

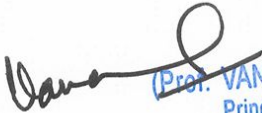
**Dr. A.P.J. Abdul Kalam Technical University
Uttar Pradesh, Lucknow**



SYLLABUS 2025-26

**FACULTY OF ARCHITECTURE AND
PLANNING, AKTU**

BACHELOR OF ARCHITECTURE (B. ARCH)


(Prof. VANDANA SEHGAL)
Principal & Dean
Faculty of Architecture and Planning,
AKTU, Lucknow

FACULTY OF ARCHITECTURE & PLANNING

Dr. A P J ABDUL KALAM TECHNICAL UNIVERSITY, UP, LUCKNOW

Bachelor of Architecture

Scheme: First & Second Semester

Sl. No	Course code	Course name	L	T	P	S	Weekly learning hours	Credits	In semester				End semester		TOTAL
									TA	CT (Class Test)		TOTAL	WR	VV	
										MT	MJ				
1	ZAR101	Architectural Design-I	3			6	9	9	100		50	150		100	250
2	ZAR102	Building Construction & Material-I	1			3	4	4	75	25		100	50		150
3	ZAR103	Architectural Graphics-I	2			4	6	6	75	25		100	50		150
4	ZAR104	Model Making workshop	1			2	3	3	35		15	50	50		100
5	ZAR105	Universal Human Values	2	1			3	3	35	15		50	50		100
6	ZAR106	Communication & Presentation	1	1			2	2	35		15	50	50		100
7	ZAR107	Computer Application-I	1		2		3	3	35		15	50	50		100
		General Proficiency										50			50
							TOTAL	30							1000
1	ZAR201	Architectural Design-II	3			6	9	9	100		50	150		100	250
2	ZAR202	Building Construction & Material-II	1			3	4	4	75	25		100	50		150
3	ZAR203	Architectural Graphics-II	2			4	6	6	75	25		100	50		150
4	ZAR204	Structures-I	1				2	2	35	15		50	50		100
5	ZAR205	History of Architecture-I	2	1			3	3	35	15		50	50		100
6	ZAR206	Environment, Climate, & Sustainability	2	1			3	3	35	15		50	50		100
7	ZAR207	Computer Application-II	1		2		3	3	35		15	50	50	50	100
		General Proficiency										50			50
							TOTAL	30							1000

Period:

L: Lecture, T: Tutorial, P: Practical, S: Studio

In Semester:

TA: Term Assessment, CT: Class Test, MT: Mandatory Test, MJ: Mandatory Jury

End Semester:

WR: Written exam, VW: Viva Voce/Practical


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Dr. A P J ABDUL KALAM TECHNICAL UNIVERSITY, UP, LUCKNOW

Bachelor of Architecture

Scheme: Third & Fourth Semester

Sl. No.	Course code	Course name	L	T	P	S	Weekly learning hours	Credits	In semester				End semester		TOTAL
									TA	CT (Class Test)		TOTAL	WR	VV	
										MT	MJ				
1	ZAR301	Architectural Design-III	3			6	9	9	100		50	150		100	250
2	ZAR302	Building Construction & Material-III	1			3	4	4	75	25		100	50		150
3	ZAR303	Architectural Graphics-III	1	4			5	5	75	25		100	50		150
4	ZAR304	Structures-II	2	1			3	3	35	15		50	50		100
5	ZAR305	History of Architecture-II	2	1			3	3	35	15		50	50		100
6	ZAR306	Building Services-I	2	1			3	3	35	15		50	50		100
7	ZAR307	Vernacular Architecture	2	1			3	3	35	15		50	50		100
		General Proficiency										50			50
		TOTAL					30	30							1000
1	ZAR401	Architectural Design-IV	3			6	9	9	100		50	150		100	250
2	ZAR402	Building Construction & Material-IV	1			3	4	4	75	25		100	50		150
3	ZAR403	Building Services-II	2	1			3	3	35	15		50	50		100
4	ZAR404	Structures-III	2	1			3	3	35	15		50	50		100
5	ZAR405	History of Architecture-III	2	1			3	3	35	15		50	50		100
6	ZAR406	Cyber security	1	1			2	2	35	15		50			50
7	ZAR407	Computer Application-III	1	2			3	3	35		15	50	50		100
8	ZEL101 (A-Z)	Elective-I	1	2			3	3	35		15	50	50		100
		General Proficiency										50			50
		TOTAL					30	30							1000

Period: L: Lecture, T: Tutorial, P: Practical, S: Studio

In Semester: TA: Term Assessment, CT: Class Test, MT: Mandatory Test, MJ: Mandatory Jury

End Semester: WR: Written exam, VV: Viva Voce/Practical

Note: Elective course code ZEL101 (A-Z) will be offered twice in two different semesters (4th sem & 6th sem). Students shall not be allowed to opt for the same course in both semesters


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Bachelor of Architecture

Scheme: Fifth & Sixth Semester

Sl. No.	Course code	Course name	L	T	P	S	Weekly learning hours	Credits	In semester				End semester		TOTAL
									TA	CT (Class Test)		TOTAL	WR	VV	
										MT	MJ				
1	ZAR501	Architectural Design-V	3			6	9	9	100		50	150		100	250
2	ZAR502	Building Construction & Material-V	1			3	4	4	75	25		100	50		150
3	ZAR503	Building Services-III	2	1			3	3	35	15		50	50		100
4	ZAR504	Structures-IV	2	1			3	3	35	15		50	50		100
5	ZAR505	History of Architecture-IV	2	1			3	3	35	15		50	50		100
6	ZAR506	Working Drawing & Bylaws-I	1		4		5	5	75		25	100		50	150
7	ZAR507	Interior Design	1		2		3	3	35	15		50	50		100
		General Proficiency										50			50
			TOTAL				30	30							1000
1	ZAR601	Architectural Design-VI	3			6	9	9	100		50	150		100	250
2	ZAR602	Building Construction & Material-VI	1			2	3	3	75	25		100	50		150
3	ZAR603	Landscape and Site planning	2	1			3	3	35	15		50	50		100
4	ZAR604	Surveying	2	1			3	3	35	15		50	50		100
5	ZAR605	Estimation & Costing	2	1			3	3	35	15		50	50		100
6	ZAR606	Working Drawing & Bylaws-II	2		4		6	6	75		25	100		50	150
7	ZEL101 (A-Z)	Elective-I	1		2		3	3	35		15	50	50		100
		General Proficiency										50			50
			TOTAL				30	30							1000

Period: L: Lecture, T: Tutorial, P: Practical, S: Studio

In Semester: TA: Term Assessment, CT: Class Test, MT: Mandatory Test, MJ: Mandatory Jury

End Semester: WR: Written exam, VV: Viva Voce/Practical

Note: Elective course code ZEL101 (A-Z) will be offered twice in two different semesters (4th sem & 6th sem). Students shall not be allowed to opt for the same course in both semesters


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Bachelor of Architecture

Scheme: Seventh & Eighth Semester

Sl. No.	Course code	Course name	L	T	P	S	Weekly learning hours	Credits	In semester				End semester		
									TA	CT (Class Test)		TOTAL	WR	VV	TOTAL
										MT	MJ				
1	ZAR701	Mandatory Internship					30	30	450			450	400		850
2	ZAR702	Seminar/presentation General Proficiency							50			50	50		100
												50			50
															1000
1	ZAR801	Architectural Design-VII	3			6	9	9	150		50	200	100		300
2	ZAR802	Dissertation	3			6	9	9			150	150	100		250
3	ZAR803	Theory of Architecture	2	1			3	3	35	15		50	50		100
4	ZAR804	Project Management	2	1			3	3	35	15		50	50		100
5	ZEL102 (A-Z)	Elective-II	2	1			3	3	35	15		50	50		100
6	ZEL103 (A-Z)	Elective-III (Open)					3	3				0	100		100
		General Proficiency										50			50
															1000

