their knowledge of all the irregular verbs they have learnt during the session. They will also have an idea of German culture by studying about various German festivals.

At the end of the course, the student shall be able to:

CLO1	Understand information; Express in his own words; Paraphrase; Interpret and translate
CLO2	Apply information in a new way in a practical context
CLO3	Analyze and break-down information to create new ideas
CLO4	Evaluate and express opinion in a given context

Author	Title	Publisher	Year	ISBN No	Pages
Dora Schulz, Heinz Griesbach	Deutsche Sprachlehre Für Ausländer	Max Hueber Verlag	1984	978-3190010066	-
Hartmut Aufderstrasse, Jutta Müller, Helmut Müller	Themen Aktuell: Glossar Deutsch	Max Hueber Verlag	2003	978-3190816903	-
Giorgio Motta	Wir Plus Grundkurs Deutsch für Junge Lerner Book German Guide	Goyal Publishers	2011	9788183072120	248

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

ENVIRONMENTAL STUDIES - II

Credit Units: 2

Course Level: UG

Course Objectives: To develop basic understanding of the environment and role of humans in shaping it.

Prerequisites: Basic knowledge of environment around us.

Course Contents/syllabus:

	Total Hours
Unit-1 Environmental Pollution	8 Hours
<p><i>Environmental Pollution:</i> types, Cause, effects and controls –Air, water, soil, chemical and noise pollution. Nuclear hazard and human health risk Solid waste Management-control measures of urban and industrial waste. Pollution case studies.</p>	
Unit-2 Environmental Policies and practices	8 Hours
<p><i>Environmental Policies and practices:</i> Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment laws: Environment Protection Act; Air (Prevention and Control of Pollution) Act; Water (Prevention and Control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act, international agreements: Montreal and Kyoto protocols and convention on biological diversity (CBD), The Chemical Weapons Convention (CWC). Natural reserves, tribal population and rights and Human-wildlife conflict in Indian context.</p>	
Unit-3 Human communities and the Environment	8 Hours
<p>Impacts on environment, human health and welfare. Carbon foot-print. Resettlements and rehabilitation of project affected persons, case studies. Disaster management: floods, earthquake, cyclone and landslides. Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.</p>	

Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).	
Unit-4 Field work	6 Hours
<ul style="list-style-type: none"> • Visit to an area to document environmental assets: river/forest/flora/fauna, etc. • Visit to local polluted Site- Urban/Rural/Industrial/Agricultural • Study of common plants, insects, birds and basic principles of identification. • Study of simple ecosystems-pond, river, Delhi Ridge, etc. 	

Course Learning Outcomes: At the end of this course, the students will be able to develop:

- Understanding the types of pollution and their impact on environment and human health.
- Understand the environmental concerns and their impact on humans and agriculture.
- Able to analyse the impacts of natural and manmade disaster on human population and settlements.
- Sensitization about the environmental issues and concerns leading to proactive actions to improve the environmental conditions in our daily life.
- Able to imbibe practical approach and solution to solve environmental concerns.

Text / Reference Books:

AUTHOR	TITLE	Publisher	Year of publication	ISBN	Pages
William P. Cunningham, Mary Ann Cunningham	Principles of Environmental Science	McGraw-Hill	2019	9781260219715	--
William P. Cunningham, Mary Ann Cunningham, Barbara Woodworth Saigo	Environmental Science: A global concern,	McGraw-Hill	2021	9781260363821	--
Gurjar B. R., Molina L.T., Ojha C.S.P. (Eds.)	Air Pollution: Health and Environmental Impacts	CRC	2010	9781439809624	--
Elaine M.A. and Bugyi G.(Eds.)	Impact of Water Pollution on Human Health and Environmental Sustainability (Practice, Progress, and Proficiency in Sustainability)	Idea Group, U.S	2016	978-1466695597	--

SECOND YEAR

THIRD SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - III	8	0	0	8	8
2	PC	History of Architecture - I	2	0	0	2	2
3	BS and AE	Building Construction and Materials - III	4	0	0	4	4
4	BS and AE	Structures in Architecture - III	2	1	0	3	3
5	BS and AE	Climatology and Sustainable Architecture	1	0	4	3	5
6	SEC	Computer Graphic Skills - II (AutoCAD 2D)	2	0	2	3	4
7	SEC	Parametric Architecture – I (Basics of Web Development)	0	0	2	1	2
8	VAC	Regional Sikh Architecture	2	0	0	2	2
Total			21	1	8	26	30

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
8	0	0	8	8

ARCHITECTURAL DESIGN - III

Credit Units: 8

Course Level: UG

Course Objectives: To develop the design of small buildings (Two storeyed Residence and Kindergarten/ Primary School) with respect to site, landscape, climate and socio-economic conditions in a situation without urban regulatory controls. All buildings should have accessibility to the physically challenged persons.

Prerequisites: Basic understanding of scale and drafting sketches

Course Contents/syllabus:

Unit I: Understanding User Circulation and Space Requirements	24 Hours
<ul style="list-style-type: none">• User Circulation in Built Spaces – Analysing Movement & Activity Flow• Functional Zoning & Space Adjacency – Logical Organization of Spaces• Designing for Multiple Functions – Integrating Varied Activities in a Space• Site Analysis & Contextual Study – Understanding Site Conditions & Constraints	

<ul style="list-style-type: none"> • Design Project 1: Two storeyed Residence Design – Spatial Planning & Concept Development 	
Unit II: Integration of Form & Function	24 Hours
<ul style="list-style-type: none"> • Design Strategies for Functional Spaces – Balancing Form, Function & Aesthetics • Space Optimization Techniques – Efficient Use of Built & Open Areas • Multi-Functional Design Approaches – Creating Flexible & Adaptive Spaces • Development & Refinement of Residence Design • Detailed Planning of User-Specific Spaces (Bedrooms, Living, Services, etc.) • Time Problem for MTT: Emphasis on Imagination and Creativity for e.g., doll house, tree house, house on moon, club, guest-house, etc. 	
Unit III: Public Space Design (Institutional – Kindergarten/ Primary School)	24 Hours
<ul style="list-style-type: none"> • Designing Small-Scale Public Spaces – Addressing User Needs (small children versus adults) & Accessibility • Material Selection & Structural Considerations – Aligning with Function & Form • Design Project 2: Kindergarten / Primary School – Space Planning & Layout Development 	
Unit IV: Presentation & Design Finalization	24 Hours
<ul style="list-style-type: none"> • Architectural Drawings & Model Making – Plans, Elevations & 3D Visualization • Façade Treatment & Aesthetic Enhancements – Visual Composition of Built Form • Refining Designs – Finalizing Space Planning & User Experience 	

Site Visits/ Case Studies: 24 sessions

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.
- Field visits to enrich students' knowledge of context development for well-designed residences and kindergarten/ primary schools.

Course Learning Outcomes:

CLO1	To understand the challenges in architectural design of a small imaginative space with reference to function, form and structures
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CLO2	To integrate multiple functions and site conditions
CLO3	To critique the materials, construction techniques and structural systems used in the elements of built forms
CLO4	To evaluate climate responsive techniques applicable to simple structures

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Donald Watson, Michael rosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Francis D.K. Ching	Architecture Form, Space and Order	John Wiley & Sons,	2014	9781118745083	464
V.S. Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt. Ltd., New Delhi	1997.	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley & Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Roger, K. L.	Architect? A Candid Guide to the Profession	Cambridge: The MIT Press	1998	0262621215	304
Michael Malone	The Architect's Guide to Residential Design	McGraw-Hill Education	2010	978-0884154303	272
Donald B. Corner (Author), Jan C. Fillinger (Author), Alison G. Kwok	Passive House Details: Solutions for High-Performance Design	Routledge	2017	978-1138958265	332
Dudek	Architecture of Schools: The New Learning Environments	Routledge; First edition	2017	9781138049543	
Sibylle Kramer	Building to Educate: School Architecture and Design	Braun	2018	9783037682388	200

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

HISTORY OF ARCHITECTURE - I

Credit Units: 2

Course Level: UG

Course Objectives: Understanding the early cultures in the periods from 3500BCE to 400BCE in context of location, climate as well as the socio-economic, historical, and cultural influences of the time.

Prerequisites: Basic knowledge of History

Course Contents/syllabus:

Unit I: Introduction to Architecture	08 Hours
<ul style="list-style-type: none"> • Definition and scope of architecture • Determinants of built form – geographical, societal, political, and technological influences • Interdependence of components in the built environment • Vernacular architecture across different regions 	
Unit II: Prehistoric and Early Civilizations	08 Hours
<ul style="list-style-type: none"> • Man's earliest shelters and structures (e.g., Stonehenge, tumuli) • River Valley Civilizations: Comparative study of Mesopotamian, Egyptian, Indus Valley, and Chinese civilizations • Analysis of public buildings, city planning, and architectural features 	
Unit III: Egyptian and Mesopotamian Architecture	08 Hours
<ul style="list-style-type: none"> • Egyptian mortuary architecture: Mastabas, pyramids, temples (e.g. Karnak, Luxor) • Mesopotamian urban context: Ziggurats, palaces (e.g., Ziggurat of Ur, Palace of Khorsabad) 	
Unit IV: Indus Valley and Vedic Settlements	06 Hours
<ul style="list-style-type: none"> • Planning and architectural features of Harappan cities • Public buildings: The Great Bath, Granary, residential dwellings • The Vedic village and its architectural forms 	

Course Learning Outcomes:

CL01	Understanding the development of early civilizations.
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CL02	Understanding the social infrastructure in relation to climate, culture, religion and socio-economic circumstances and selection of materials and style
CL03	Application of the influences of trade in early periods of civilization
CL04	Analyzing the growth of civilizations on timeline basis

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Dr. Meenakshi Dubey	Indian Rock Art - Prehistoric Paintings of the Pachmarhi Hills.	Bradshaw Foundation	1999	8176710059	180
Kanti Chandra Pandey	Comparative aesthetics. Vol. I. Indian aesthetics. Second edition.	Cambridge University Press	2009	8170804450	1368
David G. Saile	Architecture in Cultural Change: Essays in Built Form and Culture Research	School of Architecture and Urban Design, University of Kansas,	1986	--	175
G.K. Hiraskar	The Great Ages of World Architecture	Dhanpat Rai Publications	2018	8189928880	406

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - III

Credit Units: 4

Course Level: UG

Course Objectives: To introduce and familiarize the students with constituents, manufacturing process/ availability/ properties/ characteristics/ defects/ classifications and usage of traditional building materials and their use in simple building work.

To make students understand and appreciate the various methods of building construction in coordination with the building materials and science related to them.

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit I: Timber and Glass as Building Materials	12 Hours
<p>Timber: Manufacturing process and qualities of Decorative & Commercial Plywood including Ply-Board, Block Boards, Particle Boards, Wood Wool, Cement Board, Gypsum Board, Fibre Board Compressed Straw Board, Veneers, Laminates, Cement Fibre Board.</p> <p>Glass as a building material. Classification, Composition, Properties and Use of Glass. Character and uses of various types of Glass - Plate Glass, Wired Glass, Foam Glass, Laminated Glass, Tinted Glass, Glass Wool, Glass Block, Fibre Glass, Crinkle Glass, Toughened Glass, Obscured Glass, Smart Glass, etc.</p>	
Unit II: Construction Details in Timber	12 Hours
<p>Joinery details in wood – Doors and windows Detailing of log huts</p>	
Unit III: Wooden Staircase Design Details	12 Hours
<p>Types, Designs and working details of wooden stairs</p>	
Unit IV: Timber Floors	12 Hours
<p>Timber floors: construction techniques, types of timber floors: single, double and triple joist timber floors • Furnishing of floors with different floor finishes like cement, coloured cement, mosaic, terrazzo, tiles etc. Special consideration for rubber and PVC flooring, methods of laying.</p>	

Site Visits/ Case Studies:12 sessions

- To introduce the students to primary building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	To recognize the various types of wooden structures used in different locations in the building industry
CLO2	To understand timber joinery, stairs and timber floors
CLO3	To be updated with the properties and applications of various special materials made out of timber and glass
CLO4	To create drawings and designs based on the acquired knowledge base

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
W.B. Mckay,	'Building Construction', Vol.1, 2, 3, Longmans, U.K. 1981.	Longman	1970	812500940X, 9788125009405	480
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific & Technical.	1999	9780582413955	192

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE – III

Credit Units: 3

Course Level: UG

Course Objectives: To learn the fundamental aspects of indeterminacy with the help of thumb rules as applicable to simple Design problems.

To understand the structural behaviour of various structural elements.

To understand the analysis and design of R.C.C. structures and their use in building industry by LIMIT STATE METHOD

Prerequisites: Basic knowledge of geometry.

Course Contents/syllabus:

Unit I: Determinacy and Indeterminacy	12 Hours
Introduction to the theory related with determinate and indeterminate structures and also to know that which structure is determinate or indeterminate Concept of structural indeterminacy & its application in structural system development.	
Unit II: Design of Compression Members	12 Hours
Introduction to Columns as compression members, basic principles of buckling, Euler formula, slenderness ratio Short and Long Columns, IS-Code Provisions, Design of Short Columns under Axial compression, Design of long columns, use of interaction diagram for design. Lateral ties. Reinforcement Detailing, Numerical Problems	
Unit III: Arches & Frames	12 Hours
Arches- Type & behaviour of arches with history. Introduction to 3 hinged arches Frames- Indeterminacy of frames with different end conditions	
Unit IV: Form active Structure systems	9 Hours
Types of Form Active Structure Systems - Cable structures, Pneumatic Structures, Bending Structures like Arches Tents, Cables and Pneumatic vis-à-vis materials and plan shape/s. It should be noted that emphasis would be on the design parameters and graphical presentation of systems rather than their structural analysis.	

Course Learning Outcomes:

CL01	Understand the distinction between determinate and indeterminate structures
CL02	Understand and analyse moment distribution method. Describe simple frames and sway frames
CL03	Analyze the structural geometry based on strength and stability criteria
CL04	Evaluate the use of different structural systems in building industry.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley , and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576

L/S	T	P	Total Credits	Total Hours
1	0	4	3	5

CLIMATOLOGY AND SUSTAINABLE ARCHITECTURE

Credit Units: 3

Course Level: UG

Course Objectives: To acquaint the students with detailed understanding of climatology and sustainable architecture and its application to the design project.

Prerequisites: General understanding of climate and latest sustainable architecture practices.

Course Contents/syllabus:

Unit I: Basics of Climatology and Sustainability	20 Hours
<ul style="list-style-type: none"> • Introduction to climatology, importance of building climatology. Movement of sun, global climatic zones. Definition of climate, interrelationship of climatic elements and psychometric chart. • Definition and history of sustainable architecture, principles of sustainable development. Three Pillars of the sustainable Development i.e. Economic, Social & Environment, sustainable architecture as a subset of sustainable development. • Applying and working out the above concepts in the Residence Design 	
Unit II: Thermal comfort and Climate-Responsive Design	20 Hours
<ul style="list-style-type: none"> • Definition and explanation of thermal comfort, relationship of climatic elements with thermal comfort. • Importance of understanding the optimum orientation and building form in different climatic zones, concept of shading devices. • Lessons from Regional and Vernacular architecture. • Calculating and designing shading devices in different directions (Making sheets w.r.t. the above) • Climate analysis and microclimate design, natural ventilation and daylighting, air movement inside buildings and ventilation systems – introduction to softwares. • Quality of indoor environment – Analyzing Factors and Impacts (Measuring with hand held/ digital devices) 	
Unit III: Design strategies and Sustainable materials	20 Hours

<ul style="list-style-type: none"> • Site, Topography - slope, orientation, exposure, elevation, hills or valleys at/ near the site, three-dimensional objects - trees/ tree-belts, fences, walls and buildings • Microclimate - role of landscape and other passive devices for climate control. • Sustainable material selection (e.g., recycled, renewable, low-impact materials). • Sustainable construction techniques (e.g., green roofs, rainwater harvesting). • Applying and working out the above concepts in the Kindergarten/ Primary School Design 	
Unit IV: Building systems and Practical implementation	15 Hours
<ul style="list-style-type: none"> • Active & Passive Architecture, Renewable energy integration (e.g., solar, wind). Water conservation and management. • Solar passive Techniques; passive solar heating, five elements of passive solar home design, passive solar cooling. • Design guidelines; Introduction, Description of Buildings, Methodology, General Recommendations, Specific Guidelines 	

Course Learning Outcomes:

CLO1	Understand the basics of Climatology and Sustainable Architecture
CLO2	Exploring the role of thermal comfort and climate responsive design
CLO3	Understanding of design strategies with current trends of sustainable materials
CLO4	Practical knowledge of the implementation of climatology and sustainable architecture in the architectural design projects

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Hans Drexler, Sebastian El khouli	Sustainable by Design: Methods for Holistic Housing. Basics, Strategies, Projects	Birkhauser Verlag AG	2012	978-3034607681	272
Meg Calkins	The Sustainable Sites Handbook: A Complete Guide to the Principles, Strategies, and Best Practices for Sustainable Landscapes	John Wiley & Sons Inc	2012	978-0470643556	560

Antony Sealey	Introduction to Building Climatology	Commonwealth Association of Architects	1979		44
Allan Konya	Design Primer for Hot Climates	Architectural Press	1980	978-0851391403	128
Krishan, A. & et al	Climate Responsive Architecture	McGraw Hill Education	2017	978-0074632185	409
Nayak, J. K. & et al	Manual on Solar Passive Architecture	New Delhi: Solar Energy Center, Ministry of Non-Conventional Energy Sources, Government of India	1999	-	-
Otto H. Koenigsberger	Manual of tropical housing and building	Longman	First, 1975	978-0582445451	320
The Energy and Resources Institute (TERI)	Griha Introduction to National Rating system	India: TERI Press	2013	-	-

L/S	T	P	Total Credits	Total Hours
2	0	2	3	4

COMPUTER GRAPHIC SKILLS - II (AUTOCAD 2D)

Credit Units: 3

Course Level: UG

Course Objectives: To enable the students learn the use of software tools available for architectural applications.

Prerequisites: Basic knowledge of computing tools.

Course Contents/syllabus:

Unit I: Fundamentals of AutoCAD 2D	16 Hours
<ul style="list-style-type: none"> • Introduction to CAD and its applications • AutoCAD interface, toolbars, command line, and navigation • Setting up a new drawing: Units, limits, and grid settings • Basic drawing tools: Line, Circle, Arc, Rectangle, and Polygon • Object selection techniques and modifying tools (Move, Copy, Rotate, Scale, Mirror) • Understanding layers and layer management 	
Unit II: Precision Drafting & Annotation	16 Hours
<ul style="list-style-type: none"> • Drawing with precision: Snaps, Grids, Ortho, and Polar Tracking • Advanced object modification: Trim, Extend, Offset, Fillet, Chamfer • Text and annotation tools: Single-line & Multi-line text • Dimensioning tools: Linear, Angular, Radius, Diameter, and Ordinate • Hatching and Gradient tools for section representation • Blocks and Attributes: Creating and inserting reusable symbols 	
Unit III: Drawing Organization & Layouts	16 Hours
<ul style="list-style-type: none"> • Advanced Layer Management and Layer Properties • Working with Blocks, Groups, and External References (Xrefs) • Creating and using Layouts for print-ready drawings • Understanding Paper Space vs. Model Space • Viewports: Setting up multiple views in layouts • Plotting and Printing: Configuring plot styles, scales, and PDF export 	

Unit IV: Project-Based Application & Final Drawing	12 Hours
<ul style="list-style-type: none"> • Developing a simple architectural floor plan with annotations • Creating technical drawings (sections, elevations, site plans) • Importing and exporting files (DWG, DXF, PDF) • Introduction to Dynamic Blocks and parametric constraints • Time-saving commands and automation in AutoCAD • Finalizing and presenting a professional CAD drawing 	

Course Learning Outcomes:

CL01	Develop the understanding of computer aided drafting
CL02	Comprehending computer aided drafting and its parameters as tools and its application in architecture
CL03	Demonstrate the concepts of CAD drafting methods and techniques in 2D and 3D through various architectural projects of progressive complexity
CL04	Evaluates CAD techniques for quicker methods and presentation skills

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Cadfolks	AutoCAD 2020 For Beginners	Kishore	2007	978-8193724149	344
Elise, Moss	Autodesk AutoCAD Architecture 2020 Fundamentals	Autodesk	2019	978-1630572648	350
Linkan Sagar/ Nisha Gupta	Autocad 2019 Training Guide	BPB; First, 2019 edition	2019	978-9388511254	192

L/S	T	P	Total Credits	Total Hours
0	0	2	1	2

PARAMETRIC ARCHITECTURE – I (BASICS OF WEB DEVELOPMENT)

Credit Units: 1

Course Level: UG

Course Objectives: To enable the students learn the use of software tools for designing web pages

Prerequisites: Basic knowledge of computing tools.

