

University of Calicut

Syllabus

of

Combined First and Second Semester

B.Arch. Degree Course

(With effect from 2022 admissions)

CURRICULUM OF COMBINED FIRST AND SECOND SEMESTER B. ARCH.												
Course Code	Subject	Group	Category	Credits	Hours Per Week **			Duration of Exam	Marks			
					L	T	P/S		W	J	C.A.	Total
AR 22-11	Basic Design*	I	PC	16	0	1	7	0		200	300	500
AR 22-12	Theory Of Architecture	III	PC	4	2	0	0	3	100		50	150
AR 22-13	Building Materials & Construction -I	II	BS & AE	6	1	0	2	3	100		100	200
AR 22-14	Theory Of Structures-I	III	BS & AE	6	2	1	0	3	100		50	150
AR 22-15	History of Architecture-I	III	PC	4	2	0	0	3	100		50	150
AR 22-16	Architectural Drawing & Graphics	II	PC	8	2	0	2	3	100		100	200
	Visual Art & Aesthetics		PC	6	1	0	2	3	100		100	200
AR 22-18	Model Making & Carpentry	IV	SE	4	0	0	2	0			100	100
AR 22-19	Digital Arts & Graphics	IV	SE	4	0	0	2	0			100	100
TOTAL				58	10	2	17		600	200	950	1750

* Evaluation by the Jury as per the B. Arch Degree Manual, L - Lecture, T - Tutorial, P/S - Practical/Studio, W - Written University Examination, J - Jury, C.A. - Continuous Assessment.

** One hour per week allotted to Library

Note:

One Hour Tutorial of Basic Design to be dedicated for improving the Communication & Presentation Skills of the students.

Semester: First and Second (Combined)

Course No.	Course Name	L-T-P/D	Credits	Year of Introduction
AR 22-11	BASIC DESIGN	0-1-7	16	2022
Course Objectives The Basic Design for students of architecture would, <ul style="list-style-type: none"> • Introduce the various elements and principles of design for two and three-dimensional compositions. • Train the various stages of graphical representations and communications used in drawing and design through a series of exercises • Inculcate the ability to translate abstract principles of design into architectural solutions for simple problems 				
Course Outcome <ul style="list-style-type: none"> • To observe deeply, compare, and analyze the development of different forms. • To explore fundamental concepts of proportion, scale, anthropometry, geometry, circulation, spatial expression • To understand and interpret the elements and principles of design • To use drawings and physical models as a tool to conceive, organize and develop habitable, three-dimensional space • To get acquainted with attributes of spatial qualities 				
Reference Books <ul style="list-style-type: none"> • Anthony di Mari and Nora Yoo – ‘Operative Design: A Catalog of Spatial Verbs’, 2013 • Anthony di Mari - ‘Conditional Design: An Introduction to Elemental Architecture’, 2014 • Arthur L. Gupitill and Susan E. Meyer, 'Rendering in Pen and Ink', Watson-Gupitill, 1997 • Francis D.K.Ching - Architecture - Form Space and Order, Van Nostrand Reinhold Co., (Canada),1979. • Francis D.K.Ching – Drawing – A creative Process, Van Nostrand Reinhold Co., (Canada),1979 • Joseph De Chiara, Julius Panero, Martin Zelnik, Time Saver Standards for Interior Design and Space Planning, McGraw Hill 2001. • Julius Panero, Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design, 1975 • Maitland Graves, The Art of Colour and Design, McGraw Hill Book Company Inc.,1951 • Mark Karhen, Space planning basics, John Wiley & son - 2004 • Neuferts' Architects' Data. • Owen Cappelman & Michael Jack Kordan, Foundations in Architecture: An Annotated Anthology of beginning design projects, Van Nostrand Reinhold, New York. • Paul Laseau, Graphic Thinking For Architects and Designers, John Wiley & Sons, New York, 2001. Page 29 of 163 • Paul Zelanski & Mary Pat Fisher, Design Principles & Problems, 2nd Ed, Thomson & Wadsworth, USA,1996 • Robert Gill, Rendering with Pen and Ink • Simon Unwin, ‘Analyzing Architecture’, Routledge, 2003 • Simon Unwin. ‘Exercises in Architecture-Learning to Think as an Architect’, Routledge, 2013 • V.S.Pramar, Design fundamentals in Architecture, Somaiya Publications Pvt.Ltd., New Delhi,1973. • Wong Wucius, Principles of color composition, Van Nostrand Rein Hold – 1976 				

- Wang Wucius, , Principles of three-dimensional design, Van Nostrand Rein Hold – 1976
- Wang Wucius, Principles of Two-dimensional design, Van Nostrand Rein hold -1972

MODULE I (48 hours)

INTRODUCTION TO DESIGN FUNDAMENTALS

Elements in composition: Point, Line, Plane, Volume, Colour, Texture. Analysing paintings, compositions, murals, sculptures, buildings, and nature. Introduction to and exploration of Principles of design – Dominance, unity, balance, symmetry, hierarchy, rhythm, contrast, harmony, focus etc. Introduction to fundamentals in drawing, composition and understanding graphic medium: Basic exercises in drawing skill building, composition, and design vocabulary.