Period:

L: Lecture, T: Tutorial, P: Practical, S: Studio

In Semester:

TA: Term Assessment, CT: Class Test, MT: Mandatory Test, MJ: Mandatory Jury

End Semester:

WR: Written exam, VV: Viva Voce/Practical

Note: Elective course code ZEL102 (A-Z) and ZEL103 (A-Z) will be offered twice in two different semesters (8th sem & 10th sem). Students shall not be allowed to opt for the same course in both semesters

Elective course code ZEL103(A-Z) Elective-III (Open) refers to electives which are to be opted from a pre-approved list of courses offered in NPTEL/MOOCs


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Bachelor of Architecture

Scheme: Ninth & Tenth Semester

Sl. No	Course code	Course name	L	T	P	S	Weekly learning hours	Credits	In semester				End semester		
									TA	CT (Class Test)		TOTAL	WR	VV	TOTAL
										MT	MJ				
1	ZAR901	Architectural Design-VIII	3			6	9	9	150		50	200		100	300
2	ZAR902	Pre-thesis	1			8	9	9			150	150		100	250
3	ZAR903	Professional Practice	2	1			3	3	35	15		50	50		100
4	ZAR904	Disaster Management	2	1			3	3	35	15		50	50		100
5	ZEL104 (A-Z)	Elective-IV	2	1			3	3	35	15		50	50		100
6	ZEL105 (A-Z)	Elective-V (Open)					3	3				0		100	100
		General Proficiency					30	30				50			50
			TOTAL				30	30							1000
1	ZAR111	Thesis				24	24	24			450	450		300	750
2	ZEL102 (A-Z)	Elective-II	2	1			3	3	35	15		50	50		100
3	ZEL103 (A-Z)	Elective-III (Open)					3	3				0		100	100
		General Proficiency					30	30				50			50
			TOTAL				30	30							1000

Period:

L: Lecture, T: Tutorial, P: Practical, S: Studio

In Semester:

TA: Term Assessment, CT: Class Test, MT: Mandatory Test, MJ: Mandatory Jury

End Semester:

WR: Written exam, VV: Viva Voce/Practical

Note: Elective course code ZEL102 (A-Z) and ZEL103 (A-Z) will be offered twice in two different semesters (8th sem & 10th sem). Students shall not be allowed to opt for the same course in both semesters

Elective course code ZEL103(A-Z) Elective-III (Open) and Elective course code ZEL105(A-Z) Elective-V (Open) refers to electives which are to be opted from a pre-approved list of courses offered in NPTEL/MOOCs



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B. ARCH. SEMESTER – I ZAR– 101, ARCHITECTURAL DESIGN - I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
3	0	6	50	100	150	-	100	-	250	9	-

COURSE OBJECTIVES

- To orient students to design thinking processes by fostering critical, lateral, and reflective thinking in architectural exploration.
- To build foundational skills in perceiving and communicating visual language, form, and composition as tools of architectural expression.
- To enable students to articulate architectural form through abstract explorations in lines, planes, volumes, and their spatial interrelationships.
- To encourage intuitive and analytical spatial thinking through transformations of simple geometric forms and spatial operations.
- To develop awareness of human scale, ergonomics, and functional relationships within space, guided by anthropometric studies.

MODULE-1	Design Thinking & Creative Processes	Understanding the fundamentals of design thinking with an emphasis on creative ideation and lateral thinking
MODULE-2	Understanding Elements and principles of design	Exploration of the elements and principles of design. Study of visual grammar, Gestalt principles, and their application in architectural composition. Integration of scale, and proportion in two- and three-dimensional expressions.
MODULE-3	Form & their composition	Exploring form generation through two dimensional and three-dimensional geometries. Understanding of solid-void relationships, positive-negative space, and, encouraging lateral and experiential observation of natural and built forms to understand spatial perception.
MODULE-4	Transformations: Form to Space	Techniques of form abstraction and transformation; subtraction, addition and dimensional. To understand spatial complexity and narrative.



MODULE-5	Anthropometry and Space Design	Study of human dimensions, ergonomics, and functional spatial design. Understanding space-activity relationships, body movement, spatial needs for daily activities and design
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APPROACH

- Learning through surrounding and nature (eg. -nest, anthill, spider web, flower, handrail, umbrella). Then understanding the reason behind the form, material, technique etc.; reflection journal can be maintained to trace back the thinking process.
- Sketching should be encouraged to convert ideas or designs which they are observing or thinking.
- Design exercise of aforesaid modules, group exercises.
- Learning through physical models (board, clay, POP, paper etc.) to enhance tactile learning.
- Site visits and case study for better understanding.
- Expert lecture and time bound workshops.
- Live size mock ups can be used to understand anthropometry of humans and different types of users (elderly, child, differently abled).
- Aligning students with colour theory in drawing and graphics class.
- Emphasis on experimental articulation in form based creation.

COs	COURSE OUTCOMES	BL Level
CO 1	Understand the fundamentals of design thinking and creative ideation by applying lateral and critical approaches to problem-solving.	L2-Understand
CO 2	Analyse the elements and principles of design, including visual grammar to interpret their role in 2 dimensional and 3 dimensional compositions.	L4-Analyse
CO 3	Apply concepts of form generation and composition in two- and three-dimensional explorations, create solid-void relationships and spatial perception.	L3-Apply
CO 4	Apply transformation techniques such as abstraction, addition, and subtraction to create form and form generation.	L3-Apply
CO 5	Create functional and ergonomic spatial designs by integrating anthropometry, human movement, and activity-based spatial needs	L6-Create

REFERENCE BOOKS

- Brown, T. (2009). Change by design: How design thinking creates new alternatives for business and society. Harvard Business Press.
- Ching, F. D. K. (2014). Form, space, and order (4th ed.). Wiley.
- De Bono, E. (1973). Lateral thinking: Creativity step by step. Harper & Row.
- De Chiara, J., Panero, J., & Zelnik, M. (2001). Time-saver standards for architectural design data (7th ed.). McGraw-Hill.
- Edwards, B. (2012). Drawing on the right side of the brain (4th ed.). TarcherPerigee.



- Gillam Scott, R. (1958). Basic design: Ideas and concepts. Reinhold Publishing Corporation.
- Holl, S., Pallasmaa, J., & Pérez-Gómez, A. (1994). Questions of perception: Phenomenology of architecture. William Stout Publishers.
- Kumar, V. (2012). 101 design methods: A structured approach for driving innovation in your organization. Wiley.
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- Makstutis, G. (2010). Architectural design: A process approach. Laurence King Publishing.
- Panero, J., & Zelnik, M. (1979). Human dimension & interior space: A source book of design reference standards. Whitney Library of Design.
- Ramsey, C. G., & Sleeper, H. R. (2007). Architectural graphic standards (11th ed.). Wiley.
- Rasmussen, S. E. (1964). Experiencing architecture. MIT Press.
- Unwin, S. (2020). Analysing architecture (5th ed.). Routledge.
- Wong, W. (1993). Principles of form and design. Wiley.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I

ZAR – 102, BUILDING CONSTRUCTION & MATERIALS – I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	3	25	75	100	50	-	-	150	4	3 Hrs

COURSE OBJECTIVES

- To familiarize the students with constituents, properties and uses of conventional building materials used in construction.
- To understand the usage of these conventional building materials in simple building works.
- To develop skills in understanding the complexities & constraints of brick masonry.
- To acquaint the students to the usage of building materials such as Variety of Stone and Concrete.
- To familiarize the student with the basic building construction practices on site/yard.