Course Contents/syllabus:

	Hours
Unit I: HTML and XHTML	8
Introduction to world wide web, web pages, web applications. HTML and XHTML, document structure, Images, Hypertexts, Tables, Forms, Frames, tags, attributes, List types.	
Unit II: CSS	8
CSS: Introduction, Levels of style sheets, Style specification formats, Selector and Property value forms, Font, List properties, Alignment, colour of text, The Box model, Background images, Conflict resolution.	
Unit III: Basics of Javascript	8
JavaScript: Object orientation, Variables, Operators, expressions; Screen output and keyboard input; Control statements; Objects Arrays; Functions, Regular expressions.	
Unit IV: Java Script and HTML	6
Java Script and HTML Documents, Dynamic Documents with JavaScript, Object Model; Element access, event handlers.	

Lab/ Practical details:

List of Experiments - with basic instructions

Objective: The aim of this section of Lab is to teach experiments of web development pertaining to the units being taught in the theory paper specifically related to HTML, CSS and JavaScript.

1. To implement various HTML tags of document, hypertext,
2. To create web pages with HTML tables and formatting
3. To create web pages with forms, frames and list tags in HTML.
4. To add CSS sheets with formatting like alignment, color etc.

5. To implement various javascript controls like if -else, arrays etc.
6. To implement various javascript controls with conditional statements
7. To integrate javascript with HTML with basic settings.
8. To embed javascript in HTML pages with event handlers.
9. To create forms using javascript and HTML and get data from user.
10. To create multiple forms using javascript and HTML and implement various formatting options.

Course Learning Outcomes:

CL01	Understand the concepts of HTML, CSS and javascript.
CL02	Design web pages using scripting languages
CL03	Analyze the requirements of web page and implement scripting tags accordingly
CL04	Interpret the integration of javascript with HTML

Text / Reference Books:

AUTHOR	TITLE	Publisher	Year of publication	ISBN
Thomas Powell	Web Design The complete Reference	Tata McGrawHill	2002	978-0072224429
Thomas Powell	HTML and XHTML - The complete Reference	Tata McGrawHill	2003	9780072229424
Thomas Powell and Fritz Schneider	JavaScript 2.0: The Complete Reference	Tata McGrawHill	2012	9780071741200
Steven M. Schafer	HTML, CSS, JavaScript, Perl, Python and PHP - Web standards Programmer 's Reference	Wiley Publishing, Inc..	2007	978-0764588204

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

REGIONAL SIKH ARCHITECTURE

Credit Units: 2

Course Level: UG

Course Objectives: To enable the students learn the history of Punjab with special emphasis on the emergence of Sikhism and Sikh Architecture

Prerequisites: Basic knowledge of History

Course Contents/syllabus:

	Teaching Hours
Unit I: Architectural Marvels in Punjab	6 hours
1. Overview of Sikh Empire, Family structure, Key Figures, Religious Diversity, etc. 2. Important architectural marvels in Punjab	
Unit II: Regional Expansions of Sikh Empire	8 hours
1. Relevance from Indian architecture perspective. 2. Impact of climate, geographical features, available resources, culture, socio-political, economic and religious beliefs on the evolution and development of the built environment in the region	
Unit III: Building developments in Sikh Empire	8 hours
1. Buildings in the reign of Sikh Empire at various geographies 2. Various Building typologies, Parks, City Developments. 3. Major Forts, Palaces and religious buildings under Sikh Raj	
Unit IV: Building Detailing	8 hours
1. Building detailing, frescos, paintings, ceilings, jallies, motifs, etc. 2. Interiors of Forts, palaces, religious buildings under Sikh Raj.	

Course Learning Outcomes:

CL01	Understand elements and principles of historical Sikh architecture
CL02	Use and applicability of historical styles and traditional techniques to contemporary construction
CL03	Express the architectural features of the buildings with the help of simple sketches

CL04

Analyze the detailing of the buildings built under the Sikh empire

Text / Reference Books:

1. Singh, Kirpal: **History and Culture of the Punjab, Part II (Medieval Period)**, Publication Bureau, Punjabi University, Patiala 1990(3rd ed.).
2. Singh, Fauja (ed.): **History of the Punjab, Vol. III**, Punjabi University, Patiala 1972.
3. Grewal, J.S.: **The Sikhs of the Punjab**, the New Cambridge History of India, Orient Longman, Hyderabad,1990.
4. Singh, Khushwant: **A History of the Sikhs, vol I: 1469-1839**, oxford University Press, Delhi, 1991.
5. Chopra, P.N., Puri, B.N. and Das, M.N.: **A Social, Cultural and Economic History of India**, Vol. II, Macmillan, Delhi, 1974.
6. Bhatti, S.S.: **Golden Temple: Marvel of Sikh Architecture**, Rosedog Pr, 2013.
7. Pal, M.K.: **Historical Gurudwaras of Delhi**, Niyogi Books, New Delhi, 2012.
8. Randhir, G.S.: **Sikh Shrines in India**, Publications Division, Ministry of Information and Broadcasting, 2006.

SECOND YEAR

FOURTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - IV	8	0	0	8	8
2	PC	History of Architecture - II	2	0	0	2	2
3	BS and AE	Building Construction and Materials - IV	4	0	0	4	4
4	BS and AE	Structures in Architecture - IV	2	1	0	3	3
5	BS and AE	Surveying and Levelling	1	0	4	3	5
6	BS and AE	Building Services - I (Public Health)	2	0	0	2	2
7	SEC	Computer Graphic Skills - III (AutoCAD 3D + 3dsmax/ Rhino)	2	0	2	3	4
8	SEC	Parametric Architecture - II (Unreal Engine I)	0	0	2	1	2
Total			21	1	8	26	30

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
8	0	0	8	8

ARCHITECTURAL DESIGN – IV

Credit Units: 8

Course Level: UG

Course Objectives: To develop the design of buildings with respect to site, landscape, climate and socio-economic conditions in a rural context and the application of indigenous technology w.r.t. Vernacular Architecture.

To understand the challenges and criteria in designing buildings on a contoured site.

Prerequisites: Basic understanding of scale and drafting techniques.

Course Contents/syllabus:

Unit I: Visit to a nearby Village and Identification & Study of Vernacular Architecture	24 Hours
<ul style="list-style-type: none">Understanding the village morphology and important functionsStudy of climate-responsive design principles adopted as part of design of buildings and precincts in the villageShort village study tour (2–4 days) to document and analyze built forms and regional architecture	

<ul style="list-style-type: none"> • Design Project 1: Design of Village Community Centre or Janj Ghar, Rural Skill-Development Center following vernacular principles. 	
Unit II: Spatial Planning & Volumetric Studies	24 Hours
<ul style="list-style-type: none"> • Volumetric exploration of built forms and spatial relationships • Critical appraisal of internal and external spaces concerning function and aesthetics • Study of spatial organization and circulation in different building typologies • Integration of materials and structural considerations in design • Time Problem for MTT: Aanganwadi/ Village School, Primary Health Centre, Panchayat Ghar 	
Unit III: Design Development on Contoured Site	24 Hours
<ul style="list-style-type: none"> • Understanding the role of site topography and natural features in architectural expression and performance • Selection of appropriate design measures based on site conditions and climate • Exploration of architectural form through site models and sketches, sections, etc. • Design Project 2: Concept development for Group Housing/ Tourist Resort/ Wellness Center on a contoured site 	
Unit IV: Final Design Proposal & Presentation Techniques	24 Hours
<ul style="list-style-type: none"> • Refinement of the major design project with detailed spatial planning • Integration of structural and service considerations into the design • Development of architectural drawings, 3D models, and presentation techniques • Critical evaluation and design reviews through jury presentations • Final Submission: Complete architectural design portfolio, including sketches, models, and detailed drawings 	

Site Visits/ Case Studies: 24 sessions

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.
- Field visits to enrich students' knowledge of contextual development for well-designed buildings and public spaces.

Course Learning Outcomes:

CLO1	To understand the application of the architectural design process for rural/ vernacular projects
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CLO2	To transform the human behavioural needs into architectural program requirements
CLO3	To analyses the information on context and the human-space relationship
CLO4	To create appropriate design solutions for the vernacular design project

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Bureau of Indian Standards (BIS)	Recommendations for Buildings and Facilities for the Physically Handicapped	New Delhi: Bureau of Indian Standards	1987	-	-
Bureau of Indian Standards (BIS)	The National Building Code of India, SP: 7.	New Delhi: Bureau of Indian Standards	2016	978-8170610991	2246
Laurie Baker	A Manual of Cost Cuts for Strong Acceptable Housing	COSTFORD (Centre of Science and Technology for Rural Development)	2014	-	150
Laurie Baker	Rural Community Buildings	COSTFORD (Centre of Science and Technology for Rural Development)	2014	-	52
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Francis D.K. Ching	Architecture Form, Space and Order	John Wiley & Sons,	2014	9781118745083	464
V.S. Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt. Ltd., New Delhi	1997	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley & Sons	2000	9788126517619	636

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

HISTORY OF ARCHITECTURE - II**Credit Units: 2****Course Level: UG**

Course Objectives: To understand the early cultures in the periods from 0400BCE to 0600CE in context of location, climate as well as the socio-economic, historical and cultural influences of the time.

Prerequisites: Basic knowledge of History

Course Contents/syllabus:

Unit I: Greek Architecture	8 Hours
<ul style="list-style-type: none"> • Greek city planning: Agora, Acropolis, Theatres • Architectural characteristics: Orders, optical corrections, proportioning systems • Study of the Parthenon, Athens 	
Unit II: Roman Architecture	8 Hours
<ul style="list-style-type: none"> • Urban planning: Roman Forum, Castrum towns • Architectural advancements: Arch, vault, dome, aqueducts • Analysis of the Colosseum, Pantheon, and Thermae 	
Unit III: Buddhist Architecture in India	8 Hours
<ul style="list-style-type: none"> • Stupa, Chaitya, and Vihara: Examples from Sanchi, Ajanta, and Barabar caves • Evolution of Buddhist rock-cut architecture 	
Unit IV: Hindu Temple Architecture (Early Phase)	6 Hours
<ul style="list-style-type: none"> • Early temples: Rock-cut and structural styles • Nagara and Dravida temple styles: Case studies of Kailasa Temple, Elephanta Caves 	

Course Learning Outcomes:

CLO1	Understanding the evolution of historical styles and techniques in different parts of the world
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CLO2	Expressing the architectural features of the buildings with the help of simple sketches
CLO3	Analyzing elements and principles of architecture employed in the early cultures
CLO4	Evaluating impact of climate, geographical features, available resources, culture, socio-political, economic and religious beliefs on the evolution and development of the built environment

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Kanti Chandra Pandey	Comparative aesthetics. Vol. I. Indian aesthetics. Second edition.	Cambridge University Press	2009	8170804450	1368
David G. Saile	Architecture in Cultural Change: Essays in Built Form and Culture Research	School of Architecture and Urban Design, University of Kansas,	1986	--	175
G.K. Hiraskar	The Great Ages of World Architecture	Dhanpat Rai Publications	2018	8189928880	406
Francis D. K. Ching , Mark M. Jarzombek , Vikramaditya Prakash	A Global History of Architecture, 3rd Edition	Wiley	2017	978-1118981337	864
Percy Brown	Indian Architecture (Buddhist and Hindu Periods)	Read Books	2010	978-1446510216	438
Percy Brown	Indian Architecture (The Islamic Period)	CBS Publishers & Distributors Pvt. Ltd.	2005	9788123924564	372
Banister Fletcher	History of Architecture	CBS Publishers & Distributors Pvt. Ltd.	1999	978-8123906416	1794
Satish Grover	Buddhist and Hindu Architecture in India	CBS Publishers & Distributors Pvt. Ltd.	2017	978-8123909738	237
Merklinger, Elisabeth S.	Sultanate Architecture of Pre-Mughal India	Munshiram Manoharlal Publishers	2005	978-8121510882	174

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - IV

Credit Units: 4

Course Level: UG

Course Objectives:

- To introduce and familiarize the students with constituents, manufacturing process/ availability/ properties/ characteristics/ defects/ classifications and usage of traditional building materials and their use in simple building work
- To make students understand and appreciate the various methods of building construction in coordination with the building materials and science related to them

Prerequisites: Basic knowledge of construction drawing.

Course Contents/syllabus:

Unit I: Chemical Based Building Materials	12 Hours
<ul style="list-style-type: none"> • Adhesives as Building Material - Natural Adhesives – Animal, Casein, Bituminous. Thermoplastic Adhesives – Polyvinyl Acetate. Thermosetting Adhesives & Plastics - Urea Formaldehyde, Phenol Formaldehyde, Melamine Formaldehyde, Resorcinol Formaldehyde, Epoxide Resins. Rubber Adhesive. • Waterproofing Compounds- Waterproofing details in different levels: details in simple foundations, walls, roofs, sills, lintels and roofs in RCC, RB and steel, damp proof details of plinth, sill, lintel, and roof level. Water proofing materials and systems for basement 	
Unit II: Structures in Brickwork – Part 1	12 Hours
<ul style="list-style-type: none"> • Fireplace - detailing of smoke ventilation shaft for fireplace designs • Arches- Classification of Arches on the basis of geometrical shape, materials, construction techniques, viz. flat, segmental, semicircular, Tudor, circular, elliptical, semi-elliptical, venetian, Florentine arches, etc. Illustration of terminology for arches, construction detailing and methods of centering • Cavity Walls- Construction of cavity walls with different thermal and acoustical insulative system 	
Unit III: Structures in Brickwork – Part 2	12 Hours
<ul style="list-style-type: none"> • Lintels and Jambs- design and details of spanning the openings in masonry 	

<ul style="list-style-type: none"> Partitions in Masonry- types and construction methods of non-load bearing walls as space dividers 	
Unit IV: Traditional/ Vernacular Construction Techniques	12 Hours
<ul style="list-style-type: none"> Dhajji Wall Construction- pahadi style of stone masonry with wooden planks 	

Site Visits/ Case Studies: 12 sessions

- To introduce the students to primary building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	Acquire knowledge of resins and binders for adhesives used in manufacturing composite materials like plyboard, paints etc.
CLO2	Understand the concept of Thermal comfort and construction detail of Cavity Wall, Study of openings with respect to lintels, jambs, Arches and vernacular construction methods
CLO3	Analyse the detailing of partitions in building interiors with non- load bearing masonry
CLO4	Create appropriate solutions using vernacular construction methods

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific & Technical.	1999	978-0582413955	192
S.P. Bindra & S.P. Arora	The Textbook of Building Construction	Dhanpat Rai & Co.	2010	978-8189928803	-
Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
W.B. Mckay,	'Building Construction', Vol.1, 2, 3, Longmans, U.K. 1981.	Longman	1970	812500940X, 9788125009405	480

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE – IV

Credit Units: 3

Course Level: UG

Course Objectives: To teach the fundamental aspects of Limit State Method with help of thumb rules as applicable to simple design problems.

Course Contents/syllabus:

Unit I: Introduction to RCC	12 Hours
Introduction- Materials, basic properties of concrete & steel, reinforcement, Standard loading, and characteristic strength, permissible stresses in concrete & steel as per Indian standard. Design philosophies- working Method, ultimate load method, Limit state method	
Unit II: Limit State Design Method	12 Hours
Limit state Design Method- Safety & Serviceability requirements of Limit states, Characteristic material strength, load & Safety factors Design of Beams: Singly, doubly reinforced beam for flexure, Shear and Bond. Design of steel beams Design of RCC one-way slab & two-way slab. Use of IS codes to solve numericals	
Unit III: Compression Members	12 Hours
Design of Compression member: Design of short & slender columns	
Unit IV: Strength of Sections	9 Hours
Vector Active Structure Systems -Truss Systems, working out structure systems for layout of a small building	

Course Learning Outcomes:

CLO1	Understanding the performance and design of RCC
CLO2	Apply the design of RCC components using limit state design method
CLO3	Design process involved for compression members in RCC

CLO4	Evaluate the performance of vector active structure systems in comparison to conventional structure systems
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Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley, and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek , Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576
Dr. R.K. Bansal	A Textbook of Strength of Materials	Laxmi Publications	2018	978-8131808146	1160
R.S. Khurmi	Textbook of Strength of Materials	S Chand Publishers	2015	978-9385401954	752
IS Code for Reinforced Concrete Design	IS 456:2000 SP-16 SP-34	Bureau of Indian Standards	2000 1980 1987	-	114

L/S	T	P	Total Credits	Total Hours
1	0	4	3	5

SURVEYING AND LEVELLING

Credit Units: 3

Course Level: UG

Course Objectives: To provide the knowledge of the basics of surveying and levelling and its applications in the field of building construction.

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit I:	15 Hours
<ul style="list-style-type: none"> • Introduction: Different types of surveys. • Chain Surveying: Principal of chain surveying, description of different equipments, methods of chaining and booking, selection of base line and stations, obstacles in chaining. Location of inaccessible points by chain, ranging rods, etc. 	
Unit II:	15 Hours
<ul style="list-style-type: none"> • Prismatic Compass survey: Description of prismatic & surveyors compass methods of traversing, local attractions and its elimination, adjustment of closing error by graphical method. • Plane Table survey: Description of different equipment, different methods of plane tabling, Strength of Fix, Two-point and Three-point problems and their solutions 	
Unit III:	15 Hours
<ul style="list-style-type: none"> • Leveling: Description of dumpy and tilting levels & levelling staves, methods of levelling, Sensitivity of bubble tube, setting out grade lines, permanent adjustment of levelling instruments. • Contouring: Setting out contour gradient, different method of contouring. Simple earthwork calculations of areas and volumes 	
Unit IV:	15 Hours
<ul style="list-style-type: none"> • Minor Instruments: - Box sextant, Hand level, Abney level, Plane meter, Ghat tracer etc. • Total Station - Introduction, Various components, Operation, Advantages/ Disadvantages 	

Site Visits/ Practical Studies: 15 sessions

- Types of Surveys, Levelling & Contouring will be introduced on the basis of site visits as mandatory component of the subject to impart experiential learning.
- Field visits to enrich students' knowledge of context development for topography, scale, and proportions.

Course Learning Outcomes:

CL01	Understand land topography and its connection with surveying & leveling exercises.
CL02	Familiarize with the primary basic surveying techniques adopted in past years
CL03	Analyze the methods of leveling with various instruments and the concept of contouring
CL04	Apply the concept of Total Station Survey and its multi-functioning in surveying

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
R. Subramanian	Surveying and Levelling (Oxford Higher Education)	Oxford University Press	2012	978-0198085423	1008
M.S Roy	Quantity Surveying and Contract & Tenders	Vayu Education of India	NA	978-9385077203	-
S.S. Bhavikatti	Surveying and Levelling, Vol I	Dreamtech Press	2019	978-9389307429	402
N N Basak	Surveying and Levelling 2nd Edition	McGraw Hill Education	2017	978-9332901537	-

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

BUILDING SERVICES - I (PUBLIC HEALTH)

Credit Units: 2

Course Level: UG

Course Objectives: To acquaint the students with the principles used in all basic building services with regards to Water Supply, Sanitation and Storm Water drainage

Prerequisites: Basic understanding of water cycle

Course Contents/syllabus:

Unit I: Water Supply	8 Hours
Sources of water, Water treatment techniques, Requirements of water supply to different types of buildings, modes and methods of conveyance of water, fixtures and appurtenances, distribution of water, methods of distribution, different distribution systems and their principles of layout.	
Unit II: Municipal Water Supply System	6 Hours
Municipal water distribution systems, underground and overhead water tanks. Brief description of rainwater harvesting and water table recharging techniques	
Unit III: Sanitation and Drainage	8 Hours
<ul style="list-style-type: none"> • General principles of drainage. • Refuse, different forms of refuse: garbage/solid waste, sullage, toilet waste • Drainage layout for building premises, kitchen, utility and toilet layouts, fixtures and fittings: W.C. flushing valves, flushing tanks, wash basins, bathing accessories. • Types of traps: floor traps, GT, manholes, grease chambers, curb and gutter inlets, inspection chambers, intercepting traps. • Ventilation of drains and sewers, principles of design of sewer lines, longitudinal sections of drains. • Drainage in non-municipal areas, soak wells, septic tanks. 	
Unit IV: Municipal Waste Discharge System & Storm Water Management	8 Hours

<ul style="list-style-type: none"> • Storm water collection and disposal systems. • Rain water drainage pipes, spouts, sizing of rain water pipes, storm water drainage system. • Sustainable techniques in storm water disposal planning: at the project level, at the city level. • Eco friendly Sewage treatment techniques: biogas plants, sewage treatment methods • Specialized water supply and drainage requirements: Swimming pools, basement level supply and disposal, terrace gardens supply and drainage etc. • Site visits to water treatment plant, sewage treatment plant, and multi-storeyed apartments, for studying water supply and sanitary arrangements 	
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Course Learning Outcomes:

CLO1	Understand the basics of water supply and disposal systems in built environment
CLO2	Design of water supply, waste disposal and rain water harvesting system in multi-storey buildings
CLO3	Analysis of water conservancy methods to ensure use and recharge of potable water to ensure sustainable development
CLO4	Evaluation of various water use and disposal systems to define their application as per building typology

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Birdie, J. S. & Birdie, G. S	Water Supply and Sanitary Engineering	Dhanpat Rai Publishing Company (p) Ltd	2010	978-8187433798	984
Fred Hall, Roger Greeno	Building Services Handbook	Routledge	2015	978-1138805637	768
Bureau of Indian Standards	The National Building Code	BIS Publications	2020	978-8170610991	2246
Gurcharan Singh	Water Supply and Sanitary Engineering	Standard Publishers & Distributors	2020	978-8180140297	968

L/S	T	P	Total Credits	Total Hours
2	0	2	3	4

COMPUTER GRAPHIC SKILLS - III (AUTOCAD 3D + 3DSMAX/ RHINO)

Credit Units: 3

Course Level: UG

Course Objectives: To enable the students to learn the use of AutoCAD 3D software available for architectural applications

Prerequisites: Knowledge

Course Contents/syllabus:

Unit I: Introduction to 3D Modelling Software	16 Hours
<ul style="list-style-type: none"> • Overview of 3D modeling software such as AutoCAD 3D, 3DS Max, and Rhino. • Introduction to basic 3D modelling concepts and tools. • Creating simple 3D architectural elements using AutoCAD 3D commands. • Introduction to Corel Draw for basic image editing and rendering. 	
Unit II: Intermediate 3D Modelling Techniques	16 Hours
<ul style="list-style-type: none"> • Advanced 3D modeling techniques in AutoCAD 3D, 3DS Max, and Rhino. • Creating complex architectural forms and structures. • Importing images and incorporating them into 3D models for design development. • Material application and light focusing in 3D modelling software. 	
Unit III: Advanced Rendering and Presentation	14 Hours
<ul style="list-style-type: none"> • Rendering techniques in AutoCAD 3D, 3DS Max, and Rhino for realistic visualizations. • Creating different views and perspectives of architectural designs. • Short animations and walkthroughs to demonstrate design concepts. • Utilizing background and foreground elements for enhanced renderings. 	