MODULE II (24 hours)

COMPOSITIONAL OPERATIONS AND EXPLORATIVE MODELING

Exercises in 2 D and 3 D using concepts like abstraction, transformation, Illusion, and symbolism. Exercises on observation and visual perception on the principles of Gestalt Theory Forms: Generation of 3 D volumes from 2D to explore various organizations of forms and principles involved in articulating forms. Study of Solids and voids. Study of linear, planar and curvilinear forms using materials like mount board, metal foil, mill boards, foam boards, wire string, wire mesh, fabric and clay.

MODULE III (32 hours)

SPATIAL QUALITIES

Colour and texture: Study of colour and colour schemes, texture and texture scheme. Perception of Colour and texture in light from natural and artificial sources. Study of openings for light, shadow, shades and sciography and their effect on spaces'. Study of fluid and plastic forms using appropriate materials like clay, plaster of Paris etc. and explore the play of light and shade. Scale and proportion: Study of scale and proportioning systems – Classical orders, Golden Section etc. Anthropometrics – Study of space standards and anthropometrics to include the physically handicapped and the elderly. Literature and cinema as a medium to acquaint with architectural spaces.

MODULE IV (56 Hours)

DESIGN METHODOLOGIES

Introduction to design methodologies focusing on conceptual design development and iterative design process involving simple functional- well-articulated spaces. Illustration through hand-drafted 2D drawings and models. Major Project: Designing simple activity spaces for a small user group considering climate, site conditions, and other user requirements. Design of a fundamental furniture layout, circulation, lighting and ventilation for spaces such as Exhibition Pavilion, Gazebo, Architect's offices, Doctor's clinic and the like with an emphasis on built-unbuilt relationships and transitional spaces. Minor Project: Detailing and designing of furniture used in the Design.

TOTAL HOURS: 160

CONTINUOUS INTERNAL EVALUATION PATTERN:

Design exercises, projects, tests, and internal reviews: 270 Marks

Attendance: 30 Marks

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-P/S	Credits	Year of introduction
AR 22-12	THEORY OF ARCHITECTURE	2-0-0	4	2022
Course Objectives <ul style="list-style-type: none"> To familiarize students with the development of architecture as a discipline To introduce vocabulary essential to analyse and experiment within architecture To understand philosophies, ideologies, and theories in architecture 				
Course Outcome <ul style="list-style-type: none"> To understand the origins of architectural theory and its contribution to practice. To enhance faculty of thinking, observing, analysing, communication and discourse To offer support to develop own frameworks for appreciating architecture To appreciate the importance of design principles in analysing and interpreting architecture 				
Text books <ul style="list-style-type: none"> Johnson, PA (1994), 'The Theory of Architecture: Concepts, Themes & Practices', New York: John Wiley & Sons. Broadbent, G (1973), 'Design in Architecture – Architecture and the human sciences', London: John Wiley and Sons Simon, U (1997), 'Analysing Architecture', London: Routledge Rasmussen, SE (1962), 'Experiencing Architecture', Boston: MIT Press Ching, D K (1997), 'Architecture: Form, Space and Order' 				
Reference Books <ul style="list-style-type: none"> Tanizaki, J (2001), 'In praise of shadows', Vintage classic Bachelard, Gaston (2014), 'Poetics of Space', London: Penguin Classics. Eagleton, T (1990), 'The Ideology of the Aesthetic'. Basil Blackwell. Cambridge, MA. Harries, K (1996), 'The ethical function of Architecture', MIT Press. Cambridge, MA._ Foucault, M (2004), 'The Order of Things: Archaeology of the Human Sciences', Routledge, New York. Jencks, C (1985), 'Modern Movements in Architecture', Anchor Press,_USA. Nesbitt, K., 'Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995', Princeton Architectural Press, New York. Rowe, C (1982), 'The Mathematics of an Ideal Villa & Other Essays', MIT_Press, 1982. Agrest, DI (1991), 'Architecture from Without: Theoretical Framings for a Critical Practice', MIT Press, USA. Broadbent, G. Bunt, R & Jencks, C (1980), 'Signs, Symbols & _Architecture', Wiley 				

MODULE I (10 hours)**The essence of Architecture**

Nature of architecture. Part in relation to whole. The construct of Whole. Ordering Architecture – principles of composition. Form and space in architecture. Measure as fundamental engagement, geometry, scale, proportion. Built form, spatial relationships, spatial configuration, and organization.

MODULE II (20 hours)**Architecture and approaches**

Design conceptualisation. Influencing factors: climate, society and culture, technology, politics, economy etc. with relevant examples. Relevance of structure and stability. Material and Construction. Archetypes and approaches – Pragmatic, Canonical, Analogic, Iconic and Futuristic.