MODULE-1	Clay & Clay Products, Lime, Cement, Sand, Surkhi, Mortar and Stone.	Introduction to Clay including Stabilized earth, Burnt bricks, Brick tiles, and others. Introduction to Lime, Availability and Uses. Introduction to Cement and its Types, Properties and Uses. Introduction to Sand and Surkhi. Introduction to Mortar and its Types (Mud, Lime, Cement). Introduction to Stone, Classification, Availability, Characteristics and Uses. Elementary Stone Masonry, Types of joints.
MODULE-2	Brickwork- Simple and Special bonds.	Brick terminology. Simple bonds e.g. English bond and Flemish (single and double) bond in brick work for up to two brick thick walls. Quoins and Junctions in English bond and Flemish bond. Special bond - Rat trap bond.
MODULE-3	Brick Jalis, Arches, Cavity walls, Piers and Buttresses.	Brick jalis. Arches in brick, stone and concrete blocks. Cavity walls. Piers (attached and detached) and Buttresses.
MODULE-4	Concrete, PCC, RCC and RBC, Foundations.	Introduction to Concrete and its types (Lime, Cement). PCC, RCC and its types (Plain and Reinforced), Mixing, Curing, Water Cement Ratio, Qualities and Workability. Introduction to RBC. Types of Foundation, Details of simple spread foundations for load bearing walls of various thicknesses up to two brick thick.
MODULE-5	Building Components	Terminology, Nomenclature of various parts of building from foundation to roof through detailed Wall Section from foundation to parapet.



APPROACH

- Interactive lectures and seminars.
- For Material Study: Market/online surveys, and site visits.
- For Construction techniques: Preparation of models, reports, sheets/ sketches.
- Hands on activities in Workshop and Construction yard.
- Incorporate Innovative detailing in materials, techniques and recent advancements.

COs	COURSE OUTCOMES	BL Level
CO 1	Understand the importance of conventional and contemporary building materials, relevant terminologies along with their applications.	L2-Understand
CO 2	Understand brick terminologies and analyse various brick bonds and joinery details with their applications.	L4-Analyse
CO 3	Create building components like brick jalis, arches etc. by evaluating their construction techniques.	L6-Create
CO 4	Analyse various building materials and construction techniques in building construction.	L4-Analyse
CO 5	Create and evaluate various building components from foundation to roof.	L6-Create

REFERENCE BOOKS

- Arora, S. P., & Bindra, S. P. (2024). Building construction. Dhanpat Rai Publications Pvt. Ltd.
- Barry, R. (2014). *The Construction of Buildings* (Vols. I–IV). Wiley-Blackwell.
- Ching, F. D. K., & Adams, C. (2025). *Building Construction Illustrated*. Wiley.
- Chudley, R. (2024). *Construction Technology*. Longman.
- Gambhir, M., & Jamwal, N. (2011). *Building Materials: Products, Properties and Systems*. Tata McGrawHill.
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- McKay, W. B. (2021). *Building Construction*. Routledge.
- Mills, C. B. (2011). *Designing with Models: A Studio Guide to Making and Using Architectural Models*. Thomson & Wadsworth.
- Morris, M. (2006). *Architecture and the Miniature: Models*. John Wiley & Sons.
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- Rangwala, S. C. (2024). Engineering materials (44th ed.). Charotar Publishing House.
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- Wenninger, M. J. (2014). Spherical models (Reprint edition). Courier Corporation.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I ZAR – 103, ARCHITECTURAL GRAPHICS-I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	75	100	50	-	50	150	6	3 Hrs

OBJECTIVES

- To familiarize with basics of graphics and architectural drawing, drafting, colour, lettering and rendering mediums.
- To build skills in on-site sketching of urban environments using various manual rendering techniques with focus on light, shadow, and spatial depth.
- To enable visualization and accurately represent 3D architectural forms in 2D using orthographic drawing techniques.
- To equip with the ability to visualize and create sections of solids.
- To train in scale-based measured drawings for architectural elements and spaces with an emphasis on presentation clarity.

MODULE-1	Visual Thinking & Graphic Fundamentals	Introduction to foundation of observational skills and hand control. Explore lines, shapes, colours & visual balance using freehand sketching and lettering. Use of different mediums for architectural representation like water colours, dry pastels, pen & ink and others.
MODULE-2	Urban Sketching & Rendering	Introduction to on-site urban sketching like people, trees, buildings and urban scenes using pen & ink, wash techniques, monochrome vs colour contrasts.
MODULE-3	Technical Drawing & Solid Geometry	Definition of Orthographic Projections, Meaning and concept, Planes of Projections, First angle projections, Projection of points, Lines and planes in different positions.
MODULE-4	Orthographic Projections	Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions. Sections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in varying conditions of sectional plane.
MODULE-5	Measured Drawing – Documenting the Built and the Tangible	On site Measured drawing incorporating architectural drawings, elevation, sections, plans, scaled graphical representation, presentation techniques (textures, hatch, etc). Introduction and application of architectural conventions and symbols.



APPROACH

- Learning observational skills, hand control through freehand sketching and lettering.
- Sketching should be encouraged to understand depiction of ideas and designs.
- On site studies for better understanding of scale, proportion, textures and finishes.
- Aligning students with colour theory, pen & ink, wash techniques, monochrome vs colour contrasts.

COs	COURSE OUTCOMES	BL LEVEL
CO1	Apply basics of graphics and architectural drawing.	L3- Apply
CO2	Apply basic sketching and rendering techniques to make sketches.	L3- Apply
CO3	Apply the basic understandings of solid geometry to make technical drawings.	L3- Apply
CO4	Create models of three-dimensional solids into two-dimensional surface developments.	L6- Create
CO5	Apply architectural conventions and symbols in the form of technical drawings.	L3- Apply

REFERENCE BOOKS

- Arnold, D. (2004). Art history: A very short introduction. Oxford University Press.
- Bhatt, N. D. (n.d.). Elementary engineering drawing: Plane and solid geometry. Charotar Publishing House.
- Ching, F. D. K. (1964). Architectural graphics. Van Nostrand Reinhold.
- Gonnella, R., & Friedman, M. (2014). Design fundamentals: Notes on the colour theory (1st ed.). Peachpit Press.
- Martin, C. L. (1964). Architectural graphics. Macmillan Company.
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- Stallabrass, J. (2006). Contemporary art: A very short introduction. Oxford University Press.
- Stegman, G. K., & Stegman, H. J. (1966). Architectural drafting. American Technical Society



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I ZAR – 104, MODEL MAKING WORKSHOP

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	50	-	50	50	100	3	-

COURSE OBJECTIVES

- To introduce the fundamentals, tools and techniques of model making in architecture.
- To understand the relationship between material properties and their structural behaviour through physical models.

MODULE-1	Introduction and demonstration of hand and machine tools.	Introduction and demonstration of essential hand and machine tools used in model making. Emphasis on safe practices, material handling, and workshop conduct. Overview of advanced equipment like CNC machines, laser cutters, and metal cutters.
MODULE-2	Fundamentals of Architectural Models	Introduction to various types of models: block models, conceptual models, and detailed models etc.
MODULE-3	Architectural Model Making	Understanding architectural scale, proportion, and basic massing and space by creating models.
MODULE-4	Behaviour of structural components	Exploration of basic structural principles: span, load, tension, compression, buckling in beams, arches, domes, trusses, cantilevers etc.
MODULE-5	Building elementary models	Making and analysing simple models of beams, arches, domes, trusses, cantilevers etc. to study the behaviour of building components.