Unit IV: Project-Based 3D Modelling and Visualization	14 Hours
<ul style="list-style-type: none"> • Hands-on project-based learning using AutoCAD 3D, 3DS Max, or Rhino. • Designing and modeling a complete architectural project from scratch. • Applying advanced tools and methods to create detailed presentations and material applications. • Finalizing project with comprehensive renderings and presentations for professional practice. 	

Course Learning Outcomes:

CLO1	To understand the illustration and editing of images as a presentation tool in Architecture profession.
CLO2	Develop architectural presentation and 3-dimensional sense
CLO3	Develop understanding of interrelationship between 2D and 3D form of simple objects, with the help of software
CLO4	Create futuristic and enhance sensitive designs

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
James A. Leach, Shawna Lockhart	AutoCAD 2022 Instructor	SDC Publications	2021	978-1630574208	1300
Sandeep Dogra	AutoCAD 2022 for Architectural Design: A Power Guide for Beginners and Intermediate Users	CADArtifex	2021	978-8195345250	482
Dean Muccio	AutoCAD 2020 for the Interior Designer	SDC Publications	2021	978-1630574284	426
Munir Hamad	AutoCAD 2022 3D Modelling	Mercury Learning & Information	2021	978-1683927273	400

L/S	T	P	Total Credits	Total Hours
0	0	2	1	2

PARAMETRIC ARCHITECTURE - II (UNREAL ENGINE I)

Credit Units: 1

Course Level: UG

Course Objectives: Creating animated renders with Open-source freeware like 'Unreal Engine'.

Prerequisites: Basic knowledge of Computers.

Course Contents/syllabus:

Unit I: Introduction to Unreal Game Engine	8 Hours
<ul style="list-style-type: none"> • IDE Basics • Visualization Concepts • Sprites • C# Language Concepts • Creating Scripts • C# Coding Fundamentals • Game Loops and Functions 	
Unit II: Object-Oriented Concepts	8 Hours
<ul style="list-style-type: none"> • Simple Movement and Input • 2D Physics Concepts • Primitive Data and Math • Organizing Game Objects • Object-Oriented Concepts 	
Unit III: Animation	8 Hours
<ul style="list-style-type: none"> • Managing Game Objects • Exceptions and Debugging • Loops and Arrays • Game Design Strategies • Animation • Sound Effects 	
Unit IV: Scenography	6 Hours
<ul style="list-style-type: none"> • Advanced Game Physics • Multiple Scenes • Artificial Intelligence • User Interfaces • Game Art 	

Course Learning Outcomes:

CLO1	Understanding Open-source freeware interface
CLO2	Creating objects with the aid of Boolean Operators
CLO3	Applying Environmental background to Scenes
CLO4	Analyzing scenes to create animated Audio-visual tracks

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Sargey Rose	Unreal Engine 5 for Beginners:	Packt Publishing Limited, India	2023	978-1800568082	440
Henk Venter, Wilhelm Ogterop	Unreal Engine 5 Character Creation, Animation, and Cinematics	Packt Publishing Limited, India	2022	978-1801812443	608

THIRD YEAR

FIFTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - V	8	0	0	8	8
2	PC	History of Architecture - III	2	0	0	2	2
3	BS and AE	Building Construction and Materials - V	4	0	0	4	4
4	BS and AE	Structures in Architecture - V	2	1	0	3	3
5	BS and AE	Building Services - II (Lighting, Illumination and Electrical)	2	0	0	2	2
6	PAECC	Building Byelaws	3	0	0	3	3
7	SEC	Computer Graphic Skills - IV (Revit/ArchiCAD)	2	0	2	3	4
8	SEC	Parametric Architecture - III (Unreal Engine II)	0	0	2	1	2
Total			23	1	4	26	28

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
8	0	0	8	8

ARCHITECTURAL DESIGN – V

Credit Units: 8

Course Level: UG

Course Objectives: Application of design theory and principles to design low rise/ medium rise /high rise buildings considering functional relationships, climatic conditions, social aspects along with structural considerations and building services application and use of relevant building bye-laws and provisions of National Building Code.

To understand the significance of our architectural heritage and its documentation.

Prerequisites: Basic understanding of scale and drafting sketches.

Course Contents/syllabus:

Unit I: Major Project - Understanding Multi-functional and Multi-storeyed Spaces	28 Hours
<ul style="list-style-type: none">• Introduction to multi-functional and multi-storied buildings and their role in urban contexts• Study of building byelaws and development controls for high-rise and commercial projects	

<ul style="list-style-type: none"> • Site analysis – cultural context, user requirements, access, and services integration • Case Studies: Shopping malls/ multiplex and mixed-use developments, office buildings • Major Design Project: Design of a Shopping Mall, Corporate Office Building, Mixed Use Building, Hotel (minimum 3 star) 	
Unit II: Planning and Zoning Strategies	24 Hours
<ul style="list-style-type: none"> • Space planning for multi-functional complexes based on user circulation and zoning principles • Functional and spatial organization of vertical buildings (core planning, zoning of services, fire safety) • Integration of universal accessibility, sustainability, and energy efficiency • Time Problem for MTT: Conceptual design of a small commercial/public space (e.g., shopping kiosks, medical clinic, public library, club house) 	
Unit III: Design Development and Structural Considerations	16 Hours
<ul style="list-style-type: none"> • Integration of structural systems in multi-storied buildings (frame structures, core systems, foundation types) • Services planning (HVAC, electrical, water supply, and firefighting systems) • Understanding the role of building materials in high-rise construction and façade design • Drawings and Presentation: Site plans, floor plans, sections, elevations, 3D visualizations 	
Unit IV: Minor Project – Documentation of Heritage Buildings	28 Hours
<ul style="list-style-type: none"> • Minor Project: Documentation camp – measured drawings of selected heritage buildings • Understanding methods of documentation • Drawings and Presentation: Site plans, floor plans, sections, elevations, 3D visualizations • Final Submission: Complete portfolio with drawings, models, and analysis 	

Site Visits/ Case Studies: 24 sessions

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.
- Field visits to enrich students' knowledge of contextual development and documentation.

Course Learning Outcomes:

CLO1	Value various advanced structural systems and latest building materials.
CLO2	Enquire new technology, structural system and materials
CLO3	Formulate methods developed to meet various requirements through drawings or models
CLO4	Evaluate new techniques and systems at building level in their design.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	9780070685061	1024
Francis D.K.Ching	Architecture Form, Space and Order	John Wiley and Sons,	2014	9781118745083	464
V.S.Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt.Ltd., New Delhi	1997.	9788170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley and Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978471105831	600
Roger, K. L.	Architect? A Candid Guide to the Profession	Cambridge: The MIT Press	1998	9780262621215	304
Josep Maria Minguet (Editor), Santi Trivino (Editor)	Bars and Clubs (Architecture and Design)	Instituto Monsa de Ediciones; Bilingual, Illustrated edition	2012	9788415223580	240
J. Paul Guyer	An Introduction to Golf Clubhouse Design	Createspace Independent Pub	2016	9781533510242	72
Alistair Black	Libraries of Light: British public library design in the long 1960s	Routledge; 1st edition	2016	9781472472946	242
R. Thomas Hille	The New Public Library: Design Innovation for the Twenty-First Century	Routledge; 1st edition	2018	9781138326736	456
Binita Parajuli	The Public Library Design	LAP Lambert Academic Publishing	2012	9783659220517	152
Syed Jibran Hashmi, Horst Kreimes, Stellios Plainiotis	Dynamic Energy Simulation of shopping mall: A Detail Analyses of Energy Modelling	LAP LAMBERT Academic Publishing	2016	978-3330027343	92

	and Design Comparisons on shopping mall				
David Smiley	Sprawl and Public Spaces: Redressing the Mall: NEA Design Series - (Nea Series on Design)	Princeton Architectural Press; 1st edition	2002	978-1568983769	112
Marriott Field	City Architecture or Designs for Dwelling Houses, Stores, Hotels, etc.: In Twenty Plates, With Descriptions, And an Essay on The Principles of Design (1853)	Kessinger Publishing Co	2009	978-1104015909	120
Manfred Ronstedt Tobias Frey	Hotel Buildings: Construction and Design Manual	DOM Publishers	2014	978-3869223315	304
Azur Corporation (Contributor)	American Hotel Interior (World Premier Hotel Design)	Azur Corporation; Edition (31 May 2007)	2007	978-4309800059	192
Foreign Office	Remarks on a National Style [of Architecture] in Reference to the Proposed Foreign Office	Nabu Press	2012	978-1275996779	46
Ivana Tatic	Office Building Designed on Principles of Bioclimatic Architecture	LAP LAMBERT Academic Publishing	2017	978-3330067639	72
Drew Plunkett, Olga Reid	Detail in Contemporary Hotel Design (Detailing for Interior Design)	Laurence King Publishing; Illustrated edition	2013	978-1780672854	192

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

HISTORY OF ARCHITECTURE - III

Credit Units: 2

Course Level: UG

Course Objectives: To provide the knowledge of the evolution of different architectural styles through study of multi-religious, politically influenced and Provincial World Architecture.

Prerequisites: Basic knowledge of History.

Course Contents/syllabus:

Unit I: Early Christian and Byzantine Architecture	8 Hours
<ul style="list-style-type: none"> Church planning: Basilica and centralized plans Byzantine domed structures: Hagia Sophia 	
Unit II: Islamic Architecture	8 Hours
<ul style="list-style-type: none"> Evolution of mosque architecture: Hypostyle, Iwan, Centralized domes Study of structures: Dome of the Rock, Great Mosque of Córdoba 	
Unit III: Medieval European Architecture	8 Hours
<ul style="list-style-type: none"> Romanesque architecture: Features and major examples Gothic architecture: Structural innovations (ribbed vaults, flying buttresses) and case studies (Notre Dame, Chartres Cathedral) 	
Unit IV: Indian Islamic Architecture	6 Hours
<ul style="list-style-type: none"> Early Delhi Sultanate architecture: Qutub Minar, Alai Darwaza Mughal architecture: Evolution from Babur to Shah Jahan (Taj Mahal, Fatehpur Sikri) 	

Course Learning Outcomes:

CLO1	Comprehend the development of Eras of Architecture in different countries.
CLO2	Learn about the architecture in relation to climate, culture, religion and socio-economic circumstances, materials and styles in relation to Architectural Design.
CLO3	Interpret the evolution of mass development due to Industrial Revolution.

CLO4

Identify the architectural development of various continents and sub-continents.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Francis D. K. Ching , Mark M. Jarzombek , Vikramaditya Prakash	A Global History of Architecture	Wiley	3rd Edition	1118981332	864
Fletcher, Banister Sir,	History of Architecture	CBS	2009	8170804450	1794
David G. Saile	Architecture in Cultural Change: Essays in Built Form and Culture Research	School of Architecture and Urban Design, University of Kansas,	1999	8123906412	175
G.K. Hiraskar	The Great Ages of World Architecture	Dhanpat Rai Publications	2018	8189928880	406

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - V

Credit Units: 4

Course Level: UG

Course Objectives: To introduce and familiarize the students with constituents, manufacturing process/ availability/ properties/characteristics/defects/ classifications and usage of traditional building materials and their use in simple building work. To make students understand and appreciate the various methods of building construction in coordination with the building materials and science related to them

Prerequisites: Basic knowledge of drawing.

Course Contents/syllabus:

Unit I: Ferrous and Non-ferrous metals	12 Hours
<ul style="list-style-type: none"> • Definitions of Ferrous and Non-Ferrous Metals, Properties of Ferrous and Non-Ferrous Metals with the differences, applications and uses. The importance in these metals in the Building Construction • Ferrous metals • Iron: Various types of iron, properties of various types of iron, iron products and their uses in construction. • Non-Ferrous metals • Aluminum: Different types of section and uses in construction Copper, Zinc, Brass, Tin, Lead etc. properties, uses, treatment. 	
Unit II: Plastics as Building Material	12 Hours
<ul style="list-style-type: none"> • Plastics as Building Material • Thermoplastics and thermosetting plastics –properties and architectural uses of plastics. • Structural plastics • Reinforced plastics and Decorative laminates • Plastic coatings, Adhesives, and sealants • Modifiers and Plasticizers, Use of nanomaterials 	
Unit III: Panelling and Partitions	12 Hours
<ul style="list-style-type: none"> • Paneling and Partitions in Timber and Aluminum sections • Glass Block Partitions 	

<ul style="list-style-type: none"> Fabrications of plastics (PVC and UPVC). Primary plastic building products for walls, roof and partitions 	
Unit IV: Escalators, Ramps and Elevators	12 Hours
<ul style="list-style-type: none"> Use and Importance of Escalators, ramps, and Elevators, Ramps and Elevators- Locations, safety and installation, Construction Details of Ramps and Elevators Details of Escalators- Locations, safety and installation, Construction Details 	

Site Visits/ Case Studies:12 sessions

- To introduce the students to the assigned building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	Understand the application of Ferrous and Non-Ferrous metals in building construction industry.
CLO2	Acquaint with the application of Plastics as Building Material.
CLO3	Detail out the sections and joints in the execution of Panelling and Partitions at site
CLO4	Assess the installation and application Escalators, Ramps and Elevators.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific and Technical.	1999	978-0582413955	192
S.P. Bindra and S.P. Arora	The Textbook of Building Construction	Dhanpat Rai and Co.	2010	978-8189928803	-

Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
W.B. Mckay,	'Building Construction', Vol.1, 2, 3, Longmans, U.K. 1981.	Longman	1970	812500940X, 9788125009405	480
Thomas, Marvin	Architectural Working Drawings: A Professional Technique	McGraw-Hill Inc.,US	1978	978-0070642409	192
Osamu (Art) A Wakita, Nagy R. Bakhoun, Richard M. Linde	The Professional Practice of Architectural Working Drawings, 5th Edition	Wiley	2017	978-1-118-88052-4	688

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE – V

Credit Units: 3

Course Level: UG

Course Objectives: To teach the basics of Steel Design and Composite Structure Systems

Prerequisites: Basic knowledge of Structural Design.

Course Contents/syllabus:

Unit I: Design of steel beams	12 Hours
<ul style="list-style-type: none"> • Supported, unsupported Beams. • Design of laterally unsupported rolled section Beams. • Purlin in Roof Trusses • Design of Channel and I section Purlins. 	
Unit II: Trusses	12 Hours
<ul style="list-style-type: none"> • Trusses- Definition of truss • Perfect truss, Imperfect truss • Type of trusses and suitability • Analysis of simple stress by Analytical method 	
Unit III: Designs of connection in steel structure	12 Hours
<ul style="list-style-type: none"> • Designs of connection in steel structure: Bolted and welded Connection, assumptions, different type of joints, design of Various types of welded connections subjected to direct loads and moments. • Diagram for simple beam and frames for various type of Loading and support condition • Bending stress in beams- Theory of simple bending, section Modulus. • Relationship between load, shear force and bending moment diagrams 	
Unit IV: Surface Active Structures	9 Hours
<ul style="list-style-type: none"> • Surface Active Structures-Plate, Folded and Shell structures. • Working out structure systems for Layout of a small building 	

Course Learning Outcomes:

CLO1	Study of stresses and strains and their effect in various elements.
CLO2	Analytical method for determining stresses and strains in the oblique section.
CLO3	Apply the knowledge of resolution of forces and theorems related with equilibrium
CLO4	Evaluate the method to draw and make shear force and bending moment diagrams.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley, and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek , Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576
Dr. R.K. Bansal	A Textbook of Strength of Materials	Laxmi Publications	2018	978-8131808146	1160
R.S. Khurmi	Textbook of Strength of Materials	S Chand Publishers	2015	978-9385401954	752
IS Code for Reinforced Concrete Design	IS 456:2000 SP-16 SP-34	Bureau of Indian Standards	2000 1980 1987	-	114

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

BUILDING SERVICES - II (LIGHTING, ILLUMINATION AND ELECTRICAL)

Credit Units: 2

Course Level: UG

Course Objectives: Introduction to elementary building services of electricity. To make students understand the basics of Lighting and Illumination/Electrical.

Prerequisites: Basic knowledge of use of Electrical and Lighting in a building.

Course Contents/syllabus:

Unit I: ELECTRICAL SERVICES (Part-I)	8 Hours
<ul style="list-style-type: none"> • Introduction to electrical energy, basic definitions, and related theorems to understand distribution of electrical energy. • Assessment of electricity requirements in buildings, study of fittings and accessories used in electrical system. 	
Unit II: ELECTRICAL SERVICES (Part-II)	8 Hours
<ul style="list-style-type: none"> • Systematic diagrams for electricity distribution, different types of wiring, • Various circuit diagrams for bedroom lighting, staircase lighting, Lightning Protection, Substation, etc 	
Unit III: ILLUMINATION (Part-I)	6 Hours
<ul style="list-style-type: none"> • Introduction to illumination • Illumination Schemes- Types and their design considerations - Residential, commercial, industry and street lighting, Lux requirement for different spaces, Methods for Lux Calculation. 	
Unit IV: ILLUMINATION (Part-II)	8 Hours
<ul style="list-style-type: none"> • Artificial lighting – Direct and Indirect methods of lighting • Types of Luminaries for interior and exterior lighting. • Concepts and considerations for artificial lighting • Daylighting, daylight factor and glare control • Site visits and case studies 	

Course Learning Outcomes:

CL01	Gain knowledge of lighting systems and the schematic layout of electrical and lighting connections
CL02	Apply the principles and installations of general and specialized services in the interiors.
CL03	Analyse the significance of design and functioning of electrical and lighting systems as essential components in Interior Design
CL04	Design the layout, functioning and application of lighting fixtures.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
V.K. Jain	Handbook of Designing and Installation of Services in Building Complex	Khanna Publisher, New Delhi,	1998	8174092455	932
BARRY R	Building Services	John Wiley and Sons Ltd	1998	0246112638	136
N N Basak	Environmental Engineering	McGraw Hill Education	2017	0070494630	312
J.B Gupta	Electrical Installation, Estimating	S.K Katariaand Sons, New Delhi	2002	8188458996	200

L/S	T	P	Total Credits	Total Hours
3	0	0	3	3

BUILDING BYELAWS

Credit Units: 3

Course Level: UG

Course Objectives: Architectural practice and building regulations. Familiarizing with Building Bye-laws through Local Developments Authority Guidelines, applicable to Residential and Non-Residential building

Prerequisites: Basic knowledge of Building National codes.