MODULE III (20 hours)**Creative thinking and Architecture Profession**

Vertical and lateral thinking in architecture. Creative thinking in architecture. Principles, abstractions, and dictums. Positions adopted by architects in society and in practice – Architect as visionary, architects as artists, architects as poets, Architects as scientists and technologists through relevant examples from India and abroad

MODULE IV (10 hours)**Theoretical positions**

Architectural historicism. Context and contextualism. Type and typology. Determinism. Form and function. Isms – Minimalism, regionalism, parametricism, modernism, postmodernism, etc. Aphorisms – Less is more, Less is bore, Form follows Function etc. Genius Loci

TOTAL HOURS: 60

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments (minimum 2)	- 20 marks
Two internal tests each of equal weightage	- 25 marks
Attendance	- 5 marks

UNIVERSITY EXAMINATION PATTERN

Q1 – 8 Short type questions of 5 marks, 2 from each module

Q2 – 2 Questions of 15 marks from Module 1 with a choice to answer any one of them.

Q3 – 2 Questions of 15 marks from Module 2 with a choice to answer any one of them.

Q4 – 2 Questions of 15 marks from Module 3 with a choice to answer any one of them.

Q5 – 2 Questions of 15 marks from Module 4 with a choice to answer any one of them.

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-P/S	Credits	Year of introduction
AR 22-13	BUILDING MATERIALS AND CONSTRUCTION I	1-0-2	6	2022
Course Objectives The building materials and construction course for students of architecture would, <ul style="list-style-type: none"> • Introduce the different components of buildings and various materials, their properties and uses. • Provide an exposure to the principles of masonry construction, arches, lintels/ beams, corbelling, cantilever etc. • Help them to understand the details of construction using stone and soil as well as products derived from them. 				
Course Outcome <ul style="list-style-type: none"> • To understand the properties of various building materials and their applications. • To explain the techniques for constructing various components of a building. • To acquire drafting skills for the representation of construction details. 				
Text books <ul style="list-style-type: none"> • Arora S.P. and Bindra S.P., “Text book of Building Construction”, Dhanpat Rai & Sons, New Delhi, 2012. • Klans Dukeeberg, Bambus – Bamboo, Karl Kramer Verlag Stuttgart Germany, 2000. • National Building Code of India 2005- Part 6 Structural Design- Section 3 Timber and Bamboo. • Francis D.K. Ching, Building Construction Illustrated John Wiley & Sons 2000. • Balagopal T.S. Prabhu, “Civil Engineering Drawing Hand book” 				
Reference Books <ul style="list-style-type: none"> • Ghanshyam Pandya, M.P. Ranjan, Nilam Iyer Bamboo and Cane Crafts of Northeast India; National Institute of Design (2004). • Don A. Watson Construction Materials and Processes McGraw Hill 1972. • WB Mckay Building construction, Vol 1,2, Longman UK 1981. • Barry, The Construction of Buildings; Affiliated East West press put Ltd New Delhi 1999 				

MODULE I

INTRODUCTION (15 hrs)

Introduction to Building Materials – Sand, Stone, Brick, Timber, Clay & Ceramic products – their sources, classification, properties, and applications. Drafting Exercises on Representation of different types of building materials in plan and sections. Symbols used to denote different types of joinery, plumbing fittings and accessories in plan, sections and elevations. Components of Building – Sub structure and Super structure. Drafting Exercises on Simple, cross section of walls showing various building components in plan and section.

MODULE II

FOUNDATIONS (12 hrs.)

Introduction to Foundations – Definition, function, types – selection criteria – bearing capacity of soil – methods of testing – settlement of foundations. Drafting exercises on various types of foundations – Wall Footing, Isolated Footing, and Combined Footing.

MODULE III

MASONRY (30 hrs.)

Brick Masonry - Types of bricks, principles of brick masonry construction - joints, pointing and finishing. Types of brick masonry - brick masonry work using different bonds, rat trap bond, Junctions – T- Junction (1 and 1 1/2 bricks), L – Junction (1 and 1 1/2 bricks), Cross junction (2 bricks), Piers – 1, 1 1/2, 2 bricks. Brick paving, Reinforced Brick Masonry, Cavity wall, and Composite Masonry. Types of mortar & mortar mix for brick construction and Plastering. Brick masonry for foundation plinth and wall, arches and lintels in brick, coping, steps. Principles of stone masonry construction Types of stone masonry random rubble masonry/ Ashlar Masonry - stone finishes- jointing types of mortar for stone construction. Stone masonry for foundation, plinth and wall, retaining wall, arches and lintels in stone, coping, steps, flooring, cladding.

MODULE IV

MUD CONSTRUCTION, CLAY PRODUCTS AND RURAL MATERIALS (15 hrs.)

Cob, Rammed earth, Wattle and daub construction Principles of Masonry construction using Adobe, Compressed Stabilized Earthen Blocks Foundation and plinth for mud structures, Design of openings (arches, corbelled arches), Mud plaster, mud mortar, Damp and weather proofing of mud structures, Mud flooring, Construction of thatched roof. Drafting Exercises on Hollow clay blocks – walls, roofs, partitions. Applications of various natural materials (Mud, Bamboo, Casuarinas, Palm, Coconut, Hay, Grass husk) in various parts of the building.

TOTAL HOURS-72

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments / Viva based on assignments	- 60 marks
Two internal tests each of equal weightage	- 30 marks
Attendance	- 10 marks

UNIVERSITY EXAMINATION PATTERN

Q1 – 8 Short type questions of 5 marks, 2 from each module

Q2 – 2 Questions of 15 marks from Module 1 with a choice to answer any one of them.