APPROACH

- Demonstration and hands-on use of hand tools and machines (CNC, laser cutter, etc.).
- Introduction to basic structural concepts: load, span, tension, compression, etc.
- Create and analyse models. (individual/ group exercise for large installations)
- Industrial expert workshop (In campus / on-site workshop).

COs	COURSE OUTCOMES	BL Level
CO1	Remember essential hand and machine tools used in model making, along with safe practices, material handling, and workshop conduct.	L1 – Remember,
CO2	Understand different types of architectural models, including block, conceptual, interior, and detail/construction models.	L2 – Understand



CO3	Create basic architectural models to apply principles of scale, proportion, and massing	L3 – Apply
CO4	Analyze and evaluate the behaviour of building components such as beams, arches, domes, trusses, and cantilevers through model experiments.	L4 – Analyze L5 – Evaluate
CO5	Create scaled architectural and structural models demonstrating craftsmanship, and design intent.	L6 – Create

REFERENCE BOOKS

- Ching, F. D. K. (2009). Architectural graphics (5th ed.). John Wiley & Sons.
- Criss, B. M. (2011). Designing with models: A studio guide to architectural process models (3rd ed.). Wiley.
- Kieran, S., & Timberlake, J. (2008). Lobolly House: Elements of a new architecture. Princeton Architectural Press.
- Morgan, C. L., & Nouvel, J. (2002). The elements of architecture. Thames & Hudson.
- Werner, M. (2011). Model making. Princeton Architectural Press



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Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I ZAR – 105, UNIVERSAL HUMAN VALUES

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	50	50	-	-	100	3	3 HRS

COURSE OBJECTIVES

- To instil the importance of human values and sociology.
- To focus on ethical design thinking, understanding society and culture.
- To inform about the role of professionals in shaping inclusive and sustainable environments.

MODULE-1	Introduction to Human Values	Importance of human values; Human aspirations: happiness, comfort. Ethical decision-making.
MODULE-2	Harmony in Relationships	Building positive relationships. Respecting differences in relationships.
MODULE-3	Society, Culture, and Built Form	Foundations of society and culture: family, religion, education, recreation. Community, society, group, and institution.
MODULE-4	Development, Infrastructure, and Social Change	Growth and change of cities. Role of infrastructure in daily life. Social transformation and spatial needs. Inclusivity for all.
MODULE-5	Nature, Sustainability, and Ethical Practice and Professional Conduct	Living in harmony with nature. Sustainable materials and practices. Significance of low impact development and co-existence. Professional Ethics. Corporate social responsibility.

APPROACH

- Interactive lectures and tutorials to give an understanding of the course in present context.
- Group discussions among students will be encouraged to bring forth exchange of ideas.
- Special lectures by practicing professionals and persons-of-eminence in the field.
- Field/site visits to understand societal impact.



COs	COURSE OUTCOME	BL LEVEL
CO 1	Understand the role of values in ethical decision-making.	L2 - Understand
CO 2	Apply and relate human aspirations to spatial and architectural needs.	L3 - Apply
CO 3	Analyse how society and culture shape built environments.	L4 - Analyse
CO 4	Analyse development and infrastructure through a social lens.	L4 - Analyse
CO 5	Analyse sustainable and responsible architectural practices.	L4 - Analyse

REFERENCE BOOKS

- Abraham, M. F. (2014). Contemporary sociology: An introduction to concepts and theories. Oxford University Press.
- Gaur, R. R., Sangal, R., & Bagaria, G. P. (2009). A foundation course in human values and professional ethics. Excel Books.
- Hall, E. T. (1966). The hidden dimension. Doubleday.
- Hasnain, N. (2011). Indian society and culture. Jawahar Publishers.



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Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I

ZAR – 106, COMMUNICATION & PRESENTATION

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/	SESSIONAL ASSESSMENT			ESE					
		STUDIO	MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	50	0	50	50	100	2	-

COURSE OBJECTIVES

- To enhance speaking and writing skills
- To equip students with architectural presentation skills
- To enable use of M.S. office

MODULE-1	Introduction to Communication skills	Introduction to types of communication, methods, use & application.
MODULE-2	Listening; Speaking; and Reading skills	Listening and reading skills: For gist and specific information; Note taking, summarizing and for opinions. Presentation skills: Verbal and non-verbal communication, Body Language, Making a Presentation. Developing group discussion skills
MODULE-3	Writing skills	Formal writing; business letters and E-Mail; documentation: references; reports; summary. Writing curriculum vitae (both chronological and functional) along with an application for a job.
MODULE-4	Working knowledge with MS Office	M.S. Word; M.S. PowerPoint; M.S. Excel
MODULE-5	Audio-Visual (AV) Presentation	Architectural presentation on any topic. Professional presentation using AV techniques.

APPROACH

- Interactive lectures and tutorials.
- Group discussions to equip them with public speaking skills.
- Writing exercises to learn to write clear, concise, and well-organized technical documents.
- Presentation discussion to enhance presentation skills to effectively communicate architectural designs and proposals through oral presentations, multimedia presentations.



COs	COURSE OUTCOMES	BL Level
CO 1	Understand skills of communication with the help of grammar.	L1-Remember
CO 2	Analyze the ability to speak, write architectural ideas and improve active listening skills to understand client needs.	L2-Analyze
CO 3	Understand writing skills to create clear, concise, and well-organized technical documents.	L3-Create
CO 4	Apply software skills using MS Office.	L4-Apply
CO 5	Apply presentation skills to effectively communicate architectural designs and proposals through oral presentations.	L5-Apply

REFERENCE BOOKS

- Adrian, D., & Christopher, J. (2000). Language in use – Upper intermediate: Self-study workbook and classroom book. Cambridge University Press.
- Dinsmore, G. A. (1968). Analytical graphics. D. Van Nostrand Company Inc.
- Edward, J. F., & Lee, J. (2000). Feature writing for newspapers and magazines (4th ed.). Longman.
- Freeman, S. (1978). Written communication. Orient Longman.
- Microsoft. (2013). Microsoft Office – 2013.
- Pease, A. (2004). Body language. Manjul Publishing House.
- Rizvi, A. (2005). Effective technical communication. Tata McGraw-Hill Education.
- Speak Well. (n.d.). Speak well. Orient Blackswan Publishers.



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Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – I ZAR – 107, COMPUTER APPLICATION-I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	50	0	50	50	100	3	-

COURSE OBJECTIVES

- To enable the use of AutoCAD 2D, as a tool for drafting, designing, analysing and representation of the drawings in a desired manner.
- To enable use of Sketchup, as a tool for designing, analysing and representation of the drawings in a 3D environment.

SECTION – A, AUTOCAD (2D)

MODULE-1	Exploring the Interface	Understanding paper area, Unit, Scale, Planes, Design templates, Types and use of 2D Drafting tools, Dimensioning, 2D keyboard commands, 2D isometric views, Materials and textures, Reference other drawing files, Work with data in other formats and exporting 2D drawings to various software, Extract data from drawings and spread sheets, Access external databases.
MODULE-2	Plotting and Publishing	Layer management, Plotting and publishing the drawing in modal space and paper space.

SECTION – B, SKETCHUP

MODULE-3	Introduction	Introduction to the concept and advantages of using 3D modelling tools in Designing. Navigation tools - Zoom, pan and rotate. Understanding the XYZ axis. Selecting toolbars. Applying templates. Understanding and using the large tools. Importing AutoCAD file into SketchUp and drawing with measurements.
MODULE-4	Modelling & Editing	Scale fractional and relative. Making components. Making groups. Comparisons and benefits. Saving components. Re-loading components. Accessing the digital warehouse. Introduction to Basic Plugins. Getting to understand the Materials Editor. Positioning textures. Limits to graphics and bitmaps. Paint bucket. Materials Editor. Textures and bitmaps. Positioning textures. Limits to graphics and bitmaps.