Course Contents/syllabus:

Unit I: Basics of Building bylaws	12 Hours
<ul style="list-style-type: none"> • Building bylaws: jurisdiction and applicability of the building bye-laws • terminology, ground coverage, FSI calculations, building height regulations, building use regulation 	
Unit II: National Building Code and Municipal Plans	9 Hours
<ul style="list-style-type: none"> • Submission plan, methods of municipal approval, NBC, fire prevention and safety measures, other regulatory aspects such as master plan and zonal plan, NBC, special requirements for occupancy/ land development and other 	
Unit III: Advanced Building Codes and Provision of Services	12 Hours
<ul style="list-style-type: none"> • Code provisions with respect to land-use classifications and use permitted • Means of Access, Community open spaces and amenities, Requirement of Plots. Code of conduct for Especially able and various services like water supply and sanitation, electrical, mechanical etc. 	
Unit IV: Development Code pertaining to residential and non-residential premises	12 Hours

<ul style="list-style-type: none"> • Control for Building /Buildings within Use Premises, Development Norms and Standards for Hill Towns, general building requirements • NOC, Occupation certificate, Building's services approvals and completion certificate procedure. • Codal provisions with respect to Classification of Buildings, Open spaces within a plot, Off-street parking spaces, Requirement of parts or buildings. 	
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CLO1	Understand the development rules and laws stipulated by NBC.
CLO2	Identify the codal provisions as per NBC.
CLO3	Analyze the role of service and codes in design
CLO4	Acquaint with the general building requirements as per local byelaws

Text / Reference Books:

Author	Title	Publisher	Ed/Year	ISBN No	Pages
Nabhi's (Author), Nabhi's Board of Editors	New Unified Building Bye-Laws for Delhi,2016	Nabhi Publication	2019	8172749597	290
V.K. Puri	Compendium Of Haryana Building Bye- Laws and; Urban Development Regulations	Jba Publishers, Karol Bagh	2014	9380082991	--
Satpal Puliani	Karnataka Municipal Corporations Model Building Bye-Laws, 2017	Karnataka Law Journal Publication	2018	B07k5bd66t	254

L/S	T	P	Total Credits	Total Hours
2	0	2	3	4

COMPUTER GRAPHIC SKILLS - IV (REVIT/ ARCHICAD)

Credit Units: 3

Course Level: UG

Course Objectives: Introduction and the use of Autodesk Revit Architecture as a tool for building design, simulation and drafting.

Prerequisites: Basic usage of AutoCAD and IT infrastructure.

Course Contents/syllabus:

Unit I: Introduction to Revit	16 Hours
<ul style="list-style-type: none"> • Building Information Modeling- • Revit Interface. Working with a Project, Navigation between Views, Basic Drawing and Editing • General Drawing Tools, Editing Revit Elements and basic Modifying Tools, Setting up Levels and Grids • Creating Levels, Importing CAD files, Creating Structural Grids and adding Columns • Drawing and Modifying Walls, Creating Exterior Shell and adding Interior Walls 	
Unit II: Design Families in Revit	16 Hours
<ul style="list-style-type: none"> • Loading Families-Creating and adding Doors and Windows, Creating Additional Part Sizes, Creating Curtain Walls • Adding Curtain Grids, Working with Curtain Wall Panels, Adding Mullions, Creating Views, Duplicating Views • Adding Callout Views, Creating Elevations, Creating Sections, Creating Floors, Shaft Openings, Sloped Floors 	
Unit III: Creating and Editing Design Components	14 Hours
<ul style="list-style-type: none"> • Adding Components, Reflected Ceiling Plans, Creating Ceilings, Soffits, Adding Ceiling Fixtures, Roofs, Creating Roofs, Roofs by Footprint, Reference Planes and Work Planes, Roofs by Extrusion • Vertical Circulation- Adding Stairs, Creating Ramps, Working with Railings 	
Unit IV: Detailing and Exporting	14 Hours

<ul style="list-style-type: none"> • Construction Documentation, setting up Sheets, Placing and Modifying Views, Printing Sheets, Annotation, Working with Dimensions, Working with Text, Adding Detail Lines and Symbols • Tags and Schedules, Adding Tags, Rooms and Room Tags, Working with Schedules, Creating Legends, detailing in Revit, setting up Detail Views, Creating and Annotating Details, Keynoting and Keynote Legends, Patterning 	
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Course Learning Outcomes:

CLO1	Understand the role of BIM in construction documentation and execution
CLO2	Learn and apply Revit as an effective architectural tool
CLO3	Analyse of building design between simulated models and actual construction using Revit
CLO4	Evaluate the results to ensure best possible solution and promote sustainable development

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Robert Yori, Marcus Kim, Lance Kirby	Mastering Autodesk Revit 2020	Sybex	2020	978-1119570127	1104
Elise Moss	Autodesk Revit 2020 Architecture Basics	SDC Publications	2019	978-1630572631	650
Daniel John Stine	Design Integration Using Autodesk Revit 2020	SDC Publications	2019	978-1630572501	898
Gaurav Verma, Matt Weber	Autodesk Revit 2020 Black Book	CADCAMCAE Works	2019	978-1988722603	375

L/S	T	P	Total Credits	Total Hours
0	0	2	1	2

PARAMETRIC ARCHITECTURE - III (UNREAL ENGINE - II)

Credit Units: 1

Course Level: UG

Course Objectives: To enable students to create animated walkthroughs using video-game production software like "Unreal Engine 5".

Prerequisites: Basic knowledge of Computers.

Course Contents/syllabus:

Unit I: Interface Tools in Unreal Engine	8 Hours
<ul style="list-style-type: none"> • Open, Saving and Appending Files, Importing Objects (from other file formats) • Working with Viewports (windows) 	
Unit II: Scenes and sets in in Unreal Engine	8 Hours
<ul style="list-style-type: none"> • Working with Basic Meshes • Editing/Joining/Separating Meshes, Boolean Operations 	
Unit III: Animating Cameras and Objects in Unreal Engine	6 Hours
<ul style="list-style-type: none"> • Liquid and droplet effects using Meta Shapes • Setting Up the Physics Engine and Using Voxels • Using the Timeline and Animation Editor • Creating Motion Paths and Camera Trackers 	
Unit IV: Lighting and Rendering in Unreal Engine	8 Hours
<ul style="list-style-type: none"> • Materials, Textures and Unity of Design • Lighting Design and Light settings • Environmental Lighting and Mood Lighting • Aliasing, Tessellation and Render Settings 	

Course Learning Outcomes:

CLO1	Understanding the Interface Tools in Unreal Engine
CLO2	Creating Scenes and Sets in in Unreal Engine
CLO3	Applying movement to Cameras and Objects in Unreal Engine
CLO4	Analyze Lighting and Rendering in Unreal Engine

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Sargey Rose	Unreal Engine 5 for Beginners:	Packt Publishing Limited, India	2023	978-1800568082	440
Henk Venter, Wilhelm Ogterop	Unreal Engine 5 Character Creation, Animation, and Cinematics	Packt Publishing Limited, India	2022	978-1801812443	608

THIRD YEAR

SIXTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VI	8	0	0	8	8
2	PC	History of Architecture - IV	2	0	0	2	2
3	PC	Human Settlement Planning	3	0	0	3	3
4	BS and AE	Building Construction and Materials - VI	4	0	0	4	4
5	BS and AE	Measured and Working Drawing	2	0	4	4	6
6	BS and AE	Structures in Architecture - VI	2	1	0	3	3
7	BS and AE	Building Services – III (Acoustics and Fire Fighting)	2	0	0	2	2
Total			23	1	4	26	28

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
8	0	0	8	8

ARCHITECTURAL DESIGN – VI

Credit Units: 8

Course Level: UG

Course Objectives: Course aims at teaching the design of buildings with advance services like hospitals (50 bedded) and long span buildings for public uses like auditoriums/ small theatres (300-500 capacity) or other types of assembling spaces.

Prerequisites: Basic understanding of scale, drafting, and sketches.

Course Contents/syllabus:

Unit I: Introduction to Hospital Planning and Design	24 Hours
<ul style="list-style-type: none">Principles of Hospital planning and designNABH norms, fire safety, accessibility and patient flowHVAC, acoustics and infection control in hospitalsLibrary Study and Case Study of similar projectSite analysis and contextual planningSite planning, zoning, and block massingLayout strategies for pedestrian, vehicular movement, and servicesEvolution of Design Concept	

Unit II: Functional Planning and Infrastructure and Services Integration	24 Hours
<ul style="list-style-type: none"> • Spatial planning for all functional components of the hospital - OPD, IPD, emergency, ICU, operation theatres, wards, etc. • Incorporation of modular hospital planning principles • Structure and services integration • Vertical and horizontal circulation (staff, patient, visitor, service) • Integration of green spaces, sustainability principles, and doctor-patient-staff facilities • Consideration of services and utilities • Preparation of site plan, floor plans, sections and elevations, 3D views and model 	
Unit III: Study of Auditorium/ Theatre or Assembling spaces	24 Hours
<ul style="list-style-type: none"> • Library Study showing the anthropometrics, layouts of various spaces, acoustical requirements, deriving the shape and size of the auditorium • Case examples/Prototypes of the Projects • Green Building/Energy Efficiency & Barrier Free design features in the building • Study of design/ layouts of Auditorium/ Theatre or Assembling spaces 	
Unit IV: Design of small Auditorium/ Theatre or Assembling spaces	24 Hours
<ul style="list-style-type: none"> • Refinement of the project with detailed architectural planning • Technical Drawings and Documentation: Site plans, floor plans, sections, elevations, 3D views • Sustainability and Smart Design: Incorporating energy-efficient and eco-friendly design strategies • Final Submission: Complete portfolio with master planning, zoning details, and architectural models 	

Site Visits/ Case Studies: 24 sessions

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.
- Field visits to enrich students' knowledge of context development for a multi-storied building like office building, shopping mall and study of Infotainment center / hotel

Course Learning Outcomes:

CLO1	Demonstrate architectural and structural vocabulary through verbal and written communication
CLO2	Develop sensitivity towards building bye-laws
CLO3	Apply services learnt in previous semester to design project at building and site level
CLO4	Forms correlation between design and other subjects studied in previous semesters and till present

Text / Reference Books:

Author	Title	Publisher	Ed/ year	ISBN No	Pages
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
V.S.Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt.Ltd., New Delhi	1997.	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley and Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Pritipal Singh	Handbook of Concept Planning of Hospitals	Pritipal Singh publishers	2024	978-9359157160	215
V.K. Singh, Paul Lillrank	Planning and Designing Healthcare Facilities	Productivity Press; 1st edition	2017	978-1138032262	278
Ajay Garg, Anil Dewan	Manual of Hospital Planning and Designing: For Medical Administrators, Architects and Planners	Springer Verlag, Singapore; 1st ed. 2022	2022	978-9811684555	532
Noory Yeganeh Saba	Developments in Auditorium Design in last fifty years 1960-2009	LAP Lambert Academic Publishing	1997	97838443332519 783844333258	140
Bronislaw J. Sammler (Author), Don Harvey (Author)	Technical Design Solutions for Theatre: The Technical Brief Collection Volume 2: 002 (Technical Brief Collection S)	Routledge; 1st edition	2002	9780240804927	294
Bronislaw J. Sammler, Don Harvey	Technical Design Solutions for Theatre: The Technical Brief Collection: 001	Routledge; 1st edition	2002	9780240804903	284
John Orrell	The Human Stage: English Theatre Design, 1567–1640	Cambridge University Press; 1st edition	2009	9780521109451	316
Chuck Gloman , Rob Napoli	Scenic Design and Lighting Techniques: A Basic Guide for Theatre	Routledge; 1st edition	2016	9781138142022	414

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

HISTORY OF ARCHITECTURE-IV

Credit Units: 2

Course Level: UG

Course Objectives: To provide the knowledge of the evolution of different architectural styles through study of Modernism and Provincial World Architecture.

Prerequisites: Basic knowledge of History.

Course Contents/syllabus:

Unit I: Renaissance Architecture	8 Hours
<ul style="list-style-type: none"> • Emergence of humanism and its impact on architecture • Key architects and works: Brunelleschi (Florence Cathedral), Alberti, Palladio (Villa Rotonda) 	
Unit II: Baroque and Rococo Architecture	8 Hours
<ul style="list-style-type: none"> • Characteristics and spatial planning in Baroque architecture • St. Peter's Basilica, Versailles Palace 	
Unit III: The Industrial Revolution and Architecture	8 Hours
<ul style="list-style-type: none"> • Impact of new materials (iron, steel, glass) • The rise of factories, railway stations, and skyscrapers 	
Unit IV: Colonial Architecture in India	6 Hours
<ul style="list-style-type: none"> • Portuguese, Dutch, and British influences • Case studies: Goa churches, Victoria Memorial, Lutyens' Delhi 	

Course Learning Outcomes:

CLO1	Understanding the evolution of Architectural styles in pre-renaissance era
CLO2	Identify the development of Renaissance and Mannerism
CLO3	Comprehend the dynasties in Eastern parts of the world and their influences on Architecture
CLO4	Acquaint with the architectural development of Baroque era

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Francis D. K. Ching , Mark M. Jarzombek, Vikramaditya Prakash	A Global History of Architecture	Wiley	3rd Edition	1118981332	864
Fletcher, Banister Sir,	History of Architecture	CBS	2009	8170804450	1794
David G. Saile	Architecture in Cultural Change: Essays in Built Form and Culture Research	School of Architecture and Urban Design, University of Kansas,	1999	8123906412	175
G.K. Hiraskar	The Great Ages of World Architecture	Dhanpat Rai Publications	2018	8189928880	406

L/S	T	P	Total Credits	Total Hours
3	0	0	3	3

HUMAN SETTLEMENT PLANNING

Credit Units: 3

Course Level: UG

Course Objectives: To acquaint the students with regional settings and land preservation. To enable the students in understanding of integrated planning. To understand urban development issues and specific solutions

Prerequisites: Awareness of terms defining local and regional zoning

Course Contents/syllabus:

Unit I: Introduction to Settlement Planning	12 Hours
<ul style="list-style-type: none"> • Definitions, scope of Town & Country Planning / Urban & Regional Planning • Classification of urban and rural settlements and determinants for growth and evolution of human settlements • Settlement planning in river valley civilizations • The physical form of human settlements and the contribution of Greeks, Romans and Renaissance Period to ordered planning • History of Indian Town Planning - Vedic Period, Islamic, Medieval and Colonial Period 	
Unit II: Town Planning in the 18th Century	12 Hours
<ul style="list-style-type: none"> • Industrial Revolution and transition to the Industrial City • Birth of New Concepts in City Planning – the Garden City Movement, the Linear City, the Vertical City and the concept of the Neighbourhood Unit. • Contribution of Eminent Town Planners like Patrick Geddes, Frank Lloyd Wright, Le Corbusier, etc. 	
Unit III: Modern Trends in Planning	9 Hours
<ul style="list-style-type: none"> • Developments after World War I and World War II • The New National Capitals – Chandigarh, Brasilia, Islamabad, Canberra etc. • Concept of New Urbanism and Sustainable Cities – Curitiba (Brazil), Masdar (Abu Dhabi), Ras Al Khaimah Eco City (UAE), etc. 	

Unit IV: The Planning Process in India	12 Hours
<ul style="list-style-type: none"> • Urbanization and Challenges of Urbanization in India • Evolution and implementation of the various Town Planning Acts • Regional Plan, Master Plan, Zonal Plan, Neighbourhood Plan - objectives, role, importance and methodology • Survey techniques, methods of data collection and analyses of data • Role of Government in Urban Development – Salient policies and regulatory bodies, URDPFI – planning standards • Urban Arts Commission, Urban Renewal Mission, etc. 	

Course Learning Outcomes:

CLO1	Understand the types of human settlements and determinants for growth of settlements
CLO2	Comprehend human settlement systems in the World during different time frames – ancient to modern
CLO3	Recognize planning processes at national level in terms of magnitude, outcomes of initiatives and related factors
CLO4	Evaluate policies and guidelines for sustainable urban development

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
A. Bandyopadhyay	Text Book of Town Planning	Kolkata: Books and Allied (P) Ltd.	2001	978-8187134657	360
A.K.Jain	Town Planning – Principles, Process and Practice	Khanna Publishing	-	978-9386173409	-
Avi Friedman	Fundamentals of Sustainable Urban Renewal in Small and Mid-Sized Towns	Springer	1st ed. 2018	978-3319744636	291
C.L.Doxiadis	Ekistics: An Introduction to the Science of Human Settlements	Hutchinson, London	1968	978-0080212432	527
G.K.Hiraskar	Fundamentals of Town Planning.	New Delhi: Dhanpat Rai and Co.	2018	978-8189928896	147
Ministry of Urban Development	Urban Development Plans Formulation and Implementation Guidelines	Government of India, New Delhi	2014	978-0750657174	314

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS -VI

Credit Units: 4

Course Level: UG

Course Objectives: To introduce and familiarize the students with constituents, manufacturing process/ availability/ properties/characteristics/defects/ classifications and usage of traditional building materials and their use in simple building work.

To make students understand and appreciate the various methods of building construction in coordination with the building materials and science related to them.

Prerequisites: Basic knowledge of drawing.

Course Contents/syllabus:

Unit I: Study of Gypsum and Paints as Building Materials	12 Hours
<ul style="list-style-type: none"> • Study of Gypsum and Paints as Building Materials, their application in building industry, - Gypsum Board, Suspended Ceiling (Board and Tiles), Gypsum Plaster, Components and Accessories. Jointing and Finishing. Construction details of Suspended Ceilings with Gypboard • Types of Paints, Physical and Chemical Properties. Preparation of variety of surfaces, Application of various coats. Finishes – Lime / Color wash, Dry distemper, Oil bound distemper, Cement paints, acrylic emulsions, Synthetic enamels, Wall textures etc. Polishes and Varnishes 	
Unit II: Floors – Decked Floors	12 Hours
<ul style="list-style-type: none"> • Floors – Decked Floors: Steel Floors and their fabrications, • Various components of steel and the structure, composite steel decking/flooring, services in the flooring/decking. 	
Unit III: Detailing of the Composite Roofs, water proofing in a structure	12 Hours
<ul style="list-style-type: none"> • Construction of steel structures (Factory shed/ large span) Steel columns, portal frames, etc. • Roofs- Roofs and Trusses: Steel Trusses: North light truss, tubular monitor roof truss. Types and uses. 	

<ul style="list-style-type: none"> • Detail of terracing for Flat roofs: for Masonry structures • Water proofing and Rainwater disposal, Rainwater Harvesting for Flat roofs and Steel roofs. 	
Unit IV: Basements, Expansion Joints	12 Hours
<ul style="list-style-type: none"> • Basement plan and sectional details; basics of ramps, services and circulation core placements. • Expansion Joints: Uses, applications, norms, and requirements 	

Site Visits/ Case Studies:12 sessions

- To introduce the students to the assigned building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	Learn the usage of various finishes and gypsum board partitions and false ceilings in construction works
CLO2	Apply the updated applications of special floors for computer server rooms and other insulated areas
CLO3	Familiarise with Steel roofing techniques for varying spans
CLO4	Create drawings and designs based on the acquired knowledge base

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific and Technical.	1999	978-0582413955	192
S.P. Bindra and S.P. Arora	The Textbook of Building Construction	Dhanpat Rai and Co.	2010	978-8189928803	-

Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
W.B. Mckay,	'Building Construction', Vol.1, 2, 3,4, 5.	Longman Longmans, U. K	1981.	812500940X, 9788125009405	480
Thomas, Marvin	Architectural Working Drawings: A Professional Technique	McGraw-Hill Inc., US	1978	978-0070642409	192
Osamu (Art) A Wakita, Nagy R. Bakhoum, Richard M. Linde	The Professional Practice of Architectural Working Drawings, 5th Edition	Wiley	2017	978-1-118-88052-4	688

L/S	T	P	Total Credits	Total Hours
2	0	4	4	6

MEASURED AND WORKING DRAWING

Credit Units: 4

Course Level: UG

Course Objectives: Architectural Detailing and Execution Drawings. With details of Joinery, Electrical and Plumbing. Preparation of complete Local Development Authority drawing for a small two storied building

Prerequisites: Basic knowledge of drawing

Course Contents/syllabus:

Unit I: Drawing Floor plans and Elevations	24 Hours
<ul style="list-style-type: none"> All Floor plans of a simple building (Ground, First and Terrace) Elevations of a building- Front, Rear and Side 	
Unit II: Drawing Section and Electrical Services	18 Hours
<ul style="list-style-type: none"> Sections of a simple building- X-Axis, Y-Axis Electrical, Lighting Details duly marked in one floor of design drawings (Electrical layout duly marked in one floor of the design drawings) with the Legends 	
Unit III: Drawing Joinery Details	18 Hours
<ul style="list-style-type: none"> Joinery of Door, Windows and Cupboards Details duly marked in one floor of design drawings, with the Legends 	
Unit IV: Drawing Plumbing Services	18 Hours
<ul style="list-style-type: none"> Plumbing Details duly marked in one floor of design drawings, with the Legends 	

Site Visits/ Case Studies: 12 sessions

- To cultivate personal observation and self-learning in the students, site visits should be conducted to cover the given syllabus.
- Students will observe measure, sketch, and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CL01	Understand the working and construction methods in detail.
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CL02	Learn various architectural and construction components.
CL03	Analyze the drawing details for executing the work of construction.
CL04	Present detailing of design and construction by understanding the function of services and spaces.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Brand: Taylor and Francis Ltd	Working Drawings Handbook	Routledge	2012	0750663723	300
Bhatt, N. D.	Engineering Drawing ; Plane and Solid Geometry.	Charotar Publishing House Pvt. Limited.	2010	978-9380358178	720
Dhawan R K	Fundamentals of Engineering Drawing	S Chand	2014	978-121939263	456
Thomas, Marvin	Architectural Working Drawings: A Professional Technique	McGraw-Hill Inc.,US	1978	978-0070642409	192
Osamu (Art) A Wakita, Nagy R. Bakhoum, Richard M. Linde	The Professional Practice of Architectural Working Drawings, 5th Edition	Wiley	2017	978-1-118-88052-4	688

L/S	T	P	Total Credits	Total Hours
2	1	0	3	3

STRUCTURES IN ARCHITECTURE - VI

Credit Units: 3

Course Level: UG

Course Objectives: To teach the basics of Seismic Design, Steel Design and Composite Structure Systems

Prerequisites: Basic knowledge of Structural Design.