Q3 – 2 Questions of 15 marks from Module 2 with a choice to answer any one of them.

Q4 – 2 Questions of 15 marks from Module 3 with a choice to answer any

one of them.

Q5 – 2 Questions of 15 marks from Module 4 with a choice to answer any one of them.

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-S-P/D	Credits	Year of introduction
AR 22-14	THEORY OF STRUCTURES-I	2-1-0	6	2022
Course Objectives <ul style="list-style-type: none">• To develop an overall understanding and interest in structural system.• To apply the principles of mechanics in practical engineering problems.• To enable an understanding of fundamentals of stress and strain.• To introduce basic understanding of engineering structures and to explain effective forces on various structural elements.• To study the sectional properties of various sections.				
Course Outcome <ul style="list-style-type: none">• To explain the concepts of stress and strain.• To Differentiate the various structural elements in a building and types of loads acting on it.• To demonstrate the principles used in various types of beams and their loading patterns.• To describe the sectional properties of various sections.				

Text books

- Rajasekharan S. and Sankarasubramanian G., Engineering Mechanics- Statics and Dynamics, Vikas Publications, New Delhi
- R. K. Banzal., Engineering Mechanics, Lakshmi Publications Pvt. Ltd., New Delhi
- R. K. Banzal., Strength of Materials, Lakshmi Publications Pvt. Ltd., New Delhi
- Bhavikkatti S. S., Engineering Mechanics, New Age International Publishers
- S. Ramamrutham., Strength of Materials, Dhanpat Rai Publishing Company Pvt Limited

Reference Books

- Shames I. H, Engineering Mechanics- Statics and Dynamics, Prentice Hall of India, New Delhi
- Hibbeler R. C., Engineering Mechanics- Statics, Pearson Education, New Delhi
- Timoshenko, Strength of Materials Vol. I & Vol. II, CBS Publishers & Distributors, New Delhi
- James M Gere & Stephen P Timoshenko, Mechanics of Materials, CBS Publishers & Distributors, New Delhi
- S. B Junnarkar & H. J Shah, Mechanics of Structures Vol I, Charotar publishing House, Anand
- .Kumar, K. L., Engineering Mechanics, Tata Mc Graw Hill Publishing Company Limited.
- Benjamin J., Engineering Mechanics, Pentex Book Publishers and Distributors.
- J.L. Meriam & L.G. Kraige, "Engineering Mechanics", John Wiley and Sons

MODULE I (18 hours)

- Basic concepts of Strength, Stiffness and Stability.
- Introduction to force concepts: Characteristics of force, System of forces.
- Principles of statics- principle of transmissibility, composition and resolution of forces.
- Equilibrium conditions - free body diagrams.
- Resultant of co-planar concurrent forces –Parallelogram law of forces, Lami's theorem.
- Resultant of co planar non-concurrent forces- Method of resolution, Method of moments - Theorem of Varignon. Couple, Parallel force system.

MODULE II (14 hours)

- Simple stresses and strains - Types of direct stresses (Tension, compression and shear) and indirect stresses (Bending and Torsion).
- Elastic theory- stress strain diagram- Hooks Law- Working stress- Poisson's ratio.
- Elastic Constants- Relationship between elastic constants (Derivations not required)
- Elongation of bars of constant and varying cross sections (Concept only), Thermal stresses (Simple problems only)

MODULE III (14 hours)

- Beams: Types of beams and supports.
- Load types - Point load, uniformly distributed and varying loads.
- Support reactions of simply supported, cantilever and overhanging beams.
- Plane trusses: Types of trusses-Analysis of cantilever and simply supported trusses
- using Method of joints (Method of sections and Graphical method (Concept only)

MODULE IV (14 hours)

- Centre of gravity - Concept and Definition - Center of mass- Centroid - Determination of centroid of plane figures, composite and cut out sections.
- Moment of inertia - Concept and Definition - Perpendicular axis theorem, Parallel axis theorem - Moment of inertia of plane and composite areas (Rectangle, square, triangle, circle, I -section, Angle section) - Polar moment of inertia

TOTAL HOURS: 60

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments (minimum 2)	- 20 marks
Two internal tests each of equal weightage	- 25 marks
Attendance	- 5 marks

UNIVERSITY EXAMINATION PATTERN

- Q I - 8 short type questions of 5marks, 2 from each module.
 Q II - 2 Questions of 15marks from module I with choice to answer anyone.
 Q III - 2 Questions of 15marks from module II with choice to answer anyone.
 Q IV - 2 Questions of 15marks from module III with choice to answer anyone.
 Q V - 2 Questions of 15marks from module IV with choice to answer anyone.

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-P/S	Credits	Year of Introduction
AR22-15	History of Architecture I	2-0-0	4	2022
Course Objectives <ul style="list-style-type: none"> • To explain the concepts of culture, time and space through the lens of historic architecture. • To provide an insight to the architecture of the prehistoric period, ancient civilizations across the world, and Buddhist and Hindu architecture in India. • To introduce the cultural and contextual determinants that influenced the built form and settlement patterns through ages. • To illustrate the development of architecture with reference to character, style, materials, technology, climate, geography, religion, and culture. 				
Course Outcome <ul style="list-style-type: none"> • To demonstrate passionate observation and documentation to learn about heritage • To explain the spatial and stylistic qualities associated with architecture of various civilizations. • To analyze architecture within the realm of various social, political and economic upheavals, and as a response to cultural and contextual pressures. • To appreciate the chronological developments along the timeline and across various 				

civilizations and geographies.