MODULE-5	Understanding Walkthrough and Animation	Introduction to Animation: Create new scenes. Create new styles. Saving scenes and styles. Exporting 2D images or 3D models. Creating Walkthroughs.
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COs	COURSE OUTCOMES	BL Level
CO 1	Understand AutoCAD 2D interface.	L1-Understand
CO 2	Apply AutoCAD tool for drafting, designing, analysing and representation of the drawings.	L2-Apply
CO 3	Understand Sketch Up interface.	L3-Understand
CO 4	Apply Sketch Up tool for drafting, designing, analysing and representation of the drawings.	L4-Apply
CO 5	Create 3D Modelling with walkthrough to effectively communicate architectural designs proposals.	L6-Create

Note: MJ in this course refers to 'Practical', preferably conducted in computer lab(s).

APPROACH

- Hands-On Labs: Students will practice using software during lab hours. Video Tutorials: Supplementary tutorials will reinforce key skills. One-on-One Mentoring: Doubt-clearing and reviews will support individual progress.
- Students will work on real-world design problems such as creating architectural floor plans, elevations, and 3D interior models integrating both software tools.
- Exposure to plugins, rendering tools, and real-world documentation practices ensures students understand how SketchUp and AutoCAD are used in professional offices.
- Students will be assessed not just on isolated tasks but on their ability to compile a design portfolio.

REFERENCE BOOKS

- Finkelstein, E. (2012). AutoCAD 2013 and AutoCAD LT 2013 Bible. Wiley.
- Gaspar, J. (2011). Google SketchUp Pro 8 step by step. Editora Érica.
- Omura, G. (2007). Introducing AutoCAD and AutoCAD LT. Sybex.
- Omura, G. (2011). Mastering AutoCAD. Sybex.
- Schreyer, A. C. (2021). Architectural design with SketchUp: 3D modeling, extensions, BIM, rendering, making, and scripting (2nd ed.). Wiley.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II

ZAR– 201, ARCHITECTURAL DESIGN - II

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
3	0	6	50	100	150	-	100	-	250	9	-

COURSE OBJECTIVES

- To introduce elements of space making—such as walls, floors, roofs, columns, openings, and thresholds etc.
- To develop understanding of spatial experience through elements of space making.
- To explore sensorial and atmospheric qualities of space using materials, textures, colours, light, and shadow, with a focus on user experience.
- To cultivate sensitivity to multi-sensory experiences—visual, tactile, auditory, thermal, olfactory—as design inputs, encouraging students to consider architecture as an immersive, lived experience.
- To develop observational skills through the study of existing rural and urban settlements, focusing on built form, spatial organization, social fabric, and the contextual logic of traditional environments.

MODULE 1	Element of Space Making	Studio and lecture-based explorations of fundamental elements—floors, walls, roofs, columns, openings, thresholds etc.
MODULE-2	Material Space and Experience	Sensorial and atmospheric dimensions (user experience) of space, (including light, shadow, colour, texture, and material character). Emphasis on multi-sensory perception and how architectural experience is shaped by the interplay of material, light, and user interaction with space.
MODULE-3	Narrative based design	Importance of narratives as concepts for space creation. Developing varied narratives. Relationship of narratives and spatial experiences.
MODULE-4	Experience Design	Design of small spaces; Integrating elements of space making using experience, materiality and sensorial dimension.



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MODULE -5	Settlement Study	Study and documentation of rural and/or urban settlements to understand built and unbuilt, spatial hierarchy, function, cultural narratives etc.
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APPROACH

- Understanding influence of material and space on design through lecture, presentation seminar and site visits.
- Design exercise of aforesaid modules, group/peer discussion to understand experience
- Learning through physical model using different material, converting 2-dimensional design into 3 dimensional. Model making can be used to understand the idea of inside outside, enclosure, threshold, scale, proportion etc.
- sketching can be used to understand various case example of architecture.
- Site visits, workbook, and photographs can be used to understand the narrative and experience of the space.
- Manual drafting, Mental map, sketching can be used for documentation and study of settlement.
- Expert lectures and time bound workshops can be used for better understanding.

COs	COURSE OUTCOMES	BL Level
CO 1	Understand the fundamental architectural elements and their role in shaping spatial experiences.	L1-Understand
CO 2	Analyze the sensorial and atmospheric dimensions of space and their influence on multi-sensory architectural perception	L4-Analyze
CO 3	Create conceptual stories and cultural references into meaningful spatial design expressions through narrative-based thinking	L6-Create
CO 4	Create small-scale spatial designs integrating space-making elements, materiality, and sensorial dimensions to enhance user experience.	L6-Create
CO 5	Evaluate rural and urban settlements by examining built-unbuilt relationships, spatial hierarchies, functions, and cultural narratives.	L5-Evaluate

REFERENCE BOOKS:

- Angélil, M., & Hebel, D. (2007). Deviations: Designing in architecture. Birkhäuser.
- Arnold, D., & Ballantyne, A. (2004). Architecture as experience: Radical change in spatial practice. Routledge.
- Ching, F. D. K. (2007). Form, space, and order (3rd ed.). Wiley.
- Coates, N. (2012). Narrative architecture. Wiley.
- Cooper, D. (2007). Drawing and perceiving: Real-world drawing for students of architecture and design (2nd ed.). Wiley.
- Desai, M. (n.d.). Teaching basic design in architecture. CEPT University.



- Malnar, J. M., & Vodvarka, F. (2004). Sensory design. University of Minnesota Press.
- Meiss, P. von. (2013). The elements of architecture: From form to place. Routledge.
- Pandya, Y. (2007). Elements of space making. Mapin Publishing.
- Pallasmaa, J. (2005). The eyes of the skin: Architecture and the senses (2nd ed.). Wiley.
- Psarra, S. (2009). Architecture and narrative: The formation of space and cultural meaning. Routledge.
- Rasmussen, S. E. (1964). Experiencing architecture. MIT Press.
- Zevi, B. (1993). Architecture as space: How to look at architecture (M. Barry, Trans.). Da Capo Press.
- Zumthor, P. (2006). Atmospheres: Architectural environments, surrounding objects. Birkhäuser.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II

ZAR – 202, BUILDING CONSTRUCTION & MATERIALS – II

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	3	25	75	100	50	-	-	150	4	3 Hrs

COURSE OBJECTIVES

- To familiarize the students with constituents, properties and uses of conventional building materials in construction.
- To understand the usage of these conventional building materials in simple building works.
- To acquaint students with usage of building materials such as Timber, Timber products, Hardware, floor & floor finishes, Surface finishes, Painting and Polishing.
- To familiarize the students with construction techniques for use of the above materials in building works and joinery in carpentry.
- To familiarize students with the basic building construction practices on site/yard.

MODULE-1	Timber, Carpentry & Timber Joints, and Hardware.	Introduction to Timber and its Classification, Characteristics, Defects, Preservation and usage. Elementary carpentry, Common joints. Introduction to conventional doors (framed, ledged, braced & batten doors). Types of Hardware for Door & Windows.
MODULE-2	Timber By-Products.	Introduction to a variety of Plywood, Ply-board, Block-board, Particle board, Wood-wool cement board, Compressed straw board, Cement fibre board, Mineral fibre board, Veneers, Laminates and others. Availability, Characteristics and Uses of the same.
MODULE-3	Doors, Windows and Ventilators	Types and details of Panelled door shutters, Mosquito proof door shutter. Types and details of Windows/Ventilators and details of glazed window and ventilator shutters and frames. Types and details of Flush door shutter with finishes. Complete understanding of operational mechanism (automatic and manual) of a variety of Sliding door shutters, Sliding-folding door shutters and Revolving doors shutters.
MODULE-4	Timber- Partitions and Panelling.	Terminology, Partitioning methods with use of different materials e.g. Timber and advanced timber by-products. Terminology, Panelling methods with use of materials e.g. Timber and advanced timber by-products.
MODULE-5	Floor and Surface Finishes	Floor finishes– Brick, Cement Concrete, Stone, Terrazzo, Ceramic Tile, Vitrified Tiles, Wooden, laminated Wooden, Carpet, PVC floor and others. Complete process of laying of floor and dado/skirting - Brick, Cement Concrete, Stone and Vitrified tile floors.