Course Contents/syllabus:

Unit I: Earthquake-resistant Structural Design	12 Hours
<ul style="list-style-type: none"> • Introduction of earthquake resistant structure. • Basic elements of Earthquakes Resistant Design Structural modelling, seismic method of analysis – seismic design methods – code-based methods. • Response control concepts, seismic education and retrofitting seismic test methods. 	
Unit II: Tension and Force Design	12 Hours
<ul style="list-style-type: none"> • Lateral Force Design and diagonal tension. • Design of RC structure per latest IS: 1893 by Equivalent static lateral load method. • Design of Diagonal Strap Bracing Lateral Force Resisting Systems for the 2006 IBC 	
Unit III: Pre-stressed Concrete Structures	12 Hours
<ul style="list-style-type: none"> • Introduction to pre-stressed concrete structures. Difference in Pre and Post tensioning systems, Advantages (History: Structures those have been designed economically) • Basic design concept of pre-stressed concrete beam, Analysis of pre stress and bending stress, Resultant Stress, Thrust Line, Concept of Load balancing, Various losses of stresses, Stresses behaviour at anchorage zone Simple Numerical Problems. 	
Unit IV: Composite Structural Systems	9 Hours
<ul style="list-style-type: none"> • Composite Structural Systems: Composite sections (made of more than one material) • Working out structure systems for layout of a small building 	

Course Learning Outcomes:

CLO1	Understand the load resistant parameters in structures
CLO2	Acquaint with brace design and diagonal strap
CLO3	Comprehend the concept of prestressed concrete structures
CLO4	Develop Composite structure system for a small building

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Salvadori, Oakley, and Heller	Structure in Architecture- The building of Buildings	Pearson; 4th edition	2016	978-0132803205	240
Surjeet Kumar	Theory of Structures	Vayu	2014	978-9380097879	234
Angus J. Macdonald	Structure and Architecture	Routledge	2018	978-1138629226	360
Daniel Schodek Martin Bechthold	Structures	Pearson; 7th edition	2013	978-0132559133	576
Dr. R.K. Bansal	A Textbook of Strength of Materials	Laxmi Publications	2018	978-8131808146	1160
R.S. Khurmi	Textbook of Strength of Materials	S Chand Publishers	2015	978-9385401954	752
IS Code for Reinforced Concrete Design	IS 456:2000 SP-16 SP-34	Bureau of Indian Standards	2000 1980 1987	-	114 252 289

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

BUILDING SERVICES - III (ACOUSTICS AND FIRE FIGHTING)

Credit Units: 2

Course Level: UG

Course Objectives: To acquaint the students with the basic principles used in all basic building services with regards to electrical and mechanical services in buildings.

Prerequisites: Basic knowledge of building design.

Course Contents/syllabus:

Unit I: Basics of Acoustical Service	8 Hours
<ul style="list-style-type: none"> Acoustical concepts- wave theory, sound power, sound intensity, decibels, sound power level, sound intensity level, sound pressure level, frequency bands concept of reflection, absorption, transmission. Absorption coefficient, NRC, sound absorbing materials, - fibrous, membrane, resonators, perforated facing, application techniques. Noise control by absorption, sound transmission, transmission loss, composite barriers, noise reduction between rooms, light construction. 	
Unit II: Advanced Acoustical Service and Design	8 Hours
<ul style="list-style-type: none"> Reverberation time (RT), calculation of RT, sample problems, RT and noise criteria for spaces for speech and music. Acoustical design of enclosed spaces for speech and music, reflection analysis reflection/diffusion, echoes, flutter echo, foci. Acoustical design consideration in interior design and sound amplification system. 	
Unit III: Fire Services and Systems-I	8 Hours
<ul style="list-style-type: none"> Triangle of fire, Materials to be used in construction, Staircases, Fire escape distances for different buildings, Fire spread in Buildings, Fire doors, Basements, Lifts, Electrical Sub-station, AHU Shut off, NBC Rules for fire. Fire safety standards and requirements for various types of Buildings. 	
Unit IV: Fire Services and Systems-II and Security	6 Hours

<ul style="list-style-type: none"> • Fire alarm system and components, Hydrant System and Components, Pump house and location. • Wet riser system, Down comer system and Sprinkler Systems for fire Fighting services. • Security System, Access Control System, Intruder detection and CCTV systems. 	
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CLO1	Understand the importance of Acoustics in Design.
CLO2	Identify the value and methods of Firefighting systems in a building
CLO3	Analyze the installation, application and functioning of Acoustic in Design
CLO4	Acquaint with the installation, application and functioning of Fire-fighting and Security systems in Design.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
M.A. Siraskar	Acoustics in Building Design	Sangam Books Ltd	1979	0861250028	102
B Gréhant (Author)	Acoustics in Buildings	Thomas Telford Ltd	1996	0727725114	305
Raf Orlowski (Author)	Acoustics in Architectural Design	The Crowood Press Ltd	2021	1785008781	160
B.M.Sen	Fire Fighting Vol-1	Techno World	2021	B08N12HN32	175
IPS N. C. Asthana	Fire Fighting	Aavishkar Publishers, Distributors	2015	9788179104910	216

FOURTH YEAR

SEVENTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VII	10	0	0	10	10
2	PC	History of Architecture - V	2	0	0	2	2
3	PC	Urban Design	3	0	0	3	3
4	PC	Landscape Architecture	1	0	2	2	3
5	PC	Building Specifications and Estimating - Costing	2	0	2	3	4
6	BS and AE	Building Construction and Materials - VII	4	0	0	4	4
7	BS and AE	Building Services - IV (HVAC)	2	0	0	2	2
		Total	24	0	4	26	28

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
10	0	0	10	10

ARCHITECTURAL DESIGN - VII

Credit Units: 10

Course Level: UG

Course Objectives: To understand the principles and implications of advance and complex design problems with focus on planning, landscaping, energy conservation and services considering zoning regulations and seismic sensitivity.

To introduce large-scale layout schemes like **institutional campus** or **group housing scheme**.

Prerequisites: Basic understanding of urban design and landscape architecture principals.

Course Contents/syllabus:

Unit I: Introduction to Campus Planning/ Housing Design Principles	30 Hours
<ul style="list-style-type: none">• Definitions, scope, and relevance in architecture• Understanding Elements: Pathways, Nodes, Landmarks, Edges, etc.• Surrounding Urban Morphology & Context: Study of spatial patterns and the built environment	

<ul style="list-style-type: none"> • Case Studies: Well-designed institutional campuses/ housing from global and local contexts • Site Analysis & Research: Understanding user needs, movement patterns, and urban context 	
Unit II: Design Development	30 Hours
<ul style="list-style-type: none"> • Designing Public Spaces/ Areas: Market spaces, pedestrian zones, mixed-use areas in the campus/ housing • Placemaking Strategies: Social, cultural, and economic influences • Redevelopment & Revitalization Approaches: Adaptive reuse, conservation and renewal strategies in case of existing structures/ precincts etc. in the site • Sustainable & Resilient Urban Spaces: Green infrastructure, climate responsiveness, and walkability • Minor Project: Conceptual design of a public space (e.g., square, campus market, plaza, club house with related facilities, students' centre, etc.) 	
Unit III: Integration of Architecture & Urban Infrastructure	30 Hours
<ul style="list-style-type: none"> • Circulation & Connectivity: Pedestrian-friendly design, public transport integration, smart mobility • Building Regulations & Urban Byelaws: Zoning, height restrictions, and land use planning • Material Selection & Construction Methods: Sustainable materials for urban interventions • Urban Aesthetics & Identity: Public art, street furniture, lighting, and visual coherence 	
Unit IV: Final Design, Documentation & Presentation	30 Hours
<ul style="list-style-type: none"> • Refinement of Design Solutions: Detailed site plans, master planning, zoning regulations • Technical Drawings & Documentation: Site analysis, urban context studies, sections, elevations, and 3D visualization • Sustainability & Inclusivity: Universal design, accessibility, and environmental considerations • Jury & Review Process: Peer critiques, faculty feedback, and design presentations • Final Submission: Comprehensive design portfolio integrating architecture and urban design principles 	

Site Visits/ Case Studies: 30 sessions

- Design problems will be introduced on the basis of live case studies and site visits as mandatory component of design studio to impart experiential learning.
- Field visits to enrich students' knowledge of contextual development for well-designed residences and public spaces

Course Learning Outcomes:

CLO1	Understand the architectural design process for large scale layout schemes
CLO2	Transform the human behavioural needs into architectural program requirements
CLO3	Analyse the information on context and the human-space relationship
CLO4	Create appropriate design solutions for the design project

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Francis D.K. Ching	Architecture Form, Space and Order	John Wiley & Sons	2014	9781118745083	464
V.S. Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt. Ltd., New Delhi	1997.	8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley & Sons	2000	9788126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Schmertz, M. F.	Campus Planning and Design	McGraw-Hill Inc., USA	1972	9780070022164	288
Keswani, K.	The Making of a Campus, IIM Bangalore	El Croquis	2023	9788412622263	176
Herz, M.	Campus Landscape Planning & Design	Design Media Publishing Limited	2013	9789881545244	271
Jain, A. K.	Housing and Community Planning: Design, Construction and Infrastructure	Discovery Publishing House Pvt Ltd	2016	9789388854177	322
Levitt, D. and McCafferty, J.	The Housing Design Handbook: A guide to good practice	Taylor & Francis	2018	9781138568952	354

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

HISTORY OF ARCHITECTURE - V**Credit Units: 2****Course Level: UG****Course Objectives:**

- To provide the knowledge of the evolution of different architectural styles through study of Multi-Religious & Provincial World Architecture
- Understanding the early cultures in the periods from 1700 CE to 1925CE around the globe in context of location, climate as well as socio-economic, historical and cultural influences of the time

Prerequisites: Basic knowledge of History**Course Contents/syllabus:**

Unit I: Early Modernism and the International Style	8 Hours
<ul style="list-style-type: none"> • Role of architects: Louis Sullivan, Frank Lloyd Wright, Le Corbusier • Bauhaus movement and the emergence of functionalist design 	
Unit II: Postmodernism and Deconstructivism	8 Hours
<ul style="list-style-type: none"> • Rejection of modernist rigidity: Works of Robert Venturi, Philip Johnson • Deconstructivism approach: Frank Gehry, Zaha Hadid 	
Unit III: Sustainable and High-Tech Architecture	8 Hours
<ul style="list-style-type: none"> • Evolution of green buildings and passive design strategies • Case studies: Foster + Partners, Ken Yeang 	
Unit IV: 1900-1925 CE	6 Hours
<ul style="list-style-type: none"> • Erich Mendelson's Expressionism at Einstein Tower, Germany • Lutyen's Delhi & Baker's Parliament House • Russian Constructivism: Rusakov Factory Club • Bauhaus School by Walter Gropius • Villa Savoye by Corbusier 	

Course Learning Outcomes:

CLO1	Understand the transition of architecture and revival of the arts through Renaissance
CLO2	Familiarize with the role of movements in the evolution of architecture and its transition towards the modern style
CLO3	Analyze the work done by the Masters and their contribution in developing various styles of architecture
CLO4	Evaluate the role of Garden City Movement in the modern-day context for more sustainable architecture and urban development

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Francis D. K. Ching , Mark M. Jarzombek , Vikramaditya Prakash	A Global History of Architecture	Wiley	3rd Edition	1118981332	864
Fletcher, Banister Sir,	History of Architecture	CBS	2009	8170804450	1794
David G. Saile	Architecture in Cultural Change: Essays in Built Form and Culture Research	School of Architecture and Urban Design, University of Kansas,	1999	8123906412	175
G.K. Hiraskar	The Great Ages Of World Architecture	Dhanpat Rai Publications	2018	8189928880	406

L/S	T	P	Total Credits	Total Hours
3	0	0	3	3

URBAN DESIGN

Credit Units: 3

Course Level: UG

Course Objectives: To help students formulate an understanding of the urban forms and spaces. The contemporary needs of the society and the role of spaces will be dealt along with the need for design control.

Course Contents/syllabus:

Unit I: Introduction	12 Hours
<ul style="list-style-type: none"> • Emergence of urban design as a discipline • Introduction, Role, Scope and Importance of Urban Design • Distinction between Urban Design, Architecture and Town Planning • Concepts of urban design • Elements of Urban Design- Pattern, Grains, Texture, Density etc., their role and importance • Urban design parameters- space and place, morphology, urban form and structure. 	
Unit II: Basic Principles and Techniques in Urban Design	12 Hours
<ul style="list-style-type: none"> • Determinants of Urban Form – Landform, Climate, Symbolism, Activity Pattern, Socio-cultural Factors etc. and their role and importance. • Imageability - Elements and their role and importance including Paths, Nodes, Landmarks, Edges, Districts, etc. • Urban scale, Mass and Space 	
Unit III: Studies of Urban Spaces and Cities	12 Hours
<ul style="list-style-type: none"> • To introduce the components of a city and their interdependent roles in the urban fabric • Expressive quality of built forms, spaces in public domain like street, square, precinct, piazza, mall, etc. • Urban Design study of selected Capital Cities - Chandigarh and Delhi 	
Unit IV: Development Controls, Policies and Framework	9 Hours
<ul style="list-style-type: none"> • Development Controls - Role and Importance in Urban Design. • Introduction to Legal and Institutional framework for Urban Design including Delhi Urban Arts Commission - Objectives, Constitution, Role, Importance, Impact, etc. 	

Course Learning Outcomes:

CLO1	Explain the scope and nature of urban design as a discipline
CLO2	Develop effective design ideas based on the principles of urban design
CLO3	Analyze the link between architectural designs, planning and urban design at all scales
CLO4	Evaluate urban issues and situations involving public realm

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Alexander Christopher	A New Theory of Urban Design	Oxford University Press	1987	978-0195037531	272
Arthur B. Gallion & Simon Eisner	Urban Pattern: City Planning and Design	London: Van Nostrand Reinhold	1986	978-0442227319	-
Cliff Moughtin	Urban Design: Street and Square	Routledge	2003	978-0750657174	314
Gordon Cullen	The Concise Townscape	London: Architectural Press	1961	978-0750620185	200
Kevin Lynch	The Image of the City	The MIT Press	1964	978-0262620017	202
P.D. Spreiregen	Urban Design: The Architecture of Towns and Cities	McGraw Hill	1965	-	-
Raymond J. Curran	Architecture and the Urban Experience	Van Nostrand Reinhold Co.	1983	978-0442212087	221
Rob Krier	Urban Space	Academy Editions London	1979	978-0856705764	175

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

LANDSCAPE ARCHITECTURE

Credit Units: 2

Course Level: UG

Course Objectives: To familiarize students with the various elements of landscape architecture and the principle of landscape design and conservation.

To develop and strengthen the competence in dealing with the analytical, artistic and technical aspects of designing open spaces at different scales.

Prerequisites: Basic understanding of ecology, natural principles and variety of plant species.

Course Contents/syllabus:

Unit I: Introduction to Landscape Architecture	12 Hours
<ul style="list-style-type: none"> • Definition of Landscape – meaning and importance, types of gardens, garden components, garden design – formal and informal, principles of landscape gardening. • Types of natural elements – stones, rocks, pebbles, plants and vegetation. • Elements of landscape-hard & soft. • Evolution of Garden Design w.r.t. regional environment & existing examples around the globe 	
Unit II: Plant Species and their Selection	12 Hours
<ul style="list-style-type: none"> • Spatial development in Landscape Design. • Classification of plants, indoor plants and their functions, layout & components • Floriculture – commercial, ornamental, selection of plants & pest control • Physical requirements of plants – light, temperature, water, planting medium, soil separator, weight of plants, acclimatization & maintenance • Techniques to meet physical requirements of plants. Plant materials - classification, characteristics, use and application in landscape design; their role as shading devices. Influence of climate & selection of color 	

Unit III: Elements of Landscape Design	12 Hours
<ul style="list-style-type: none"> • Various landscaping elements – water bodies - pools, fountains, artifacts, paving & lighting. • Roof and deck landscape, Protection of the integrity of the roof and structure, provisions for drainage, light weight planting medium, irrigation, selection of materials, water proofing, provision for utilities and maintenance. • Bonsai – meaning, plants suitable for bonsai culture, techniques and styles. Artificial indoor plants and their caring techniques. • Landforms: - Site Planning for neighborhood parks, children's play area and Campus development. Pavements and furniture. Water: waterfalls/streams/pools & ponds. Light & sound effects 	
Unit IV: Landscaping in Urban Context	9 Hours
<ul style="list-style-type: none"> • Urban open spaces and principles of urban landscape. • Street landscaping. • Landscape design for waterfront areas and functional areas in urban centers. • Green roofs and walls. • Landscape design parameters for various types of built forms – indoor and outdoor linkage to spaces. • Landscaping of courtyards- residential and commercial forms. Courtyard design, room design with indoor landscape elements, terrace garden. 	

Course Learning Outcomes:

CL01	Understanding the significance in linking the built environment with the unbuilt/ natural context
CL02	Integration of landscape as part in urban context to ensure sustainable development
CL03	Decision in choice of elements as part of the Landscape Design process
CL04	Evaluating the environmental values of green spaces at the micro and macro scale

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Grant W. Reid	From Concept to Form in Landscape Design	Wiley	2007	978-0470112311	256

Charles Harris, Nicholas Dines	Time-saver Standards for Landscape Architecture	McGraw-Hill Education	2017	978-1259004100	1200
William R. Nelson	Planting Design: A Manual of Theory and Practice	Stipes Pub Llc	2004	978-1588743589	315
C. Tandy	Handbook of Urban Landscape	Architectural Press	2002	978-0851396903	275
Bimal Das Chowdhury, T.K Bose, S.P Sharma	Tropical Garden Plants in Colour	Horticultural & Allied Publishers	1991	978-8190017114	779

L/S	T	P	Total Credits	Total Hours
2	0	2	3	4

BUILDING SPECIFICATIONS AND ESTIMATING - COSTING

Credit Units: 3

Course Level: UG

Course Objectives:

To inculcate awareness, regarding factors affecting cost of building.

To familiarize the student with commonly used method of preparing estimate of architectural projects.

To enable the student to have idea regarding the quality and quantity of materials, quantity and classes of skilled and unskilled labours required for the project.

Prerequisites: Basic knowledge of mathematics

Course Contents/syllabus:

Unit I: Introduction to Specifications and Estimation	16 Hours
<ul style="list-style-type: none"> Understanding Project Specifications: Definition and importance of project specifications in interior design projects. Overview of the role of specifications in communicating design intent, material selections, and construction requirements. Fundamentals of Cost Estimation: Introduction to cost estimation techniques, including quantity take-offs, unit pricing, and cost databases. Explanation of the factors influencing project costs, such as materials, labor, overheads, and contingencies. Client Needs Assessment: Techniques for conducting client interviews, needs assessments, and establishing project goals and priorities. Analysis of client budgets, timelines, and quality expectations to inform specifications and cost estimates. 	