Texts

- Christopher Tadgell , ‘The History of Architecture in India’, Phaidon, 1994.
- Percy Brown, ‘Indian Architecture (Buddhist and Hindu Period)’, Taraporevala and Sons, Bombay, 1983.
- Satish Grover, ‘The Architecture of India (Buddhist and Hindu Period)’, Vikas Publishing Housing Pvt. Ltd., New Delhi, 2003.
- Upinder Singh, ‘A History of Ancient and Early Medieval India: From the Stone Age to the 12th Century’, Pearson Education India, 2008

References

- Banister Fletcher, ‘Dan Cruickshank Sir, Banister Fletcher's a history of architecture: A History of Architecture’, Architectural Press,1996.
- Ching, Francis, Vikramadithya Prakash, Mark M Jarzombek, ‘A Global History of Architecture’, John Wiley & Sons, 2011.
- Dora P. Crouch, June G. Johnson, ‘Traditions in Architecture: Africa, America, Asia, and Oceania’, OxfordUniversity,2000.
- Ilay Cooper, ‘Barry Dawson, Traditional Buildings of India’, Thames and Hudson, 1998. Satish Chandra, ‘History of Architecture and Ancient Building Materials in India’, Tech Books International,2003.
- James C. Harle , ‘The Art and Architecture of the Indian Subcontinent:’ Second Edition, Yale UniversityPress,1994.
- Michael Raeburn, ‘Architecture of the Western World’, Rizzoli, 1982.

Module I (16 Hours)

Introduction to the architecture of the ancient western world. To generate an understanding about the development of civilization and its architectural implications.

Prehistoric architecture of the West, East and Middle East: General characteristics of the earliest Human Settlements: Gobekli Tepe, Catal Huyuk, Jericho, Jomon culture.

Cross-cultural understanding of factors influencing early settlement and built form of Ancient Civilizations:

Ancient Mesopotamia: History, evolution and characteristics. Example: Ziggurat (Sumerian), Palace of Sargon (Assyrian), Ishtar Gate (Babylonian).

Ancient Egypt: History, evolution and characteristics. Example: Early tomb architecture and later temple architecture: Examples- Giza Pyramid Complex, Great Temple of Karnak.

Ancient Greece: History, evolution and characteristics. Study of principles of design, proportion, Optical corrections and Classical Orders. Example: Acropolis of Athens and structures within, Agora.

Ancient Rome: History, evolution and characteristics. Study of planning principles adopted, Tuscan and composite orders, Roman Engineering Skills- lintels, arches & vaults, Aqueducts, building typologies, Forum. Examples - Pantheon, Colosseum.

Module II (8 Hours)

Early Settlements in India: Mehrgarh, Early Harappan. Indus Valley Civilisation: City Planning. Domestic Architecture. Building materials and construction techniques. Example: Great Bath, Mohenjodaro

Vedic Period: Vedic Village. City Planning in the later Vedic period. Building materials and construction techniques.

Buddhist & Jain Period: History, evolution and characteristics. Major building typologies; Stupa, Chaitya hall, Vihara. Examples: The Great Stupa at Sanchi, Chaitya Hall at Karli, Main caves at Ajanta & Ellora.

Module III (12 Hours)

A brief overview of Hindu Architecture - Hindu Temple planning, essential features, philosophy and ritual creating specific architectural vocabulary – Early Hindu temple architecture and rock-cut architecture of the Gupta, Chalukyan and Pallava periods – Tigawa Temple, Main caves at Badami, Ladh Khan and Durga Temple, Aihole; Rathas of Mahabalipuram.

North Indian Temple Architecture (Nagara style)- Evolution and salient features of North Indian Temple Architecture and its regional variations in Orissa, Gujarat & Madhya Pradesh. Examples - Lingaraja Temple, Bhubaneswar; Sun Temple, Modhera; Khandariya Mahadeo temple, Khajuraho.

Module IV (12 Hours)

South Indian Temple Architecture (Dravida style) : Evolution under different rulers and characteristic features- Examples:- Pallavas: Shore Temple at Mahabalipuram; Chola: Brihadeshwara Temple, Thanjavur; Pandya : Evolution of Gopurams and temple towns- Meenakshi Temple, Madurai; Vijayanagara: Vittalaswami Temple, Hampi; Nayaks: Rameswaram Temple.

Central Indian Temple Architecture (Vesara style) – Evolution under different rules and characteristic features- Examples:- Chalukyas: Virupaksha Temple, Pattadakal; Rashtrakutas: Kailashnath Temple, Ellora; Hoysala: Hoysaleswara Temple, Halebid.