Types and application of Plasters, Jointing and Pointing, Preparation of variety of surfaces, Application of various coats.
Surface finishes – Lime / Colour wash, Dry distemper, Oil bound distemper, Cement paints, acrylic emulsions, Synthetic enamels, Wall textures etc.
Polishes and Varnishes (Melamine & PU) and others.

APPROACH

- Interactive lectures & seminars.
- For Material Study: Market/online surveys, & site visits.
- For Construction techniques: Preparation of models, reports, sheets/ sketches.
- Hands on activities in Workshop and Construction yard.
- Incorporate Innovative detailing in materials, techniques and recent advancements.

COs	COURSE OUTCOMES	BL Level
CO 1	Understand the importance of conventional and contemporary building materials, construction techniques	L2-Understand
CO 2	Understand the terminologies of timber by-products and Analyse their properties and applications.	L4-Analyse
CO 3	Create building components like timber doors, windows and ventilators etc. by evaluating their construction techniques.	L6-Create
CO 4	Create building components like timber partitions and paneling by evaluating their construction techniques.	L6-Create
CO 5	Analyse various types of floor and surface finishes with their construction techniques in building construction.	L4-Analyse

REFERENCE BOOKS

- Arora, S. P., & Bindra, S. P. (2024). Building construction. Dhanpat Rai Publications Pvt. Ltd.
- Barry, R. (2014). *The Construction of Buildings* (Vols. I–IV). Wiley-Blackwell.
- Ching, F. D. K., & Adams, C. (2025). *Building Construction Illustrated*. Wiley.
- Chudley, R. (2024). *Construction Technology*. Longman.
- Gambhir, M., & Jamwal, N. (2011). *Building Materials: Products, Properties and Systems*. Tata McGrawHill.
- Gupta, R. K. (2019). *Civil Engineering Materials and Construction Practices*. Jain Brothers.
- McKay, W. B. (2021). *Building Construction*. Routledge.
- Mills, C. B. (2011). *Designing with Models: A Studio Guide to Making and Using Architectural Models*. Thomson & Wadsworth.
- Morris, M. (2006). *Architecture and the Miniature: Models*. John Wiley & Sons.
- *National Building Code of India* (2016). Bureau of Indian Standards.
- Punmia, B. C., Jain, A. K., & Jain, A. K. (2017). Building construction. Laxmi Publications.
- Rangwala, S. C. (2022). Building construction. Charotar Publishing House.
- Rangwala, S. C. (2024). Engineering materials (44th ed.). Charotar Publishing House.
- Raghuwanshi, B. S. (2012). *A Course in Workshop Technology* (Vols. I & II). Dhanpat Rai & Co.
- Roy Chowdhury, K. P. (2005). Engineering materials. Elsevier Butterworth-Heinemann
- Wenninger, M. J. (2014). Spherical models (Reprint edition). Courier Corporation.



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Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II ZAR – 203, ARCHITECTURAL GRAPHICS-I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	0	4	25	75	100	-	50	50	150	6	3 Hrs

COURSE OBJECTIVES

- To explore the intersection of solids using graphic techniques.
- To introduce metric drawings and learn to represent and dimension simple geometric forms.
- To help visually represent using one-point and two-point perspective drawing techniques.
- To introduce capturing real-life urban and interior spaces through sketching techniques using light, shadow, and colour contrasts.
- To introduce rendering techniques using colour, texture, tone, and composition.

MODULE-1	Solid Geometry	Section and intersection of solid using technical tools and freehand representation. Introduction to the role and use of line weights, shading, and hatching techniques.
MODULE-2	Metric Drawing	Fundamentals of metric drawing and pictorial representation, essential for visualizing three-dimensional objects on two-dimensional surfaces, applications of isometric, axonometric, and other pictorial views. Metric drawing of plane figures composed of straight lines, circles, simple and complex blocks
MODULE-3	Perspective Drawing	Introduction to the anatomy of a perspective—such as the cone of vision, station point, picture plane, eye level, and vanishing points—and explores how these elements work together to form realistic spatial depth. One-point and two-point perspectives of simple geometric blocks, curved surfaces, and furniture objects, using both technical and freehand techniques.
MODULE-4	Enhanced Urban Sketching & Rendering	Introduction to on-site urban sketching. Representation of interior spaces, kitchen, master bedroom, washroom, etc and urban scenes, complex street scenes by focusing on light, shade, and shadow using pen and ink, wash techniques, and monochrome vs. colour contrasts.
Module-5	Presentation & Rendering techniques	Introduction to Presentation and rendering techniques in architectural drawings. Exploration of the use of colour, texture, tone, contrast, line weight, and composition.



APPROACH

- Learning freehand representations of section and intersection of solids.
- On site urban sketching to depict ideas or designs.
- Technical and freehand techniques to understand perspective drawing.
- Aligning students with tools for presentation and rendering techniques.

COs	COURSE OUTCOMES	BL LEVEL
CO1	Apply technical tools to understand the section and intersection of solids.	L3- Apply
CO2	Apply fundamentals of metric drawings in the form of pictorial views.	L3- Apply
CO3	Create perspective drawings by understanding technical and freehand techniques.	L6- Create
CO4	Apply representation techniques to make sketches.	L3- Apply
CO5	Apply rendering techniques in drawings.	L3- Apply

REFERENCE BOOKS

- Bhatt, N. D. (n.d.). Elementary engineering drawing: Plane and solid geometry. Charotar Publishing House.
- Ching, F. D. K. (1964). Architectural graphics. Van Nostrand Reinhold.
- Edwards, B. (2004). Colour: The course of mastering the art of mixing colours. Penguin Group.
- Hayashi Studio. (1944). Water colour rendering. Sha Publishing Co. Ltd.
- Kasprisin, R. (1999). Design media: Techniques for water colour, pen & ink, pastel and coloured marker. Wiley.
- Martin, C. L. (1964). Architectural graphics. Macmillan Company.
- Morris, I. H. (2004). Geometrical drawing for art students. Orient Longman.
- Stegman, G. K., & Stegman, H. J. (1966). Architectural drafting. American Technical Society.
- Ungar, J. (1986). Rendering mixed media. Watson-Guption Publications.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II ZAR – 204, STRUCTURE-I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICA L/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	1	0	15	35	50	50	0	50	100	2	3 Hrs

COURSE OBJECTIVES

- To develop a foundational understanding of structural behaviour in architecture
- To introduce the basic principles of statics, stress-strain relationships, centre of gravity, moment of inertia, and the structural response of beams and columns under various loads.
- To familiarize students with fundamental structural systems and their applications in architectural design.