Unit II: Materials and Finishes Selection	14 Hours
<ul style="list-style-type: none"> • Types of Materials and Finishes: Overview of commonly used materials and finishes in interior design, including flooring, wall treatments, cabinetry, and furniture. • Discussion of material properties, durability, maintenance requirements, and aesthetic considerations. • Sourcing and Specification Writing: Techniques for sourcing materials from suppliers, manufacturers, and vendors. • Guidelines for writing detailed specifications, including product descriptions, quantities, quality standards, and installation requirements. • Cost Analysis and Value Engineering: Strategies for evaluating material costs, comparing alternatives, and achieving value engineering in material selections. • Consideration of lifecycle costs, sustainability criteria, and long-term value in material decision-making. 	
Unit III: Estimating Project Costs	16 Hours
<ul style="list-style-type: none"> • Quantity Take-Offs and Measurements: Methods for quantifying materials, labor, and other resources required for interior design projects. • Techniques for taking accurate measurements, calculating areas, volumes, and dimensions, and creating material schedules. • Cost Estimation Methods: Application of cost estimation methods, including bottom-up estimating, parametric estimating, and analog estimating. • Use of cost estimation software, spreadsheets, and databases to streamline the estimation process and improve accuracy. • Budget Development and Management: Guidelines for developing project budgets based on cost estimates, client requirements, and project constraints. • Strategies for tracking project expenses, managing budget variances, and controlling costs throughout the project lifecycle. 	

Unit IV: Contract Documents and Procurement	14 Hours
<ul style="list-style-type: none"> • Contractual Agreements: Overview of contract types, terms, and conditions commonly used in interior design projects. • Explanation of contractual responsibilities, liabilities, and dispute resolution mechanisms for project stakeholders. • Bidding and Tendering Processes: Procedures for soliciting bids, issuing requests for proposals (RFPs), and evaluating contractor proposals. • Analysis of bid documents, specifications, and contract documents to ensure clarity and compliance with project requirements. • Procurement and Supplier Management: Strategies for selecting vendors, negotiating contracts, and managing supplier relationships in interior design projects. • Consideration of procurement methods, such as direct purchasing, competitive bidding, and outsourcing, to optimize project outcomes. 	

Course Learning Outcomes:

CLO1	Understand the calculation methods for working out Bill of Quantities.
CLO2	Apply Rates as per prevailing standards to prepare draft estimates
CLO3	Analyze the estimates to cut costs and plan for construction schedules
CLO4	Develop Valuation of projects for loans and advances

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
D D Kohli, R C Kohli	A Textbook of Estimating and Costing	S Chand Publishing	2013	978-8121903325	504
BN Dutta	Estimating and Costing in Civil Engineering (Theory and Practice)	CBS Publishers & Distributors Private Limited	2020	978-8174767707	904
Simran Bir Singh, Amit Kumar	Building Estimation Notes: A Complete Practical Handbook for Civil Engineers	Red Bricks Academy of Civil Engineering	2020	-	254
Holm Leonard, E. Schaufelberger John, Griffin Dennis, Cole Thomas	Construction Cost Estimating: Process and Practices	Pearson Education	2017	978-9332552623	388

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS -VII

Credit Units: 4

Course Level: UG

Course Objectives:

- To enable the student to study various constructional details in metals i.e., steel & aluminium in coordination with study of materials & science related to them
- To enable the student to know about latest techniques like prefabrication, pre-stressing, pre-engineered buildings, etc. used in the construction industry

Prerequisites: Knowledge of basic construction methods, elements and drawing.

Course Contents/syllabus:

Unit I: Building Materials – Stainless Steel	12 Hours
<ul style="list-style-type: none"> • The study about the application of stainless steel in interiors and exteriors. Introduction to a wide range of modern building construction systems incorporating the use of metals like steel, aluminum and composite materials. • Steel Structures: Study of steel structures, construction, joining, welding riveting etc. Hot rolled sections, cold forming of sheets into sections. • Materials of Suspended Ceilings: Study variety of false ceiling types and materials available in the market. • Modern Factory Shed Construction: Study of modern building construction materials. 	
Unit II: Building Materials –Aluminium	12 Hours
<ul style="list-style-type: none"> • The study about the application of aluminum in interiors and exteriors. Introduction to a wide range of modern building construction systems incorporating the use of metals like steel, aluminum and composite materials. • Steel Structures: Study of steel structures, construction, joining, welding riveting etc. Hot rolled sections, cold forming of sheets into sections. • Materials of Suspended Ceilings: Study variety of false ceiling types and materials available in the market. • Modern Factory Shed Construction: Study of modern building construction materials. 	

Unit III: Steel, Aluminium and UPVC in Buildings	12 Hours
<ul style="list-style-type: none"> Doors and windows in: Rolled steel sections, Pressed steel frames, Aluminium extrusions and their uses, Sliding, folding and pivoted doors in UPVC 	
Unit IV: Prefab Construction, Pre-stressing and post-stressing, Pre-engineered buildings	12 Hours
<ul style="list-style-type: none"> Prefabricated construction of building components. Precast, prestressed Pre-Tensioning and Post Tensioning of concrete members. Advantages of Pre-stressing over RCC. Modular Coordination and Prefabrication in buildings – objectives and basic principles Technical and construction aspects of pre-engineered buildings Application of pre-stressing and post-tensioning structures (special reference to high-rise buildings) 	

Site Visits/ Case Studies:12 sessions

- To introduce the students to primary building materials and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	Know about various modern materials/ Patented material used for joinery, false ceiling and roofing
CLO2	Comprehend the details/ arrangements of combinations for various uses.
CLO3	Analyse the concept and utility of Pre-fabrication of Building Components
CLO4	Evaluate the design of Pre-engineered buildings

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288

R. Chudley	The Construction of Building (Vol 1)	Longman Scientific & Technical.	1999	978-0582413955	192
S.P. Bindra & S.P. Arora	The Textbook of Building Construction	Dhanpat Rai & Co.	2010	978-8189928803	-
Sushil Kumar	Building Construction	Standard Publishers Distributors	2006	8186308024, 9788186308028	796
W.B. Mckay,	'Building construction', Vol.1, 2, 3,4,5..	Longman Longmans, U.K	1981.	812500940X, 9788125009405	480

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

BUILDING SERVICES - IV (HVAC)

Credit Units: 2

Course Level: UG

Course Objectives: To acquaint the students with the basic principles of HVAC and its variants. To detail out the process of design, installation and maintenance of HVAC systems in buildings.

Prerequisites: Basic knowledge of physics.

Course Contents/syllabus:

Unit I: Introduction to HVAC	8 Hours
<ul style="list-style-type: none"> Fundamental principles of Heating Ventilation and Air-conditioning IAQ, comfort conditions, gas laws 	
Unit II: Refrigeration cycle	8 Hours
<ul style="list-style-type: none"> Refrigeration cycle A/C equipment Components of AC – compressor, heat exchangers, condenser and evaporators 	
Unit III: Types of Air Conditioning Systems	8 Hours
<ul style="list-style-type: none"> Types of Air-conditioning: single zone, multi zone, window air conditioners, split air conditioners, duct able air conditioners, package system and central air conditioning 	
Unit IV: HVAC Layout	6 Hours
<ul style="list-style-type: none"> All air systems and chilled water systems. A/C plant room, AHU's Building ducting, diffusers and grills, FC units. 	

Course Learning Outcomes:

CL01	Understanding the thermodynamic principles behind heating and cooling.
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CL02	Application of heating and cooling principles in changing indoor air quality and temperature.
CL03	Analysis of different types of HVAC systems.
CL04	Evaluating the local conditions to choose between standalone and centralized systems.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Marko Pinterić	Building Physics: From physical principles to international standards	Springer	2021	978-3030673710	286
Carl-Eric Hagentoft	Introduction to Building Physics	Professional Pub Service	2001	978-9144018966	444
R.S. Khurmi	Textbook of Refrigeration and Air-Conditioning	S Chand	2019	978-8121927819	720
W. Larsen Angel	HVAC Design Sourcebook	McGraw-Hill Education	2011	978-0071753036	400
C P Arora	Refrigeration and Air Conditioning	McGraw-Hill Education	2021	978-9390385843	968

FOURTH YEAR

EIGHTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PAECC (NTCC)	Professional Training	0	0	0	18	0
2	PAECC (NTCC)	Building Study Report	0	0	0	6	0
3	SEC (NTCC)	Architectural Documentation and Curation	0	0	0	2	0
4		Total	0	0	0	26	0

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
0	0	0	18	0

PROFESSIONAL TRAINING

Credit Units: 18

Course Level: UG

Course Objectives: The purpose of this study is to expose the students to practical field of design and construction to understand the application of academic knowledge acquired in the college.

Prerequisites: Basic knowledge of Professional Skills

Work Profile

- The architect may expose the trainee to difference aspects of professional practice. viz;
- Preparation of sketch designs, presentation drawings etc.; municipal drawings according to the byelaws; workings drawings and details; estimates, bill of quantities and specifications.
- Discussions with clients and various consultants; inspection/ supervision and management of site
- Preparation of models, perspectives and photographs
- Preparation of reports, progress charts

Portfolio

- After completion of 18 weeks of practical training, the trainee is required to submit a Project report containing:
- Office profile
- Listing of current projects being undertaken
- Project wise details of work undertaken by trainee
- Trainee's own assessment and experience about office, working, projects etc.
- All projects listed in the report should compulsorily correspond with the list of projects mentioned in the monthly log.
- Copies of drawing shall be attached as annexures to support the content of the report. The drawing prints shall be obtained with the permission of the office and stamped/ sealed by the 'Supervisor'/Head of the firm/ office.

CoA guidelines:

GUIDELINES FOR CONDUCT OF

PRACTICAL TRAINING AND ARCHITECTURAL DESIGN THESIS

1. **PRACTICAL TRAINING** –(1) Practical Training shall be undergone during 8th/ 9th semester of the Architecture Degree course for a period of six months or one semester in the office of an architect or an organization operating in an allied field of practice or research, duly approved by the institution, under mentorship of an architect having experience of at least 5 years.
 - (2) The practical training shall be supervised and evaluated through periodic assessment by the mentoring architect and end semester examination (viva voice) as part of curricular studies.
 - (3) Training in Foreign Country shall be done under the Registered Architect of that Country and to be approved and monitored by the Head of the University or Institution.

Course Learning Outcomes:

CLO1	Understand and apply the professional aspects of an architecture office/ company and the multiple issues in conception, preparation and execution of a project on a site.
CLO2	Develop skills that helps to adapt to fit special requirements.
CLO3	Take initiative in making the best use of the opportunities which he/ she gets during training period and prepare himself/ herself for the profession.
CLO4	Be well versed with the realm of architectural discipline ranging from generation of idea, preparation of drawings to the final execution of design on site.

Text / Reference Books: Training Manual

L/S	T	P	Total Credits	Total Hours
0	0	0	6	0

BUILDING STUDY REPORT

Credit Units: 6

Course Level: UG

Course Objectives: The purpose of this study is to enable the students to gain the kind and range of practical experience which will prepare them for their likely responsibilities, immediately after qualifying B. Arch course.

Prerequisites: Basic knowledge of Professional Skills & Software for report making.

Critical Appraisal of a building of National/ International importance -1

- Present a report choosing any building that has been designed/ executed by the company/ firm, she/ he is working for internship. This can be done through secondary research/ data collection.

The report should contain:

- Explanation/ Justification for the choice of the project.
- Fact file of the project- discussion on location, client profile, context (physical, cultural) and legal bindings.
- Remarkable features that make the building/ complex noteworthy.
- Trainee's own assessment and experience about the same.
- References used in preparation of the appraisal

Critical Appraisal of a building of national/International importance-2

- Present a report choosing any building that is present in the city/ town where she/ he is working for internship. This needs to be done with primary study and user experience study.

The report should contain:

- Explanation/ Justification for the choice of the project/ built structure.
- Fact file of the project- discussion on location, client profile, context (physical, cultural) and legal bindings.
- Remarkable features that make the building/ complex noteworthy/ award winning/ popular.
- User experience and the design comparison.
- Trainee's own assessment and experience about the same.
- References used in preparation of the appraisal

Course Learning Outcomes:

CLO1	Be aware of or sensitive to the existence of certain ideas, material, or phenomena and design trends
CLO2	Document data in the shape of pictures, working drawings, and detailed drawings
CLO3	Formulate and theorize the principles into practice of data collection and interpretation
CLO4	Be able to review the construction techniques and present the appraisal of the selected projects

Text / Reference Books:

Training Manual

L/S	T	P	Total Credits	Total Hours
0	0	0	2	0

ARCHITECTURAL DOCUMENTATION AND CURATION

Credit Units: 2

Course Level: UG

Course Objectives: Create an opportunity for the students to bring in the best of design and professional skills learnt during the internship. Explore the undervalued areas and experiment with creative skill sets. Learn the art of exhibiting and curating their own design works. Build a design exhibition as a communication bridge to create awareness among the different stakeholders.

Prerequisites: Basic knowledge of Professional Training.

Architectural Documentation
<ul style="list-style-type: none"> • Documenting an urban/ suburban/ rural area and exhibiting the potential of that area through cultural significance and place making • Collecting data in the form of sketches/ survey plans/ rastering images/ vectorizing drawings of selected areas • Recording observations as reports/ review papers/ proceedings of academic events like seminars etc./ vlogs/ blogs and discussion notes • Preparation of presentation drawings/ slides/ views/ walk-throughs/ models/ photographs etc.
Curating the Exhibition
<ul style="list-style-type: none"> • After completion of 18 weeks of practical training, the trainee is required to curate the exhibition of the efforts proposed or implemented for preservation and restoration with focus on conservation of localized styles, material segregation for beautification, artwork and activity generation.

EXPECTED OUTCOME:

CLO1	To bring professional confidence through their thought and creative works.
CLO2	To display skills in addressing and showcasing their expression of design.
CLO3	To apply creativity to enhance qualitative environment and liveability in any given setting
CLO4	To evaluate the experiences and peer group learning in diversified sectors

FIFTH YEAR

NINTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design - VIII and Pre-thesis	12	0	0	12	12
2	PC	Contemporary Architecture	2	0	0	2	2
3	BS and AE	Building Construction and Materials - VIII	4	0	0	4	4
4	PAECC	Construction Management	1	1	0	2	2
5	OE	Open Elective (Green Buildings/ Intelligent Buildings/ Vaastu Shastra)	1	0	2	2	3
6	PE	PE1 (Architectural Conservation/ Housing/ Vernacular Design and Construction Techniques)	1	0	2	2	3
7	PE	PE2 (Basic Accounting and Marketing Skills/ Road Safety and Civic Sense)	2	0	0	2	2
Total			23	1	4	26	28

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
12	0	0	12	12

ARCHITECTURAL DESIGN - VIII AND PRE-THESIS

Credit Units: 12

Course Level: UG

Course Objectives: To understand the principles and approach of designing buildings/ complexes/ public spaces in the context of urban design, environmental components, and urban services.

To understand the preparation and background research for Architectural Thesis.

Prerequisites: Basic knowledge of urban design in the making of quality-built environment. And the basic knowledge of architectural research.

Course Contents/syllabus:

Unit I: Urban Design Project (Study and Analysis)	48 Hours
<ul style="list-style-type: none">• Development / redevelopment of markets, plazas, city square and public areas• Projects involving architectural design and urban design-based solutions in urban areas	

<ul style="list-style-type: none"> • Project Background and Context – Historical context, Present conditions, Regulatory and policy context, Stakeholder needs and aspirations • Preparation of Maps, drawings etc. showing conditions and issues identified in the selected area/ stretch 	
Unit II: Detailed Urban Design Proposal	48 Hours
<ul style="list-style-type: none"> • Creating a proposal stating the project's vision, goals, objectives, and plan of action for stakeholders such as clients, governmental bodies, or investors. • Site Analysis and Planning • Design concept and Approach • Sustainability and Resilience Strategy • Implementation Plan – timeline and phasing, community engagement and participation, summary and conclusion • Final Presentation on Sheets and review by jury 	
Unit III: Pre-Thesis Research and Topic Selection	36 Hours
<ul style="list-style-type: none"> • Selection of Thesis Topic • Exploring topics related to architecture and the built environment • Identifying gaps in architectural research and potential interventions • Synopsis Writing and Proposal Development • Title and description of the topic • Justification for architectural intervention • Background study and related literature review • Defining scope, aim, objectives, case study and probable site identification and broad methodology 	
Unit IV: Case Studies and their Documentation	48 Hours
<ul style="list-style-type: none"> • Research Methods and Data Collection • Survey techniques, site visit and data collection of relevant live and literature case studies • Compilation of key findings and their impact on design development • Case Study Documentation • Comparative analysis and synthesis of findings • Presentation of the all the above stages to the jury panel 	

Course Learning Outcomes:

CLO1	Understand the architectural design process for Urban Level Projects
CLO2	Develop understanding of urban level issues and designing solutions, with emphasis on urban regulations and building bye-laws, feasibility, cost effectiveness and innovative design considerations
CLO3	Understand the context of thesis study
CLO4	Select and substantiate the title of thesis project proposal with valid data

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Bureau of Indian Standards (BIS)	Recommendations for Buildings and Facilities for the Physically Handicapped	New Delhi: Bureau of Indian Standards	1987	-	-
Bureau of Indian Standards (BIS)	The National Building Code of India, SP: 7.	New Delhi: Bureau of Indian Standards	2016	978-8170610991	2246
Charles Correa	Housing and Urbanization: Building Solutions for People and Cities	Thames and Hudson	2000	978-0500282106	144
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	0070685061	1024
Donald Watson	Time-Saver Standards for Urban Design	McGraw Hill Education	2017	978-1259002908	896
Ernst Neufert	Neuferts Architects Data	John Wiley and Sons	2000	978-8126517619	636
Francis D.K.Ching	Architecture Form, Space and Order	John Wiley and Sons,	2014	978-1118745083	464
John Ormsbee Simonds	Landscape Architecture: A Manual of Site Planning and Design	Mcgraw-Hill	Second, 1983	978-0070574489	384
Mitchell Thomashow and Anthony Cortese	The Nine Elements of a Sustainable Campus	The MIT Press	2016	978-0262529006	248
Peter Pearce	Structure in Nature is a Strategy for Design	The MIT Press	1980	978-0262660457	264
William Lidwell, Kritina Holden and Jill Butler	Universal Principles of Design	Rockport Publishers	2010	978-1592535873	272

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

CONTEMPORARY ARCHITECTURE

Credit Units: 2

Course Level: UG

Course Objectives: To develop an understanding of Era of Modernism and Contemporary Architecture.

Prerequisites: Basic knowledge of History of Architecture.

Course Contents/syllabus:

Unit I: 1925-1950 CE	8 Hours
<ul style="list-style-type: none"> • Rise of Modernism • Mies Van Der Rohe's Barcelona Pavilion and Farnsworth House • Buckminster Fuller: Geodesic Dome and 4D Dymaxion House • Corbusier's Palace of Soviets • Organic Architecture by F L wright Robie House, Taliesin East • Emergence of tall buildings: Raymond Hood's Rockfeller Centre, New York 	
Unit II: 1950-1975 CE	8 Hours
<ul style="list-style-type: none"> • Cities of Chandigarh and Capitol complex, Bhuvneshwar and Gandhinagar. • National Congress, Brasilia • Guggenheim Museum, Manhattan • Louis Kahn's Parliament of Bangladesh • Sydney Opera House by John Utzon 	
Unit III: 1975-2000 CE	8 Hours
<ul style="list-style-type: none"> • Ahmedabad after Corbusier: CEPT, Gandhi Ashram and Sangath • Kenzo Tange's Masterplan for City of Abuja, Nigeria • Post Modernism: Pompidou Centre, France • Phillip Johnson's AT and T building, New York • I M Pei's Pyramide Du Louvre, Paris 	
Unit IV: 2000-till date	6 Hours

<ul style="list-style-type: none"> • Globalization • Rise of Shanghai • San Tiago Calatrava's Milwaukee Art Museum, Wisconsin • Dubai Skyline • Concept of smart Cities: Barcelona 	
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Course Learning Outcomes:

CLO1	Understanding the essence of Modernism in Architectural.
CLO2	Integration of past and the present architecture.
CLO3	To learn the Current trends in contemporary architecture.
CLO4	To analyze the changes happening due to technology and styles in architecture.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Frampton, K	Modern Architecture-A Critical History	Thames and Hudson	2020	0500204446	736
Gossel, P. and Leuthauser, G	Architecture in the 20th Century	Taschen GmbH	Vol1 2005	3822841269	608
Gossel, P. and Leuthauser, G	Architecture in the 20th Century	Taschen GmbH	Vol2 2020	3836570904	600
Troman, R.	History of Architecture, From Classic to Contemporary	Parragon Inc	2010	1445408503	336
Joan Ockman	Architecture Culture: 1943-1968 (Readers in 20th Century Thought S.)	Rizzoli	1993	0847815226	464

L/S	T	P	Total Credits	Total Hours
4	0	0	4	4

BUILDING CONSTRUCTION AND MATERIALS - VIII

Credit Units: 4

Course Level: UG

Course Objectives: To introduce and familiarize the students with constituents/ manufacturing/ availability/ properties/ characteristics/ defects/ classifications and usage of advanced building materials.