TOTAL HOURS: 48

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments (minimum 2)	- 20 marks
Two internal tests each of equal weightage	- 25 marks
Attendance	- 5 marks

UNIVERSITY EXAMINATION PATTERN

Q I - 8 short type questions of 5 marks, 2 from each module.

Q II - 2 Questions of 15 marks from module I with choice to answer anyone.

Q III - 2 Questions of 15 marks from module II with choice to answer anyone.

Q IV - 2 Questions of 15 marks from module III with choice to answer anyone.

Q V - 2 Questions of 15 marks from module IV with choice to answer anyone.

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-P/D	Credits	Year of Introduction
AR 22-16	ARCHITECTURAL DRAWING & GRAPHICS	2-0-2	8	2022
Course Objectives <ul style="list-style-type: none"> To equip students with the fundamental basics of drawings, methods, mediums and techniques To enable students to visualize geometric objects and buildings in 2 and 3 Dimensions To develop appropriate manual skills for visualization and technical representation of built forms by means of different types of drawings. To bridge to higher semesters the application of skills in the design process, computer-aided design and presentation 				
Course Outcome <ul style="list-style-type: none"> To demonstrate the concepts of architectural graphics and drawing techniques To represent geometric objects, furniture or buildings using various architectural drawing methods To visualize and represent drawings with precision and quality 				
Textbooks <ul style="list-style-type: none"> N. D. Bhatt, 'Elementary Engineering' Giesecke, Mitchell, et.al, 'Engineering Graphics' (7th edition) Fraser Reekie, 'Reekie's Architectural Drawing' Ching, Francis D. K., 'Architectural Graphics' Ching, Francis D. K., 'Design Drawing' Ching, Francis D. K., 'Drawing, Space, Form, Expression' Shankar Mulik, 'Perspectives and Sciography', Allied Publishers, India, 1999 Norling. Earnest R., 'Perspective Made Easy', New York: Dover Publications, Inc., 1999 				
MODULE I (12 hours) <ol style="list-style-type: none"> INTRODUCTION TO DRAWING - Introduction to Architectural drawings: types of drawings—Freehand sketches and mechanical drawings for architectural applications. Different mediums used such as pencil, ink, papers, and reproduction methods—demonstration of drawing instruments and their use. FREE-HAND DRAWING - Introduction to line weights, free-hand sketching TECHNICAL DRAWING & TOOLS - Horizontal, vertical and diagonal lines (using 30°, 45°, and 60° set squares), construction of regular polygons, terminologies used in architectural drawing, and material representations in a drawing. SHEET FORMATTING & DRAWING CONVENTIONS- Sheet layout, title block preparation, different types of lines, line thickness, dimensioning lines and dimensioning styles LETTERING - Introduction to lettering, simple writing exercises 				

6. SCALES – Types of scales, Use of scale in drawings, Enlarging/reduction of drawings, Representation fraction (R.F.), Construction detail of Plain scale.

(Minimum 4 Drawing Exercises Suggested)

MODULE II (20 hours)

INTRODUCTION TO SOLIDS & ORTHOGRAPHIC PROJECTION - Introduction

1. DEVELOPMENT OF SURFACE OF SOLIDS- (Frustum and truncated- prisms, cylinder, cone and pyramids)
2. ORTHOGRAPHIC PROJECTION OF SOLIDS (prisms, cylinder, cone and pyramids)
3. ORTHOGRAPHIC PROJECTION OF OBJECTS (simple objects and furniture)
4. MEASURED DRAWING- Drafting Plan, Elevations and Sections of single-room structures

(Minimum 4 Drawing Exercises Suggested)

MODULE III (20 hours)

PARALLEL PROJECTIONS: Introduction

1. ISOMETRY- Projections and Views- Drawing isometric views and projections of simple solids and furniture pieces- Conversion from isometric 3D to orthographic 2D
2. AXONOMETRY - Axonometric drawing and exploded views of simple objects and documented spaces in the campus.

(Minimum 4 Drawing Exercises Suggested)

MODULE IV (16 Hours)

PERSPECTIVE PROJECTION & SCIOGRAPHY: Introduction

1. PERSPECTIVE PROJECTIONS: Definition of perspective elements, Vanishing point Methods. Constructing one-point and two-point perspective views of simple solids and furniture pieces.
2. INTRODUCTION TO SCIOGRAPHY- principles of shades and shadows, drawing shadows of simple objects in plan, elevation and perspective.

(Minimum 4 Drawing Exercises Suggested)

Note:

The number of drawing exercises suggested above is for class work. Additional exercises wherever necessary may be given as home assignments.

Total Hours: 68 Hours

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments / Viva based on assignments	- 60 marks
Two internal tests each of equal weightage	- 30 marks
Attendance	- 10 marks

UNIVERSITY EXAMINATION PATTERN

- Q I - 3 Questions of 12.5 marks each from module I with a choice to answer any two of them.
Q II - 3 Questions of 12.5 marks each from module II with a choice to answer any two of them.
Q III - 3 Questions of 12.5 marks each from module III with a choice to answer any two of them.
Q IV - 3 Questions of 12.5 marks each from module IV with a choice to answer any two of them.