MODULE 1	Elements of Statics	Force, Law of parallelogram of forces, Law of triangle of forces, Polygon Law of forces, Resolution of forces. Resultant of a number of concurrent coplanar forces. Condition of equilibrium.
MODULE 2	Stress, Strain, and Deformation	Stress and strain; Types of stresses; Elastic limit; Hook's law, Modulus of Elasticity; Concepts of tension, compression, bending, shear and torsion with respect to buildings; Equilibrium and Stability.
MODULE 3	Centre of Gravity & Moment of Inertia	Centre of Gravity of simple shapes and figures; CG of cantilever balcony; Moment of Inertia of simple shapes - Rectangle, triangle, circle (conceptually) and application examples (I beams, flat slab and folded plate).
MODULE 4	Beams and columns	Stresses in beams; Bending and Shear Section; Modulus Moment in symmetrical and unsymmetrical sections; Strength of sections; Types of loads; Column Behaviour; Buckling and Stability; End Conditions; Slenderness Ratio; Columns under eccentric loading and application examples; Column proportions in halls, open atriums, temples etc
MODULE 5	Structural Systems	Introduction of basic structural systems in architecture; Understanding the evolution and load transfer mechanism of each.



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APPROACH

- Hands on Demonstration of concepts for better understanding through models and nature.
- Real world case studies to understand the stability of structure

COs	COURSE OUTCOMES	BT LEVEL
CO 1	Apply principles of statics by understanding force systems, equilibrium conditions, and resultant forces in architectural structures	L3-Apply
CO 2	Analyze stress, strain, and deformation behavior in structural elements under different loading conditions	L4 – Analyze
CO 3	Evaluate center of gravity and moment of inertia for basic geometric Figures and apply to real architectural forms.	L5- Evaluate
CO 4	Evaluate bending and shear stresses in beams under different support and load conditions and column behavior under axial and eccentric loading, and relate to practical architectural applications	L5 – Evaluate,
CO 5	Understand basic structural systems used in architectural design for their functional behavior, load paths, and application in various building forms.	L2- Understand

REFERENCE BOOKS

- Bansal, R. K. (n.d.). Engineering mechanics. Laxmi Publications.
- Hibbeler, R. C. (2016). Engineering mechanics: Statics and dynamics (14th ed.). Pearson.
- Punmia, B. C., Jain, A. K., & Jain, A. K. (n.d.). Mechanics of materials. Laxmi Publications.
- Ramamrutham, S., & Narayan, R. (n.d.). Strength of materials. Dhanpat Rai Publishing.
- Salvadori, M. (1980). Why buildings stand up: The strength of architecture. W. W. Norton & Company.
- Timoshenko, S. P., & Gere, J. M. (1972). Mechanics of materials. Van Nostrand Reinhold.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II ZAR – 205, HISTORY OF ARCHITECTURE-I

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL / STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
2	1	0	15	35	50	50	0	50	100	3	3 Hrs

COURSE OBJECTIVES

- To introduce students to the evolution of architecture from prehistoric times to the Rococo period.
- To study the socio-cultural, political, and technological factors influencing architectural developments in early civilizations.
- To analyse significant architectural forms, construction systems, and planning principles of various periods.
- To develop skills in analytical sketching, comparative study, and critical thinking about historical architecture.
- To provide a foundation for understanding the continuity and transformation of architectural ideas over time.

MODULE-1 Prehistoric Age and Birth of Civilization

Palaeolithic and Neolithic cultures: evolution of shelter, caves, huts, ritual structures. Megalithic architecture: dolmens, menhirs; stone circles, Stonehenge. Early urban settlements: Jericho, Çatalhöyük, Khirkitia
Role of agricultural revolution in settlement development.

MODULE-2 Ancient River Valley Civilizations

Historical background, Landscape, culture, social and religious beliefs and practices of Ancient River Valley Civilizations.
Egyptian Civilization: Tomb and Temple architecture (Mastabas, Pyramids, Temple of Karnak, Khons)
Mesopotamian Civilization: Urbanization and evolution of city states and their character (Ziggurats, City states and Palaces).
Indus Valley Civilization: Town planning principles, drainage (Mohen-jo-daro, Harappa). Chinese Civilization: Timber architecture, early city layouts, palaces.

MODULE-3 Classical Architecture: Greek and Roman

Aegean Civilization and its influence on early Greek architecture: Minoan and Mycenaean civilization. Greek architecture: Greek ideas of beauty, Orders, Greek temples, Public buildings, Ideas of urban planning. Roman architecture: Roman engineering solutions, Orders, Forums, Public buildings, Ideas of urban planning



MODULE-4 Medieval Architecture: Early Christian, Byzantine, Romanesque and Gothic	Early Christian: Evolution of Churches; Basilicas and baptisteries Byzantine: Centralization in churches; Hagia Sophia. Romanesque: Massiveness and Verticality of medieval churches; Pisa Cathedral Complex Gothic: Structure, symbolism, spatial configuration; Notre Dame, and others.
MODULE-5 Renaissance-Baroque-Rococo	Renaissance: Humanism, symmetry, proportion; Cathedral of St. Peter and St. Paul. Mannerism, Baroque, Rococo: Dynamism, spatiality and ornamentation; Urban spaces and churches; Piazza of St. Peter, and others.

APPROACH

- Interactive lectures and tutorials
- Presentations and Group discussions by students
- Sketching and Physical models of different structures by students

COs	COURSE OUTCOMES	BT LEVEL
CO 1	Understand the evolution of shelter and social structures through connection between environment, resources, and architecture.	L2- Understand
CO 2	Understand architectural forms of early civilizations as evolving within specific cultural contexts.	L2- Understand
CO 3	Understand classical orders and construction innovations comparing Greek and Roman architecture.	L2- Understand
CO 4	Understand the evolution of medieval church architecture from Early Christian to Gothic, focusing on spatial organization, symbolism, and structural innovations.	L2- Understand
CO 5	Understand the transformation of architectural principles from Renaissance humanism and classical revival to the dynamism and ornamentation of Mannerism, Baroque, and Rococo.	L2- Understand

REFERENCE BOOKS

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- Etlin, R. A. (Ed.). (n.d.). The Cambridge guide to the architecture of Christianity (Vols. 1–2). Cambridge University Press.
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- Nervi, P. L. (Ed.). (1972). History of world architecture series. Harry N. Abrams.
- Norberg-Schulz, C. (1975). Meaning in Western architecture. Praeger.
- Roth, L. M. Understanding architecture: Its elements, history, and meaning.
- Scully, V. (1991). Architecture: The natural and the man made. HarperCollins.
- Webb, W. P., & Schaeffer, J. (1962). Western civilisation (Vol. 1). Van Nostrand Reinhold.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II ZAR – 206, ENVIRONMENT, CLIMATE AND SUSTAINABILITY

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/ STUDIO	SESSIONAL ASSESSMENT			ESE					
			MT	TA	TOTAL	THEORY	VIVA	TOTAL			
1	2	0	15	35	50	50	-	-	100	3	3 Hrs

COURSE OBJECTIVES

- Understand fundamental concepts of environment, sustainability, and their relevance to architecture.
- Interpret and analyse climatic data to evaluate the impact of climate on building design.
- Examine thermal comfort and human response to climate through scientific indices and tools.
- Apply passive design strategies related to solar orientation, shading, and natural ventilation.
- Integrate climate-responsive and sustainable strategies in architectural form, envelope, and site planning.

MODULE -1	Environment and Sustainability	Concepts of ecological footprint, carbon neutrality, embodied energy Climate resilience and environmental ethics in architecture Resource efficiency of water, energy, and materials. Sustainability Principles and Sustainable Development Goals (SDGs)
MODULE-2	Climate and the Built Environment	Climate vs weather; macro and microclimate. Parameters of climate like temperature, humidity, wind, solar radiation, precipitation. Types of climatic zones (Koppen), Climatic zones of India (NBC). Tools and methods of climate data, Mahoney table, Climate Consultant / Ladybug.
MODULE-3	Thermal Comfort and Human Response	Thermal balance of the human body. Factors affecting thermal comfort Thermal comfort indices: ET, CET, PMV, adaptive comfort model (ASHRAE / NBC). Psychrometric charts, Bioclimatic chart.
MODULE-4	Passive Design Strategies	Sun path diagrams, solar geometry principles. Orientation, shading, daylighting, glazing. Passive solar heating and cooling strategies. Fixed vs adjustable shading devices. Natural ventilation principles and airflow patterns. Cross ventilation, stack effect, wind towers. Building envelope design for insulation and thermal lag.
MODULE-5	Integrated Climate Responsive Building Design	Siting, form and shape, spatial organization, fenestration, elements, compactness, orientation, surface-area-to-volume ratio. Case studies of contemporary climate-responsive buildings. Design exercises on solar responsive form, passive strategies and facade articulation through models.