To familiarize them with various construction and transportation equipment methods. To make students understand and appreciate the modern methods of building construction and their applicability.

Prerequisites: Knowledge of basic construction methods, elements and drawing.

Course Contents/syllabus:

Unit I: Miscellaneous Building Materials	12 Hours
<ul style="list-style-type: none"> • Translucent concrete, glass reinforced concrete, bendable concrete, foam concrete, cellular concrete, Ready Mix Concrete, Concrete Admixtures • Defects and repairs in concrete • Bamboo, introduction to rebar, torque steel etc. 	
Unit II: Long Span Structures	12 Hours
<ul style="list-style-type: none"> • Introduction to Long Span Structures. Structural Systems for Long Span: their application in buildings and associated issues. • Pre and post Tensioning. Segmental Construction. • Composite Construction. Pre-engineered Construction. • Space steel frame, hinged portal truss, air truss, other large span steel structures. 	
Unit III: Modular Coordination and Construction	12 Hours
<ul style="list-style-type: none"> • Advantages of planning and designing with dimensional coordination; assembly of components; planning and design modules. • Standardization in building design and their components. • Introduction to Mivan Construction planning and techniques for High-Rise Structures. 	
Unit IV: High Rise Buildings	12 Hours

<ul style="list-style-type: none"> • Introduction. Evolution of High-Rise Buildings. Structural Systems and their integration with architectural designs. Service Installations in High-rise buildings. Construction related issues. 	
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Site Visits/ Case Studies:12 sessions

- To introduce the students to advance building materials and modern techniques and their applications in building construction.
- To cultivate personal observation and self-learning in the students, site visits should be conducted so as to cover the given syllabus.
- Students will observe measure, sketch and annotate what they see at site and submit a site visit report to the teachers concerned for evaluation. This award shall form part and parcel of the sessional work for internal assessment.

Course Learning Outcomes:

CLO1	Know about the current trends in concrete technology
CLO2	Comprehend the types of structural systems available for the construction of large span structures and high-rise buildings and their integration with architectural designs
CLO3	Summarize the application of modularization and mass production in construction industry
CLO4	Evaluate the specific requirements/ implications on design and construction process associated with each of these technologies

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Don A. Watson	Construction Materials and Processes	McGraw Hill Co	1972	978-0070684768	512
Mark Lawson	Design in Modular Construction	CRC Press	2014	978-0367865351	280
Mehmet Halis Gunel	Tall Buildings Structural Systems and Aerodynamic Form	Routledge	2014	ASIN: B00LC9DDMK	214
R Barry	Building Construction	Wiley-Blackwell	1999	9780632052615	288
R. Chudley	The Construction of Building (Vol 1)	Longman Scientific and Technical.	1999	978-0582413955	192
Ryan E. Smith	Prefab Architecture: A	Wiley	2011	978-0470275610	384

	guide to Modular design and construction				
S.P. Bindra and S.P. Arora	The Textbook of Building Construction	Dhanpat Rai and Co.	2010	978-8189928803	-
Terri Meyer Boake	Diagrid Structures	Birkhauser	2014	978-3038215646	185
Ulrich Knaack	Prefabricated Systems: Principles of Construction	Birkhauser	2012	978-3764387471	133

L/S	T	P	Total Credits	Total Hours
1	1	0	2	2

CONSTRUCTION MANAGEMENT

Credit Units: 2

Course Level: UG

Course Objectives: To make student understand and appreciate the role and importance of management in building construction

Prerequisites: Planning and Mathematics.

Course Contents/syllabus:

Unit I: Introduction to Construction Management	8 Hours
<ul style="list-style-type: none"> • Aim, Objectives and Functions of construction management. • Role of Architect and Construction/ Project manager in Construction Management. • Resources of construction industry. • Construction stages of project. 	
Unit II: CPM and PERT	8 Hours
<ul style="list-style-type: none"> • Differences between PERT and CPM, Basic concepts, Procedure to draw a network, Time estimates, Time analysis of networks. • Events slacks and activity floats, critical path, Crashing project completion time, Time scale networks, Probability of completion of a project, Resource allocation. 	
Unit III: Contracts and Corresponding Acts	8 Hours
<ul style="list-style-type: none"> • Award of contract, terminology • The Indian Contract Act, 1963 • The Arbitration and Conciliation Act, 1996 • Service Tax Act, 2004. 	
Unit IV: Site Work	6 Hours
<ul style="list-style-type: none"> • Issue of Work Order, Commencement of Work, Discharge of Obligation by Owner and Contractor, Site Organization, Supervision of Works, Duties of Architect or Engineer, Supervising the Work, what a Field Architect/ Site Engineer should remember • Site Meetings, Essential Site Records, Mode of Measurements, Scrutiny of Bills, Breach of Contract, Final Completion of Work, 	

Common Causes of Accidents, Safety Management, Cost Effectiveness and Control	
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Course Learning Outcomes:

CLO1	Understand the need for management in architectural projects
CLO2	Comprehend methods to integrate various resources, manpower, finances to ensure timely completion of project
CLO3	Familiarize with types of contracts and Acts as per Indian legislation
CLO4	Be able to monitor construction schedule and evaluate the performance of collaborating teams to deliver results

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Paul Netscher	Construction Management: From Project Concept to Completion	Panet Publications	2014	978-1975934347	372
Krishan Kumar Chitkara	Construction Project Management	McGraw-Hill	2019	978-9353166274	768
Kumar Neeraj Jha	Construction Project management, Theory and Practice	Pearson Education India	2015	978-9332542013	904
Krishnamurthy	Construction and Project Management	CBS Publishers and Distributors	2018	978-9386217790	314
B.C. Punmia	Project Planning and Control with PERT and CPM	Laxmi Publications Private Limited	2016	978-8131806982	260

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

OE – GREEN BUILDINGS**Credit Units: 2****Course Level: UG****Course Objectives:** To introduce students to various aspects of energy efficiency in building design**Prerequisites:** Basic design skills along with drafting and presentation skills, knowledge of design principles**Course Contents/syllabus:**

Unit I: Introduction to Green Building Design	12 Hours
<ul style="list-style-type: none"> • Introduction to energy conscious architecture; • Definitions related to energy and comfort in the context of Architectural design. • Typical features of green buildings, benefits of green buildings towards sustainable development. • Energy conservation in buildings, Design solutions and use of passive design tools 	
Unit II: Principles of Energy Conservation	12 Hours
<ul style="list-style-type: none"> • Basic concepts, parameters and principles of energy conservation; patterns and efficiency of energy use in architecture; technologies, methods of energy conservation. • Methods to reduce operational energy: Energy efficient building envelopes, efficient lighting technologies, energy efficient appliances for heating and air-conditioning systems in buildings, zero ozone depleting potential (ODP) materials, wind and solar energy harvesting. • Energy metering and monitoring, concept of net zero buildings. • Applicability of energy conservation to 5 elements of nature 	
Unit III: Rating systems	12 Hours

<ul style="list-style-type: none"> • Introduction of green Rating systems - LEED, GRIHA, ECBC 2007. • Need and use of green rating systems. • ECBC Code Provisions - Openable Window-to-Floor Area Ratio (WFRop), Visible Light Transmittance (VLT), Thermal Transmittance of Roof (Uroof), Residential envelope transmittance value (RETV), Thermal transmittance of building envelope (except roof) for cold climate (Uenvelope,cold). • Overview of the criteria as per these rating systems. • Application procedures for project rating and LEED certified qualification. 	
Unit IV: Indoor Environmental Quality	9 Hours
<ul style="list-style-type: none"> • Indoor Environmental Quality for Occupant Comfort and Wellbeing. • Daylighting, air ventilation, exhaust systems, low VOC paints, materials and adhesives, building acoustics. 	

Course Learning Outcomes:

CLO1	Understand the significance of green design practices for buildings
CLO2	Apply sustainable design processes and materials from conception to finalization of design
CLO3	Identify Rating mechanism for minimizing carbon footprint
CLO4	Evaluate the environmental impact of materials and their ratings on building lifecycle.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Linda Reeder	Guide to Green Building Rating Systems: Understanding LEED	Green Globes	2010	9780470401941	222
Jerry Yudelson,	The Green Building Revolution	Island Press	2007	9781597261784	272
Krishan A.	Climate Responsive Architecture	McGraw Hill Education	2017	978-0074632185	4089
K. Nayak and J.A. Prajapati	Handbook of Energy Conscious Buildings	Indian Institute of Technology, Bombay and Solar Energy Centre, Ministry of Non-conventional Energy Sources, Government of India.	2016	-	80
Mili Majumdar	Energy Efficient Buildings in India	TERI-The Energy and Resources Institute,	2009	978-8185419824	250

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

OE - INTELLIGENT BUILDING**Credit Units: 2****Course Level: UG**

Course Objectives: To promote understanding of advance building systems, advance building materials, building technologies. To enable the students to demonstrate design ideologies in the field of interior design.

Prerequisites: Basic knowledge of interior spaces

Course Contents/syllabus:

Unit I: Introduction to Intelligent Building systems	12 Hours
<ul style="list-style-type: none"> • Introduction to Intelligent building systems. • History and emergence i.e. need and necessity. • Concept of color, significance of color in the interiors and exteriors and Psychological aspects of Colors 	
Unit II: Building management system (BMS);	12 Hours
<ul style="list-style-type: none"> • Types of Building Control Systems for various building Services • Safety-entry control; CCTV; Fire and smoke detection, alarm; Thermal and working environment - temperature, humidity, air movement, light level; Occupancy sensors; Simulation techniques. 	
Unit III: Home Automation	12 Hours
<ul style="list-style-type: none"> • Working principles of building automation systems, office automation systems, and communication systems 	
Unit IV: Preparing Repair Proposal	9 Hours
<ul style="list-style-type: none"> • Basic knowledge of the construction and installation of the structured cabling system enabling integrated system connections. 	

Course Learning Outcomes:

CL01	Understand the concept of Intelligent Buildings
CL02	Apply the skills of Building Management Systems to Interiors

CL03	Analyze Smart tools and automation methods for designed spaces
CL04	Evaluate Cabling systems for in-situ projects.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No.	Pages
Derek Clements-Croome	Intelligent Buildings: An Introduction	Routledge	2020	9781135008369	232
Derek Clements-Croome	Intelligent Buildings: Design, Management and Operation	ICE Publishing	2013	9780727757340	
Abraham Warszawski	Industrialized and Automated Building Systems: A Managerial Approach	Routledge		9781135818883	484

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

OE - VAASTU SHASTRA**Credit Units: 2****Course Level: UG****Course Objectives:** To Introduce students to Vaastu Shastra**Prerequisites:** Basic knowledge of Design**Course Contents/syllabus:**

Unit I: Introduction to Vaastu Shastra	12 Hours
<ul style="list-style-type: none"> • Introduction to Vaastu Purusha Mandala • Origin of Vaastu Shastra • Purpose of Vaastu System • Philosophy of Vaastu Shastra • Scope of Vaastu Shastra 	
Unit II: Site selection, shape of plots, orientation aspects	12 Hours
<ul style="list-style-type: none"> • Recommendation on sites, plots, location layouts. • Configuration of various areas. • Inner and outer spaces within and outside the building etc. 	
Unit III: Vaastu Principles and Modern Architecture	12 Hours
<ul style="list-style-type: none"> • Vaastu principles and its effect. • Art of building as per Vaastu • Application of Vaastu, role of various mandalas and Vaastu Purush Mandla in design of Bed Room, Drawing Room, Pooja room, Kitchen and cooking spaces. 	
Unit IV: Case studies and practical remedies for houses and commercial building as per Vaastu etc.	9 Hours
<ul style="list-style-type: none"> • Technical Aspects -Use of Compass Identifying Vaastu Doshas and Remedies, Points to be checked for the identification of Vaastu dosha. Vaastu Dosha And Remedy Related to Extensions and curtailments, Door Planning, Water reservoirs. Distribution of rooms and sitting-sleeping postures 	

Course Learning Outcomes:

CL01	Acquainting with the essence of the Vaastu Purusha.
CL02	Identifying design elements with Vaastu rules
CL03	Relating structural components and services to the Vaastu Shastra
CL04	Evolving Design solutions in compliance with the principles of Vaastu and rectifying Dosha if any

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Bhojraj Dwivedi	Sampuran Vaastu Shastra	Diamond Books	1998	978-8171821952	224
Pandit Y.N Maggirwar	Vaastu Simplified	Sri Sri Publications Trust	2014	978-9382146759	52

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

PE-1 - ARCHITECTURAL CONSERVATION**Credit Units: 2****Course Level: UG**

Course Objectives: To make students understand the role and importance of heritage/architecture conservation. To develop understanding about the importance of historical and heritage buildings.

Prerequisites: Basic knowledge about history of architecture.

Course Contents/syllabus:

Unit I: Introduction to Architectural Conservation	12 Hours
<ul style="list-style-type: none"> • Definitions of conservation, preservation, restoration, reconstruction and adaptation. • Objectives. Principles and concepts of conservation and its application • Role of architect in conservation program. • Identification and study of problems, issues involved and solutions available in promoting conservation, preservation and management of heritage/architecture conservation 	
Unit II: Degrees of Intervention in Historic Buildings and Monuments	12 Hours
<ul style="list-style-type: none"> • Prevention of deterioration • Preservation of the existing state • Consolidation of the fabric • Restoration • Rehabilitation • Reproduction • Reconstruction 	
Unit III: Decay and Remedies	12 Hours
<ul style="list-style-type: none"> • Introduction to Decay in Cultural property, Materials and Structural failures • Internal and External environment of historic buildings. • Climatic causes of decay. • Botanical, biological and microbiological causes of decay. 	

<ul style="list-style-type: none"> • Insects and other pests as causes of decay. • Man-made causes of decay 	
Unit IV: Regional Conservation Policy Framework	9 Hours
<ul style="list-style-type: none"> • Study of existing policy framework available at national/state level for heritage/architecture conservation. • Case studies of heritage/architecture conservation with specific reference to the state of Punjab. • Designing in Historic Context-Concepts of:-Imitation, Inspiration, Innovation, Influence, Evolution, New Design 	

Course Learning Outcomes:

CLO1	Understand the philosophy and science of architectural conservation
CLO2	Learn the appropriate methodologies and tools for recording, documentation and inventorying of heritage structures,
CLO3	Critically evaluate and make assessment of heritage components
CLO4	Demonstrate respect for built and cultural heritage and design in a heritage context

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
D. Dayalan	Conservation and Management of Cultural Heritage	Aryan Books International	2019	978-8173056369	230
Aylin Orbasli	Architectural Conservation: Principles and Practice	Wiley-Blackwell	2007	978-0632040254	240
Jukka Jokilehto	A History of Architectural Conservation	Routledge	2017	978-1138639997	494
Peter Bille Larsen, William Logan	World Heritage and Sustainable Development: New Directions in World Heritage Management	Routledge	2018	978-1138091405	310
Patrick Ngulube	Handbook of Research on Heritage Management and Preservation	IGI Global	2018	978-1522531371	400
Jigna Desai	Equity in Heritage Conservation: The Case of Ahmedabad, India	Routledge	2020	978-0367663018	212
Norman Weiss, Kyle Normandin, Deborah Slaton	Cleaning Techniques in Conservation Practice: A Special Issue of the Journal of Architectural Conservation	Routledge	2005	978-1873394748	154

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

PE-1 - HOUSING**Credit Units: 2****Course Level: UG****Course Objectives:** To understand the fundamentals of Housing Policy and Design**Prerequisites:** Basic design skills along with drafting, presentation skills and understanding of building codes**Course Contents/syllabus:**

Unit I: Basics of Housing Design	12 Hours
<ul style="list-style-type: none"> • Definition, terminologies and importance • Ecological and environmental aspects of human habitat. • Concept of Neighborhood and community. • Hierarchy of human needs and Housing typologies • Urbanization and housing statistics. • Factors of housing demand and supply. • Housing delivery mechanism • Type of dwelling structures- detached/semidetached houses; Flats and multistoried classification according to the type of access-corridor, gallery, direct. Combination of different access types. 	
Unit II: Housing policies and programme	12 Hours
<ul style="list-style-type: none"> • Housing and its relationship with neighborhood and city plan. • Zoning regulation, its impact on quality of life of neighborhood. • Density; definitions, types of density, factors, FAR, FSI, etc. • Development norms and standards for services, amenities and facilities • Sub- division techniques. 	
Unit III: Factors and principles of site planning	12 Hours
<ul style="list-style-type: none"> • Housing Design and site planning. Analysis for physical, climatic, legal, financial, socio-cultural aspects. • Principles of Neighborhood design. • Housing case studies (Successful real estate projects). • Design of Neighborhood (concept and calculations) 	

<ul style="list-style-type: none"> • Selection of site for the housing. Considerations of physical characteristics of site and its location factors; Community and neighborhood factors 	
Unit IV: Housing on Contours	9 Hours
<ul style="list-style-type: none"> • Importance of orientation and topography in housing design. • Topography: problem inherent in steeply sloping site economic and aesthetic implication of the building along and against the contours, silhouette problems on a sloping site 	

Course Learning Outcomes:

CLO1	Identify the basic elements of housing, neighborhood, community, slums and real estate market.
CLO2	Gain knowledge of inter-relationships between hierarchy of human needs and housing typologies
CLO3	Apply zoning regulations and sub-division techniques and computation for density, FAR, built-up area, MOS, as per development norms.
CLO4	Critical appraisal of existing housing scheme in terms of quality of life through case study

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
A.K. Jain	Housing for All	Khanna Publishing House	2019	978-9386173560	320
Ministry of Housing and Urban Alleviation	National Housing and Habitat Policy 2007	Government of India	2007	-	42
Nico Larco, Kristin Kelsey, Amanda Stocker West	Site Design for Multifamily Housing: Creating Livable, Connected Neighborhoods	Island Press	2014	978-1610915472	168
David Levitt, Jo McCafferty	The Housing Design Handbook: A Guide to Good Practice	Routledge	2018	978-1138568952	354
Sandra Hofmeister	Affordable Housing: Cost-efficient Models for the Future	Edition Detail	2018	978-3955534486	192
David J. Erickson	The Housing Policy Revolution: Networks and Neighborhoods	Urban Institute Press, U.S.	2009	978-0877667605	264
Avi Friedman	Multifamily Housing: Creating a Community	Images Publishing Group Pty Ltd	2017	978-1864706697	240

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

PE-1 - VERNACULAR DESIGN AND CONSTRUCTION TECHNIQUES

Credit Units: 2

Course Level: UG

Course Objectives: Introduce students to the principles of vernacular architecture and its cultural significance. Explore traditional construction materials and techniques for sustainable design. Analyse climate-responsive strategies in vernacular buildings across different regions. Encourage the integration of indigenous knowledge into contemporary architectural practice. Develop an appreciation for cost-effective and environmentally sustainable construction methods.

Prerequisites: Basic understanding of Architectural History and Building Materials. Fundamentals of Climatic Design and Sustainability. Introductory knowledge of Construction Techniques

Course Contents/syllabus:

Unit I: Introduction to Vernacular Architecture	12 Hours
<ul style="list-style-type: none"> • Definition, Principles, and Importance in Sustainable Design • Relationship between Climate, Culture, and Built Form • Regional Vernacular Styles in India and Around the World 	
Unit II: Traditional Materials and Construction Techniques	12 Hours
<ul style="list-style-type: none"> • Locally Available Materials: Mud, Bamboo, Thatch, Stone, Timber, Lime • Indigenous Building Systems: Wattle and Daub, Cob, Rammed Earth, Adobe, Stone Masonry • Structural Techniques: Vaults, Domes, and Load-Bearing Walls 	
Unit III: Climate-Responsive and Sustainable Practices	12 Hours
<ul style="list-style-type: none"> • Passive Design Strategies in Vernacular Architecture • Thermal Comfort, Natural Ventilation, and Energy Efficiency • Case Studies of Sustainable Vernacular Homes 	
Unit IV: Contemporary Applications and Revival of Vernacular Methods	9 Hours
<ul style="list-style-type: none"> • Integrating Vernacular Techniques in Modern Architecture • Challenges and Opportunities in Reviving Traditional Practices • Design Studio: Creating a Vernacular-Inspired Architectural Prototype 	

Course Learning Outcomes:

CLO1	Understand the principles of vernacular architecture, climate-responsive design, and cultural influences.
CLO2	Analyze traditional materials, construction techniques, and sustainable building practices.
CLO3	Apply regional design strategies to modern architecture while ensuring environmental harmony.
CLO4	Design context-sensitive structures incorporating local materials, passive design, and indigenous knowledge.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Paul Oliver	Vernacular Architecture: A World Perspective	Cambridge University Press	1st Ed./2007	978-0521132285	480
Ronald Rael	Earth Architecture	Princeton Architectural Press	1st Ed./2009	978-1568987675	208
Laurie Baker	The Other Side of Laurie Baker	COSTFORD	1st Ed./1991	978-9384082107	250
Hassan Fathy	Architecture for the Poor: An Experiment in Rural Egypt	University of Chicago Press	1st Ed./1973	978-0226239163	366
V. S. Pramar	A Study of Indian Vernacular Architecture	IGNCA and Mapin Publishing	1st Ed./1989	978-8185822011	280

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

PE-2 - BASIC ACCOUNTING AND MARKETING SKILLS

Credit Units: 2

Course Level: UG

Course Objectives: An overview of marketing, distribution and promotion of building materials and equipment's in the construction industry as a backdrop to consultancy services. The intention is to acquaint the students with the skills required to market the profession and themselves professionally within the ethical codes of conduct.