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Semester: First and Second (Combined)

Course No.	Course Name	L-T-P/D	Credits	Year of Introduction
AR 22-17	VISUAL ART AND AESTHETICS	1-0-2	6	2022
Course Objectives <ul style="list-style-type: none"> Holistic development of students by understanding the role and importance of art as a means of expression. Present Art as a medium of collective engagement and giving aesthetical orientation among students. Help students acquire basic knowledge in critical appraisal of various art forms. Provide requisite knowledge of the visual language and presentation techniques involving various mediums. 				
Course Outcome <ul style="list-style-type: none"> Develop an orientation for seeing and sensitizing. Express imagination, intuition, and engagement. Express ideas, thoughts, and experiences through various visual modes. Demonstrate in the forms of compositions and models in 2D and 3D. 				
Textbooks <ul style="list-style-type: none"> E.H. Gombrich- 'The Story of Art' Partha Mitter, Parul Deve Mukhrji, Rakhee Balram- '20th Century Indian Art- modern, post-independence, contemporary'. Matthew Collings- 'This is Modern Art' Ocvirk, Stinson, Wigg, Bone and Cayton- 'Art fundamentals -theory and practice' J.H. Bustano- 'Principles of Color and Color Mixing'. Francis D.K. Ching- 'Drawing, Space, Form, Expression'. Victor Perard- 'Anatomy and Drawing'. Luis Slobodkin- 'Sculpture-Principle and Practice'. Suzanne Huntington- 'Art of Ancient India'. Roy C. Craven- 'Indian Art'. J.C. Harle- 'Art & Architecture of the Indian Sub-continent'. 				
MODULE I (15 hours) FUNDAMENTALS OF VISUAL ART AND DESIGN VOCABULARY <ul style="list-style-type: none"> Introduction to art object- Definition and Interpretation. Introduction to western art history- artistic tradition and theories, different isms/movements like realism, impressionism, expressionism, cubism, surrealism, constructivism, de sti]l, abstract art, pop art, conceptual art. Basic elements and principles of art and the correlation between art, design, and architecture. MODULE II (18 hours) INTRODUCTION TO SOLIDS & ORTHOGRAPHIC PROJECTION - Introduction COLOR THEORY AND RENDERING TECHNIQUES <ul style="list-style-type: none"> Tonal value and variation, shading and texture techniques using pencil, pen and ink, pastels, water color, Poster color, acrylic color. 				

- Color wheel and Color theories- Chromatic Values, Two-dimensional/Three-dimensional aspects of Painting.
- Rendering of 2D shapes and 3D forms (geometric and organic).
- Perspectives and sciography- Use, Definition, Direction of Light, Location of the object, Shadow of architectural elements.
- Outdoor study- study of buildings in relation to the context and rendering in different mediums.

MODULE III (15 hours)

VISUAL PERCEPTION AND STUDY OF COMPOSITION

- Gestalt theory of visual perception- Basic psychological aspects of lines, forms and colors.
- Creative exercises –visual composition and abstraction, logo design, collage, calligraphy and typography.
- Art appraisal- critical analysis of different art forms, expressions and Interpretations.

MODULE IV (18 Hours)

PART 1- INDIAN ART AND AESTHETICS

- Introduction to Indian aesthetics- principles of Indian art, rasa theory.
- Different Indian Art forms- Development of Indian Art forms through different ages. Cave paintings, Indus valley art, Mural tradition, Miniature paintings, tribal and folk arts, company painting, Revival movement, Modern Indian Art.

PART 2- FORM EXPLORATIONS AND SCULPTING

- Languages, Methods & Techniques of Sculpture- Form, Texture, Mass and Volume.
- Sculpting in Clay or Plaster, Molding & casting.
- Installation Art and New media practices.

Total Hours: 66 Hours

CONTINUOUS INTERNAL EVALUATION PATTERN:

Tutorials / Assignments / Viva based on assignments	- 60 marks
Two internal tests each of equal weightage	- 30 marks
Attendance	- 10 marks

UNIVERSITY EXAMINATION PATTERN

- Q I- 8 short-type questions of five marks, two from each module.
 Q II - 2 Questions of 15 marks from module I with a choice to answer anyone.
 Q III -2 Questions of 15 marks from module II with a choice to answer anyone.
 Q IV -2 Questions of 15 marks from module III with a choice to answer anyone.
 Q V - 2 Questions of 15 marks from module IV with a choice to answer anyone.

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-S-P/D	Credits	Year of introduction
AR 22-18	MODEL-MAKING & CARPENTRY	0-0-2	4	2022
COURSE OBJECTIVE <ul style="list-style-type: none">Equip students with the basic skills necessary to represent their ideas three-dimensionally using simple materials.Enable students to get acquainted with various tools for creating architectural models.Help students better comprehend the Basic Design and Architectural Graphics Studio exercise, as the subject is to be taught in coordination with them.				
COURSE OUTCOME <ul style="list-style-type: none">To demonstrate project presentation skills using simple as well as detailed architectural models.To create models ranging from study to presentation and in varying scales and materials.				

