॥ सा विद्या या विमुक्तये ॥

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड – ४३१ ६०६ (महाराष्ट्र राज्य) भारत

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'B++' grade

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

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विज्ञान व तंत्रज्ञान विद्याशाखेतील **Bachelor of Architecture** या पदवी स्तरावरील प्रथम वर्षाचे सुधारित अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक २७ मे २०२५ रोजी संपन्न झालेल्या मा.विद्यापरिषदेच्या बैठकीतील विषय क्र.४२/६१–२०२५ च्या ठरावानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील **Bachelor of Architecture** या पदवी स्तरावरील प्रथम वर्षाचे सुधारित अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्यास मा.विद्यापरिषदेने मान्यता प्रदान केलेली आहे.

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या www.srtmun.ac.in या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.:शै–१/एनइपी/परिपत्रक/आर्किटेक्चर/२०२५–२६/ 239
दिनांक :२९.०९.२०२५

27/9

सहा.कुलसचिव
शैक्षणिक (१–अभ्यासमंडळे) विभाग

प्रत : १) मा. कुलगुरू महोदयांचे कार्यालय, प्रस्तुत विद्यापीठ.
२) मा. प्र. कुलगुरू महोदयांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
४) मा. संचालक, परीक्षा व मुल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
५) मा. प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
६) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. यांना देवून कळविण्यात येते की, सदर परिपत्रक संकेतस्थळावर प्रसिध्द करण्यात यावे.

Swami Ramanand Tirth Marathwada University, Nanded

Bachelor Of Architecture

FIRST YEAR SYLLABUS

SEMESTER 1

SR. NO	CODE	SUBJECT	HRS/WEEK	TYPE OF CLASS	MARKS						TOTAL MARKS	CREDITS
					INTERNAL		EXTERNAL		THEORY			
					MAX	MIN	MAX	MIN	MAX	MIN		
1	101	ARCHITECTURAL DESIGN STUDIO -2	7	STUDIO	150	75	---	---	---	---	150	6
2	102	VISUAL ARTS AND BASIC DESIGN- 1	5	STUDIO	150	75	---	---	---	---	150	5
3	103	ARCHITECTURE BUILDING CONSTRUCTION AND MATERIALS-1	6	LECTURE + STUDIO	80	40	---	---	70	28	150	5
4	104	STRUCTURAL MECHANICS-1	3	LECTURE	50	25	---	---	50	20	100	3
5	105	HUMANITIES & VERNACULAR ARCH.	2	LECTURE	50	25	---	---	50	20	100	3
6	106	ENVIRONMENTAL STUDIES-1	2	LECTURE	50	25	---	---	---	---	50	2
7	107	ARCHITECTURAL GRAPHICS-1	6	UDIO	150	75	---	---	---	---	150	5
8	120	MODEL MAKING AND WORKSHOP	3	UDIO	100	50	---	---	---	---	100	4
9	121	COMMUNICATION SKILL	2	TUTORIAL	50	25	---	---	---	---	50	3
			36						---		1000	36

ARCHITECTURAL DESIGN STUDIO- I

Subject code: - 101 Credit-6 Internal: 150

Lecture Hours:50 minutes duration -60 hours External: Nil

Studio Hours :72 periods Theory: Nil

Course Objective Understanding of human activity, its social structure and behavior. Analyzing of the space that human required, received and desired.

UNIT 1 – Anthropometry

- Understanding of human activity.
- Relation of human behavior in private and public spaces.
- Anthropometric data collection of differently age group and physically disabled person.
- Importance and uses of anthropometric data in product design and space design.

UNIT 2 – Ergonomics

Use of anthropometric data in ergonomics product design and space design

UNIT 3 - Scale and Proportion

- Scale used for architectural drawings
- Proportion as a referential ratio to ensure and relate parts of building looks balanced, unified, pleasing as well as human also. e.g. Golden Ratio, Fibonacci series, etc.

UNIT 4- Space Analysis

- Analysis of Residential spaces in context to activity and space requirement.
- Analysis of small public spaces.