Prerequisites: Basic knowledge of Marketing and Accounts.

Course Contents/syllabus:

Unit I: Introduction to Accounting	8 Hours
<ul style="list-style-type: none"> • Introduction to Accounting • Utility of accounting, Types of accounting, financial accounting, Management accounting, Cost accounting, Distinction between financial and management accounting • Architect's office practice, filling, recording, accounting and partnership. Basic Account Keeping and preparation of Balance Sheet 	
Unit II: Basics of Marketing	8 Hours
<ul style="list-style-type: none"> • Introduction to marketing, Significance of marketing as a business function, Marketing concepts, sales vs marketing • Matrices for promotion Consumer behavior, Customer Relationship Management • Concept and importance of market segmentation targeting and positioning w.r.t. Project management • Importance and factors affecting price 	
Unit III: Sales Management	8 Hours
<ul style="list-style-type: none"> • Sales management w.r.t. professional service providers like Architects and Interior Designers – nature scope and importance • Importance of Office set up.'SPIN' model 	
Unit IV: Marketing Communication	6 Hours

<ul style="list-style-type: none"> • Marketing communication – advertising – merits and demerits, direct marketing, publicity, sales promotion, face to face selling. • Introduction and importance of integrated marketing communication. Emerging trends in marketing communication. • Innovation in marketing communication. 	
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Course Learning Outcomes:

CLO1	Gain the Basic understanding of Accounts in relevance to Architecture.
CLO2	Understand the importance of Marketing in practice of Architecture.
CLO3	Apply the knowledge of Accounts, Sales and marketing.
CLO4	Interpret the skills and enhance the operations of the profession.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
J.R. Monga (Author), Raj Bahadur	Basics of Accounting	Scholar Tech Press	2019	9387273458	100
J.R. Monga (Author), Raj Bahadur	Basic Financial Accounting	Scholar Tech Press	2021	B09M8MLC6H	882
Les Giblin	Core Selling Skills: Because Selling Is All About People	Embassy Books	2015	9383359048	96
Philip Kotler	Marketing Management marketing cases in the Indian context	Pearson Education	2017	9339222725	899

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

PE-2 - ROAD SAFETY AND CIVIC SENSE**Credit Units: 2****Course Level: UG****Course Objectives:** The program provides an exposure to learn road safety and civic sense.**Prerequisites:** Basic knowledge of Professional regulations.**Course Contents/syllabus:**

Unit I: Introduction to Road Safety	08 Hours
<ul style="list-style-type: none"> • Introduction to Road Safety Engineering: Road safety scenario, Road safety issues. • Characteristics of road crashes, Factors contributing to road crashes. • Crash data collection, standards and design of databases. 	
Unit II: Geospatial procedures	08 Hours
<ul style="list-style-type: none"> • Mapping, prioritization and allocation: Geospatial procedures and blackspots/hotspots/clusters identification, Performance metrics, Ranking. • Problem solving session with examples on geocoding, crash concentration maps, computation of performance measures and ranking 	
Unit III: Crash Investigation and analysis	08 Hours
<ul style="list-style-type: none"> • Human/vehicular factors relating to crashes, Steps of crash investigation, Diagnosing the crash problem, Solutions/crash costs/economic appraisal. • Before-after Evaluations - Treatment and control site selection, Observational field studies, State of-the-art method 	
Unit IV: Developing Civic Sense	06 Hours
<ul style="list-style-type: none"> • Identifying the Roles of Government and Public Sector, community, media, education sector and health professionals; checks and measures adopted to instill civic sense in the masses 	

Course Learning Outcomes:

CLO1	Identify factors contributing to road crashes.
CLO2	Assert the procedure for evaluation of planned/existing roadway facilities
CLO3	Develop mechanism to train the theoretical and practical concepts o road safety to the masses
CLO4	Prioritize manage and derive preventive countermeasures and before-after evaluation

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
R Srinivasa Kumar	Introduction to Traffic Engineering	The Orient Blackswan	2018	9386235471	832
Dr. L.R. Kadiyali	Traffic Engineering and Transport Planning	Khanna Publishers	1999	817409220X	860
Government of India	Road Safety Signage and Signs	Ministry of Road Transport and Highways	2009	-	-
MORTandH	MORTandH Pocketbook for highway engineers	MortandH	2019, 3rd	-	-

FIFTH YEAR

TENTH SEMESTER

S.No.	Broad Category of Course	Course Title	L/S	T	P	Credits	Hours
1	PC	Architectural Design Thesis	20	0	0	20	20
2	PC	Architectural Research Methods	1	0	2	2	3
3	PAECC	Professional Practice	2	0	0	2	2
4	PE	PE3 (Architectural Journalism/ Disaster Management)	1	0	2	2	3
Total			24	0	4	26	28

Annexure 'CD-01'

L/S	T	P	Total Credits	Total Hours
20	0	0	20	20

ARCHITECTURAL DESIGN THESIS

Credit Units: 20

Course Level: UG

Course Objectives: To prepare student to independently handle and present all aspects of an architectural design, from its evolution to final solution in totality.

To prepare a detailed design and research report – The Thesis Report.

To demonstrate the students' capability of synthesizing architecture, engineering systems, social sciences and humanities through a capstone project which showcases creative and critical thinking abilities and skills developed through the program.

Prerequisites: Basic knowledge of Architectural Research and Report writing.

Course Contents/syllabus:

A. The thesis project will comprise of the following:

- An illustrated report, which will include the validity and scope of the chosen project, methodology, prototype studies, site analysis, client's and architect's brief, delineation of programme and design criteria.
- A fully worked-out design proposal including consideration of site planning, structures, services, and any other aspects/ specific to the project.

B. Stages of Work:

Unit I: Site Analysis followed by Evolution of Design Concept
<ul style="list-style-type: none"> • Site Selection and Analysis: <ul style="list-style-type: none"> • Site selection criteria, environmental impact, and climatic analysis • Legal constraints and bye-law considerations • Concept Development and Initial Design Studies • Preliminary 2D and 3D design concepts • Massing models, zoning layouts, and functional organization • Presentation of the Site Analysis and Design Concept to the Jury
Unit II: Report
<ul style="list-style-type: none"> • A report on Program Formulation comprising all analytical aspects of the project including the synopsis, library study, site analysis, minimum 3 prototype studies /internet Studies and their inferences, comparison and analysis, methodology and framing the requirements. The stage includes design discussions with the studio team and experts.
Unit III: Preliminary Submission
<ul style="list-style-type: none"> • Design Concept, Design development Stages mentioning zoning, areas with model, pre-liminary design stage discussions. • The stage includes design discussions with the experts. • EVOLUTION OF DESIGN: Hybrid Mode of Presentation (Hand Drafted+ AutoCAD Printouts), Illustrating structural Grid, Site Analysis Concept, Conceptual 3D views and Thermocole Model. • Scale: SITE (1:200), PLANS (1:50/ 1:100), for projects up to 5 Acres of plot Area. • SITE (1:500), PLANS (1:100), for projects more than 5 Acres of plot Area.
Unit IV: Final Submission and Model
<ul style="list-style-type: none"> • Final Submission, design improvements, Detailing of Architectural Design with forms and model. A final compiled Thesis report with final design viva-voce including final presentation and final model with 3D- views • Plot size for drawings: A1 or A0. • Scale: SITE (1:200), PLANS (1:50/ 1:100), for projects up to 5 Acres of plot Area. • SITE (1:500), PLANS (1:100), for projects more than 5 Acres of plot Area.

All 4 stages are on the pattern of continuous evaluation by the external jury.

- NOTE: Students will submit three copies of the final report on a standard format prescribed in the thesis programme issued every year by the Thesis Coordinator.

- The report must also include A-4/A-3 size copies of all final drawings and at least 5-6 photographs of the final model.
- Submission will be made one week before the date of examination.
- All buildings should have accessibility to the physically challenged persons.

Teaching and Evaluation System:

- The thesis studio will be conducted under the overall coordination of the Thesis Coordinator. In addition, two members of the Visiting Faculty would also be associated throughout the duration of the studio. Each student will be assigned a Thesis Guide (from amongst the faculty) who will supervise the progress of the student's work on a regular basis.
- Approval of the thesis project/ topic will be done by the Thesis Coordinator and the concerned Thesis Guide.

CoA guidelines:

2. **ARCHITECTURAL DESIGN THESIS – (1)** The Architectural Design Thesis shall be prepared under the guidance of a core Faculty member.
- (2) The University or Institution shall conduct the internal evaluation at stages for the Architectural Design Thesis with the guide as a co-assessor.
- (3) A jury comprising of an internal and external examiner and the guide shall conduct the final examination (Viva-voice) of the Architectural Design Thesis. External Examiners shall have minimum 10 years' experience.

Course Learning Outcomes:

CLO1	Understand design research methodology and define the scope of the thesis project and prepare design brief.
CLO2	Develop the concept in to a workable design and prepare architectural drawings (site plan, floor plans, sections and elevations).
CLO3	Prepare study model and detailed model along with 3d rendered views.
CLO4	Document the Design Project into a Systematic Technical Thesis Report.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Architect Professor Indranil Sen	11 Steps to Architectural Thesis	Notion Press	1st Edition 2018	978-1684661657	160
Donald Watson, Michael Crosbie, John Clender	Time Saver Standard for Architectural Design Data	McGraw-Hill Education	1997	978-0070685061	1024
Francis D.K.Ching	Architecture Form, Space and Order	John Wiley and Sons,	2014	978-1118745083	464

V.S. Pramar	Design Fundamentals in Architecture	Somaiya Publications Pvt.Ltd., New Delhi	1997.	978-8170391709	270
Ernst Neufert	Neuferts Architects Data	John Wiley and Sons	2000	978-8126517619	636
Broadbent, G.	Design in Architecture - Architecture and Human Science	John Wiley and Sons. New York	1973	978-471105831	600
Roger, K. L.	Architect? A Candid Guide to the Profession	Cambridge: The MIT Press	1998	978-0262621215	304

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

ARCHITECTURAL RESEARCH METHODS

Credit Units: 2

Course Level: UG

Course Objectives: To enable the student to analyze and evaluate architectural projects etc. and also understand architectural research with special emphasis on India.

Prerequisites: Basic knowledge of Architectural Research and Writing.

Course Contents/syllabus:

Unit I: Architectural Research	12 Hours
<ul style="list-style-type: none"> An introduction to Architectural Research in general and in profession, its purpose and scope. Research methods, evaluation of results and its application. Defining the Research question, identifying the research methodology. 	
Unit II: Review Writing	12 Hours
<ul style="list-style-type: none"> Building literature review, Cross-disciplinary review, Fieldwork, Interviews, sorting and analyzing data. Research Design, Techniques of preparing a project report and review writing, their application to architectural publications. 	
Unit III: Formal and Functional Analysis	12 Hours
<ul style="list-style-type: none"> Architectural History, Experience of space, Drawings, Diagrams and Maps, Types of Analysis, Peer reviewing and Editing, Submission of Final Proposals/ Papers/ Articles. Ethical issues related to publishing, Plagiarism, Importance of Referencing, Different styles of referencing. 	
Unit IV: Architectural Evaluation	9 Hours
<ul style="list-style-type: none"> An introduction to architectural evaluation in general and definition, purpose, scope and its applications to Architecture, fine arts literature etc. Value of appraisal / evaluation reports and reviews in the field of architecture fine-arts, literature, their scope, and merits. 	

<ul style="list-style-type: none"> Techniques of analysis and evaluation employed in buildings, projects competitions etc. methods of appraisal / evaluation of building complexes and exhibitions 	
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Course Learning Outcomes:

CLO1	Understand the Introduction to research process and research methodology
CLO2	Apply the techniques to present reports on architectural data/ documents/ events.
CLO3	Analyze methods to review current projects in the profession and prevent cases of plagiarism
CLO4	Evaluate tools to research on performance of built and unbuilt architectural projects.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Groat L.	Architectural Research Methods	Wiley India Exclusive (Others)	2018	8126571942	200
Elzbieta Danuta Niezabitowska	Research Methods and Techniques in Architecture	Wiley India Exclusive (Others)	2018	9781138055988	350
Sanoff, H.	Methods of Architectural Programming	Dowden Hutchinson and Ross Publishing Inc. Vol.29, Community Development Series	2018	9780367023669	198
Ajla Akšamija	Research Methods for the Architectural Profession	Routledge	2021	0367433966	214

L/S	T	P	Total Credits	Total Hours
2	0	0	2	2

PROFESSIONAL PRACTICE

Credit Units: 2

Course Level: UG

Course Objectives: The program provides a tremendous opportunity for students to understand and familiar with different aspects of Architectural Practice and Professional Responsibilities.

Prerequisites: Basic knowledge of Professional regulations.

Course Contents/syllabus:

Unit I: Architectural Acts and Regulations	8 Hours
<ul style="list-style-type: none"> Architects – Role, Functions, Social Obligations, Profession Activities, Responsibilities etc. Indian Architects Act 1972 – Scope, Objective, Role and Importance in managing the profession and professionals. Council of Architecture – Constitution, Role and Function, Registration of Architects etc. Indian Institute of Architects – History, Objectives, Role and Function in promoting Architectural profession and education. 	
Unit II: Architectural Codes and Profession	8 Hours
<ul style="list-style-type: none"> Architectural Practice – Type of Practices, Setting office, Office Organization, Management, Income Tax, Service Tax etc. Architectural Competition – Importance, Type, Procedure, Guidelines framed by Council of Architectural to conduct competition, including Role of Board of Assessors, Professional Adviser and Technical Advisers. Code of Professional conduct Conditions Governing the Appointment of Architects, Scale of Professional charges, Execution of work and payment of fee. 	
Unit III: Architectural Duties, Contract and Tenders	8 Hours
<ul style="list-style-type: none"> Duties, Responsibilities and Liabilities of Client, Architect, Contractor, and their mutual relationship. Tenders- Type, Process, Scrutiny and Selection of Contractor, Pre-Qualification and Registration of Contractor. 	

<ul style="list-style-type: none"> • Concept of Contract. 	
Unit IV: Copy right, Arbitration and Valuation	6 Hours
<ul style="list-style-type: none"> • Copy Right Act as Applicable to Architectural work. • Complaints – Procedure for lodging complaints, and their Resolution based on Indian Architects Act 1972 • Valuation - Purpose, Objective, Types and Method of valuation. • Arbitration and Reconciliation Act. 	

Course Learning Outcomes:

CLO1	Understand the Architectural Codes and Regulation to Practice.
CLO2	Learn the practices types, competition processes, appointment of Architects.
CLO3	Apply the knowledge to frame tender documents and contracts between participating agencies like architects, contractors, clients etc.
CLO4	Evaluate the methods of Copyrights, arbitration, and valuation in building projects.

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
M Chakraborti	Estimating, Costing, Specification and Valuation in Civil Engineering	Chakraborti	2006	818530436X	856
Dr Roshan H Namavati	Professional Practice: With Elements of Estimating, Valuation, Contract and Arbitration	Lakhani Book Depot	2016	9385492667	545
Philip King	Professional Practice Management	Law Book Co of Australasia	1995	0455213364	300
Hedley Smyth	Managing the Professional Practice: In the Built Environment	Blackwell Publishing Ltd	2011	9781405199759	200

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

PE-3 - ARCHITECTURAL JOURNALISM**Credit Units: 2****Course Level: UG****Course Objectives:** To develop techniques of observing, recording, reporting and analyzing architecture for the purpose of publication.**Prerequisites:** Reading, writing and analytical skills.**Course Contents/syllabus:**

Unit I: Introduction to Architectural Journalism	12 Hours
<ul style="list-style-type: none"> Architectural journalism, Role of media in profession of Architecture. Journalism and its types. News, Values, Responsibility of Reporter. 	
Unit II: Writing and Documentation Skills	12 Hours
<ul style="list-style-type: none"> Analyzing data to find out trends and new angles Presenting data for media audience. Understanding the Audience, gathering Intelligence through Research Principles of writing: Authorial Voice and Structure of material. Preparing press note, Photo-series and Skills of Photojournalism, writing captions. 	
Unit III: Preparing Story Board and Layouts	12 Hours
<ul style="list-style-type: none"> Computer assisted reporting: Use of search engines and web (twitter etc.) Blog writing and managing a blog. Techniques of writing features, News, Articles, Profiles of personalities Interviews, Advertisements. Editorials: Structure of Editorials, Editorial Board Writing letter to editor, Columns Middles and Editorial cartoons. 	
Unit IV: Reporting and Ethics	9 Hours

<ul style="list-style-type: none"> • Reviewing Art and Architecture Festivals, Reporting Live Events, Seminars, Conferences, Disasters, Cases and Judgments. • Reporting on innovations by industry • Ethics of Reporting. 	
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Site Visits/ Case Studies:6 sessions

- Site visits to impart experiential learning and be able to observe, interact and collect information for writing/ reporting purposes.
- Field visits to enrich students' knowledge of contextual development of well-designed architectural/ design projects and events.

Course Learning Outcomes:

CLO1	Understand the essence of Architectural Journalism
CLO2	Acquaint with the processes to integrate observations, interactions and data into presentable format
CLO3	Be able to develop unbiased approach and to negate out fiction from fact and being neutral while reporting
CLO4	Evaluate the scenario and reactions while reviewing or reporting live events

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Mohammad Al-Asad, Majd Musa	Architectural Criticism and Journalism	Umberto Allemandi and Co	2007	978-8842214809	208
Pappal Suneja	Exploration of Architectural Journalism in India	Copal Publishing	2019	978-1072583271	180
Pappal Suneja	Myriad Disciplines of Architectural Writing	White Falcon Publishing	2019	978-9388459587	186
Pappal Suneja	Literature Study and Technical Writing in Architecture	Lambert Academic Publishing	2018	978-3330007109	144
Robin Wilson	Image, Text, Architecture: The Utopics of the Architectural Media	Routledge	2016	978-1138573260	251

L/S	T	P	Total Credits	Total Hours
1	0	2	2	3

PE-3 - DISASTER MANAGEMENT FOR BUILDINGS

Credit Units: 2

Course Level: UG

Course Objectives: To make students understand the designing of buildings for pre and post disaster.

Prerequisites: Understanding the basics of disaster management

Course Contents/syllabus:

Unit I: Introduction/General Principles	12 Hours
<ul style="list-style-type: none"> Understanding disasters-Causes, effects and significance, Impact of climate changes- Emissions and Global warming and their impact on built environment. Disaster Profile of India 	
Unit II: Risk Assessment, reconstruction and Rehabilitation	12 Hours
<ul style="list-style-type: none"> Pre-disaster prevention and preparedness, Concept and Nature, Disaster Preparedness Plan, Prediction, Early Warnings and Safety Measures of Disaster During and post disaster rehabilitation, recovery and reconstruction 	
Unit III: Design guidelines and Legal Frameworks	12 Hours
<ul style="list-style-type: none"> Policy and guidelines based on post disaster construction and reconstruction for the buildings in the affected region. Laws of disaster preparedness and rehabilitation, Environmental Protection Act 1996 Role of Global, national and local communities and agencies in mitigating the impact of disasters 	
Unit IV: Introduction to informatics and communication systems	9 Hours
<ul style="list-style-type: none"> Role of information technology and communication in disasters- types of communication in case of disasters Maps. Mapping techniques and its usefulness, role of remote Sensing and GIS in disaster management 	

Course Learning Outcomes:

CLO1	Understand the basics of Disaster Management and current issues that may cause disasters
CLO2	Understanding of dealing with different phases of disaster management
CLO3	Analyzing the implementation of policies and guidelines associated with disaster management
CLO4	Exploring the latest technological advancements for disaster management

Text / Reference Books:

Author	Title	Publisher	Ed/year	ISBN No	Pages
Pardeep Sahni, Alka Dhameja, Uma Medury	Disaster Mitigation; Experience and Reflection	PHI Learning Pvt. Ltd	2001	9788120319141	232
Donald Hyndman & david hydman	Natural hazards & disaster	Engage learning	2005		490
Dr. N S.Varandani	Basics of Environmental Studies	Books India Publications	2013	B073TZTJSP	186
Maria Tattaris	Remote Sensing for Human Disaster Management	Delve Publishing	2016	978-1680958157	306