REFERENCE BOOKS

- Criss. B. M., “Designing with models: A Studio Guide to Architectural Process Models”, John Wiley & Sons, Hoboken, 2011
- Dunn, N., “Architectural Modelmaking”, Laurence King Publishing, 2013
- Model Making by Werner, Megan
- Schilling, A., “Basics Model-building”, Birkhauser, Berlin, 2007.
- Knoll, W. and Hechinger, M., “Architectural Models: Construction Techniques”, Cengage Publications, 2014

MODULE I (6 hours)

Need for architectural models, Role of scale models in design; General practices in the model making; Types of models: block, detailed, construction & interior models. Introduction to concepts of model making and various materials used for model making. Techniques of cutting paper to create regular polygon shapes as 2D planes (3-sided to 10-sided polygons). Creating basic solid shapes such as squares, rectangles, circles & triangles with various paper mediums.

MODULE II (8 hours)

Creating platonic solids with a suitable paper medium.

Making of models using free-flowing materials such as clay, Plaster of Paris, etc.

Introduction to block models of objects (3D Compositions) and buildings involving the use of various materials like Soap/Wax, Boards, Clay, etc.

MODULE III (12 hours)

Introduction to Wood as a material.

Simple exercises in cutting, finishing, form exploration, and joinery with simple blocks, the composition of basic geometrical forms, etc.

Simple joinery details in wood. Use of carpentry tools and making joints such as Dovetail joint, Mortise, and Tenon joint, Lap joint, Butt joint, etc. Metal-welded joints, nut bolt joints.

MODULE IV (14 hours)

Making models of the various structural systems used in buildings like; Space frames – using Match sticks, and wires; Different forms of shell roofs, and Tensile structures using fabric.

Creating a detailed building model: Exterior/interior using different materials and paper to represent the actual material on a suitable scale.

Flexible for the teacher to decide on assignments for representing innovative ideas and using new materials and techniques.

Ex: Architectural detailed models of famous buildings, Historic models, Working models, etc.

Total: 40 hours

CONTINUOUS INTERNAL EVALUATION PATTERN:

- | | |
|---|------------|
| • Demonstrations / Presentations / Drawings (Course work) | - 50 marks |
| • Records / Portfolio | - 20 marks |
| • Final test / Viva | - 20 marks |
| • Attendance | - 10 marks |

Semester: First and Second (Combined)				
Course No.	Course Name	L-T-S-P/D	Credits	Year of introduction
AR 22-19	DIGITAL ARTS & GRAPHICS	0-0-2	4	2022
COURSE OBJECTIVE <ul style="list-style-type: none"> • To familiarize students with basic core skills of digital media. • To support students to develop synthesis between observation/ analysis, and representation/documentation essentials within architecture • To introduce and use range of digital media and vocabulary used in architecture • To encourage students to use range of graphical and illustration medium to articulate design 				
COURSE OUTCOME <ul style="list-style-type: none"> • To communicate ideas and arguments through range of digital media. To develop representation, observation, analysis, technical skills • To demonstrate the use of various digital medium for progressing and developing architectural design • To demonstrate the use of various tools and medium to speculate and provoke new ideas. • To develop visual awareness and analysis, for developing critical thinking and representations. 				

REFERENCE BOOKS

- Cook, S., 2013. *Drawing: The Motive Force of Architecture, 2nd Edition*. John Wiley & Sons.
- Calvino, I., 2013. *Invisible Cities.*: Houghton Mifflin Harcourt.
- Cook, S., 2016. *Architecture Workbook: Design through Motive*. John Wiley & Sons.
- Ingels, B., 2010. *Yes is more*. Köln: Taschen.
- Kahn, L. and Merrill, M., n.d. *Louis Kahn: The Importance of a Drawing*. USA: Lars Muller Publishers.
- Spiller, N., 2013. *Drawing architecture*. Chichester: Wiley.

MODULE I (20 hours)

Photography:

Photography as a medium of communication in architecture- Critical communication through photography, creative and speculative idea development.

Skill Development:

Basic Introduction to digital photography

Basics of image editing software like photoshop

Post processing of images in software like photoshop

Sample Exercise:

Suggested Projects for this module

Preparing a collage to narrate a story of a place through the photographs students have taken

Prepare a poster on a topic

MODULE II (20 hours)

Film making:

Relevance of motion pictures in architecture, concept communication

Skill Development

Basic Introduction to digital videography

Basics of video editing software like After Effects, Adobe Premiere Pro to build a project

Sample Exercise:

Suggested Projects for this module

Preparing a two-minute video to narrate an architectural story

MODULE III (20 hours)

Architectural communication mediums I:

Representation as integral part of design process and production – studying origins of architectural representation and its transformation to digital media and technology

The study of works of Archigram, Superstudio, BIG architects etc. to understand the way of communication of architecture projects through various mediums.

Skill Development

Basic Introduction to graphic software like Adobe illustrator

Basic Introduction to drafting software like Autocad

Sample Exercise:

Suggested Projects for this module

Prepare series of conceptual drawings to describe an architectural project, using images, drawings and illustrations.

TOTAL HOURS: 60

CONTINUOUS INTERNAL EVALUATION PATTERN:

- Demonstrations / Presentations / Drawings (Course work) - 50 marks
- Records / Portfolio - 20 marks
- Final test / Viva - 20 marks
- Attendance - 10 marks