** Time Problem: Small spaces to design in self-context or surrounding example: Watchman Cabin, Bus Stop, Fruit Stall, office, Drinking water tank on road,

UNIT 5 Exposure to architects and their works

To familiarize with iconic architects and their landmark works. To understand various architectural ideologies and design philosophies. To inspire critical thinking through observation, comparison, and discussion. Pioneers of Modern Architecture, Indian Architects, Contextual & Contemporary

Reference Books

1) Human dimension & interior space Rendering with pen + ink, Thames& Hudson.

2 Neuf reds data

3) V. S. Parmar, Design Fundamentals in Architecture, Somaiya Publication Pvt. Ltd.

4) 4. Ching, F. D. K. (2012). Architecture: Form, Space and Order. 3rd Ed. Hoboken: John Wiley & Sons

.5) Joseph De Chiara, Time saver standards for building types – McGraw-Hill Inc., US; 3rd Revised edition.

6)Yatin Pandya - Elements of Space Making

7)Basics: Glass construction: Andreas Achilles / Diane Navratil

8)Basics: urban building blocks Thorsten BURTLIN / Michael petered

9)Basics project planning Hartmut Klein

10)Basics: Urban analysis Greet Schwalbach

11)Furniture for interior Design Sam booth / Drew Plunkett

VISUAL ARTS AND BASIC DESIGN 1

Subject code: - 102 Credit- 5 Internal: 150

Lecture Hours:50 minutes duration -60 hours External: Nil

Studio Hours :72 periods Theory: Nil

Course Objective To understand elements of design and Art as expression, communication, symbolism.

Unit 1 Types of line and its impact

Recognize and use line types in architectural communication. lines influence form, rhythm, and emotion. Develop sensitivity to line quality and graphic expression. Translate 2D linework into 3D thinking. Analyze famous architects used lines in early sketches or plans. Analytical diagramming for the built environment

Unit 3 Sketching: Introduction to basic 2D and 3D

Sketching, understanding light, shades and shadows, freehand sketching; building sketches, landscape elements, interior elements. study of different rendering techniques using various media

Unit 4: Color Theory & Architectural Expression"

Introduction to the fundamentals of color theory and develop ability to use color strategically in architectural representation and conceptual design. The Color Wheel: Primary, Secondary, Tertiary Colors Color Schemes: Analogous, Complementary, Monochromatic, Triadic, Split Complementary Color Properties: Hue, Saturation, Value (Tint, Tone, Shade) Warm vs. Cool Colors, Psychology of Color in architecture: mood, identity, emphasis, function

Color & Emotion Color in Architecture (Design Application) Understand basic color theory and apply it to design. Explore how color affects mood, form, and perception. Learn to use color schemes with purpose and balance. Practice visual storytelling through color in spatial design.

Unit: Introduction to art and evolution of art

Introduction to Art and Its Evolution: introduction to the origins and evolution of art, exploring how cultural, social, and technological changes influenced artistic expression and developments have impacted architecture and design thinking.

From Cave Walls to Canvas & Concrete: A Journey Through Art”1. What is Art? Basic definitions: art as expression, communication, symbolism. The difference between art and craft.2. Historical Periods of Art (Overview): Prehistoric Art (cave paintings, petroglyphs) Ancient Art (Egyptian, Mesopotamian, Greek, Roman) Medieval Art (Byzantine, Gothic) Renaissance & Baroque Modern Art (Impressionism, Cubism, Abstract) Contemporary Art & Digital Art 3. Art in Architecture: Integration of painting, sculpture, and ornament in historical buildings. Role of art in expressing identity, culture, and space. Art-Architecture Connection (Mini Research): Museum or gallery visits reflection (physical or virtual) Art movement

Reference Books

1) Human dimension & interior space Rendering with pen + ink, Thames& Hudson

3) Francis D.K. Ching, Architecture form, space and order, John Miley and Sons.

4) Albert O Hales, McGraw, Architectural rendering Hill Book Company.

5) V. S. Parmar, Design Fundamentals in Architecture, Somaiya Publication Pvt. Ltd.

6) Francis D.K. Ching, Architectural Graphics, John Miley and Sons.