APPROACH

- Interactive lectures and tutorials
- Simulation tools for solar and wind analysis (e.g. Climate Consultant, Ladybug)
- Case studies of high-performance buildings in Indian and global contexts
- Field/site visits (e.g. Climate responsive, green, traditional, vernacular buildings)
- Small design exercise which demonstrates any passive strategy in form of physical model.

COs	COURSE OUTCOMES	BT LEVEL
CO 1	Understand environmental sustainability concepts and evaluate their relevance in the built environment.	L2-Understand
CO 2	Analyze climatic zones and interpret data using tools like Mahoney tables and psychrometric charts.	L4-Analyze
CO 3	Analyze thermal comfort and human response using comfort indices and charts.	L4-Analyze
CO 4	Apply passive solar and ventilation strategies in the design of energy-efficient building elements.	L3-Apply
CO 5	Create simple climate-responsive architectural solutions integrating sustainability principles.	L6-Create

REFERENCE BOOKS

- ANSI/ASHRAE Standard 55
- Edwards, B. (2010). Rough Guide to Sustainability (3rd ed.). RIBA Publications.
- Givoni, B. (1969). Man, Climate and Architecture (2nd ed.). Elsevier.
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- Reddy, B. V. V., & Jagadish, K. S. (2003). Embodied Energy of Building Materials and Sustainability. Centre for Sustainable Technologies, Indian Institute of Science.
- Szokolay, S. V. (2014). Introduction to Architectural Science: The Basis of Sustainable Design (3rd ed.). Routledge.
- TERI. (2004). Sustainable Building Design Manual: Volumes 1 & 2. The Energy and Resources Institute.
- Yannas, S. (1994). Solar Energy and Housing Design (Vols. 1 & 2). Architectural Association Publications.



Bachelor of Architecture (B. Arch)

B. ARCH. SEMESTER – II ZAR 207, COMPUTER APPLICATION-II

PERIODS			EVALUATION SCHEME						COURSE TOTAL	CREDITS	DURATION OF THEORY PAPER
LECTURE	TUTORIAL	PRACTICAL/	SESSIONAL ASSESSMENT			ESE					
		STUDIO	MJ	TA	TOTAL	THEORY	VIVA	TOTAL			
1	0	2	15	35	50	0	50	50	100	3	-

COURSE OBJECTIVES

- To develop an understanding of Revit as an important tool for drafting, designing, analysing and representing drawings.
- To develop an understanding of BIM and its use in architecture.
- To develop an understanding of Photoshop as an important tool for architectural rendering and presentation.

SECTION – A: REVIT

MODULE-1	Introduction and Modelling	Introduction to user interface, capabilities, and functionalities of the software. Introduction to all basic drafting tools, techniques, functions, and utilities available to ensure comprehensive use of software for architectural drawing and presentation. Introduce all basic and functional components/families of the software. (Like wall, floor, ceiling, door-window, railing, staircase, structure, and others). Creating Topo-surface; Modifying Topo-surface-Subregion, Split, Merge, Contours, Contour line Label, Building Pad, Graded Regions Parking Components, Site Components.
MODULE-2	Presentation, document creation and Role of BIM	Visibility graphics, exporting drawings, creating working drawings. Text and Tag, Callout Views, Drafting Views- Import and Export, reference callouts, Set Up Drawing Sheets and Export Images. Role of BIM and its applications in architecture.

SECTION – B: PHOTOSHOP

MODULE-3	Introduction and Basic working	Photoshop's interface, capabilities, and functionalities will be introduced, including system requirements, document creation, and basic editing. The workspace, touch bar, tool galleries, toolbars, menus, and key functions will be covered. The layer panel, drafting tools, and utilities for architectural drawing and presentation will be introduced. Image and colour basics—resizing, resolution, importing from cameras/scanners, and creating/importing files—will be taught. Layers, groups, frames, non-destructive editing,
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		linking, opacity, and blending will be explained. Selections using Select and Mask, lasso, marquee, quick selection, and colour range tools will be demonstrated.
MODULE-4	Image Adjustment and Editing	Perspective warp, healing brush techniques, image sharpness and blur adjustments, camera shake reduction, colour lookup table export, and colour adjustments will be introduced. Object removal using Content-Aware Fill, photo retouching and repair, and basic troubleshooting steps will be demonstrated. Content-Aware Patch and Move tools, distortion and noise correction, object transformations, cropping and straightening, warping of images, shapes, and paths, as well as crop, rotation, and canvas size adjustments will be covered. Creation and editing of panoramic images and use of vanishing points will also be taught.
MODULE-5	Drawing and representation.	Symmetrical pattern painting, drawing basics, painting tools, shape modification, shape creation, and brush creation/modification will be covered. OpenType SVG fonts, paragraph formatting, text editing, character formatting, type effects creation, and line/character spacing will be demonstrated. Supported file formats, image saving, video and animation export, saving in various graphic formats, PDF saving, filter effects reference, and the use of the Adaptive Wide-Angle filter will be taught.

Note: MJ in this course refers to 'Practical', preferably conducted in computer lab(s).

APPROACH

- Revit (Section A) starts with interface orientation and fundamental modelling tools (Module 1), then moves to site design and documentation (Module 2).
- Photoshop (Section B) follows a similar progression — introduction & workspace basics (Module 3), then image editing techniques (Module 4), and finally creative drawing and representation (Module 5).
- Each module builds on the previous one and by the end, students can combine Revit-generated drawings with Photoshop-enhanced presentations.
- The syllabus emphasises hands-on modelling and editing rather than only theory. Students learn by creating real elements: Revit: Floors, roofs, curtain walls, stairs, site grading, Photoshop: Retouching, perspective correction, text and effects. Both ensure readiness for client-ready deliverables.
- Revit: Norms for levels, grids, compound walls, and topography preparation mirror architectural and engineering workflows.
- Photoshop: Techniques like Content-Aware Fill, vanishing points, and non-destructive editing reflect modern professional design practices.
- Revit modules stress accuracy in dimensions, constraints, and 3D modelling. Photoshop modules focus on visual impact through image adjustments, text styling, and creative filters.
- The syllabus effectively mirrors the real-world pipeline: Model creation in Revit, Site and context setup in Revit, Exporting visuals from Revit, Post-production & presentation in Photoshop, Final output for print, web, or client presentations



COs	COURSE OUTCOMES	BT LEVEL
CO 1	Analyse the power of revit as a tool by understanding its effectiveness in modelling.	L4-Analyze
CO 2	Create various presentations using the tool through drafting, designing, analyzing and representation of the drawings in a desired manner.	L6-Create
CO 3	Apply Photoshop tool impactfully in application of various architectural projects.	L3-Apply
CO 4	Evaluate and examine end to end workflow simulations effectively.	L5-Evaluate
CO 5	Create effective and impressive Photoshop representations of the drawings.	L6-Create

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- Dewis, G. (2016). The Photoshop toolbox. New Riders.
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- Krygiel, E., Read, P., & Vandezande, J. (2023). Mastering Autodesk Revit 2024. Wiley.
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