7) Francis D.K. Ching, Global History of Architecture, John Miley and Sons.

8) Teen Eiler Rasmussen, Experiencing Architecture, MIT press, 1964.

9)Pastel drawing EX pert answers to the questions every artist asks, Barbara Benedetti

10)Drawing & sketching expert answers to the questions every artist, Vera Curnow

11)Learning Basic design: Pradnya Chauhan

ARCHITECTURAL BUILDING CONSTRUCTION AND MATERIALS 1

Subject code: - 103 Credits**:** 5 Internal**:** 80marks

Lecture Hours: 36 periods of 50 minutes duration -30 hours External**:** Nil

StudioHours: 54 periods of 50 minutes duration -45 hours Theory: 70 marks

NOTE: Unit I - 20 Mark and Unit II, III, IV, V, VI, - 50 Mark

Course Objective

The course will enable the learning in progression, starting from simple building elements, components, materials and construction techniques to develop strong

Sense of visualization. To develop an understanding of basic building elements, their function and their behavior under various conditions with specific reference to load bearing construction

UNIT –I Introduction to materials used in civil construction. Bricks, Sand, Aggregate, Lime, Cement, Water, Stone and reinforcement Steel Properties of materials and Quality tests of materials Properties of Materials and Quality Tests of Materials

UNIT – II Introduction of Architectural Tools, Symbol as Well As Texture Introduction to Various Elements of Building from foundation to roof

UNIT – III Brick Masonry - All Types of Bond Stone Masonry - All Types Composite Masonry all type Right Angles in All Type of Masonry, T- Junction

UNIT – IV Constructing Opening in Walls: Panel Window, Panel Door, Types of Joinery,

UNIT – V Introduction of Types of Structure Load Bearing Structure, Frame Structure and composite structure Introduction of Types of Foundation. Shallow & Deep Foundation

Submission Required for Sessional Work

● Building Component, ● Types of Structure, ● Types of Bricks, ● Types of Bonds- English Bond, Flemish Bond, ● Types of Stone Masonry,

REFERENCE BOOKS

1. S.C. Rangwala (2013) Engineering materials (Fortieth edition),
2. Charotar Publishing pvt.ltd.
3. S.K. Duggal (2016) Building materials (4th edition) – New age international publishers.
4. Willam Morgan (1977) The elements of structure: An introduction to the principles of building and structural engineering Distributed by Sport shelf; 2nd edition
5. W.B. McKay (2015) Building construction Vol. 1 (5th edition), Vol. 2 (4th edition) and Vol. 3 (5th edition).
6. Roy Chudley, Roger Greeno (2016), Construction Technology, 11th Edition Routledge.
7. Dr. B.C Punmia (2012) Building Construction (10th edition) Laxmi Publications.

8. Building Construction by Mackay - Voi-1 Building Construction
9. Barry Voi-1 Engineering Material- K.S Ranginala
10. Building Construction - Sushil Kumar
11. Engineering material- B.K. Agrawal

STRUCTURAL MECHANICS-I

Subject code: - 104 Credits:3 Internal:50marks

Lecture Hours:54 periods of 50 minutes duration -45 hours External: Nil

Studio Hours: NIL Theory: 50 marks

UNIT I Introduction to structure, evolution of structure, natural structural forms, manmade structural forms, types of structural forms, shell structure, fabric structures, catenaries, ribbed structures, arches, folded plate, relationship between structure and architecture,

UNIT II Components of Load bearing, framed and composite structure, load transfer in Load bearing and framed structure, Types of building according to IS code, IS code recommendations for different structural components. Types of loads acting on different structures.

UNIT III structural materials and their physical properties- cement, aggregate, brick, stone etc., mechanical properties of building materials elasticity, stress, strain, elastic limit, elastic constants, modulus of elasticity, modulus of rigidity, bulk modulus, shear stress, linear strain, lateral strain, Poisson's ration, Hook's law, change in length, volumetric strain, relation between moduli.

UNIT IV Introduction of forces, characteristics of forces, effect of force, systems of forces, moment, couple, Lami's theorem, Vargion's theorem, principle of moment, composition of forces, resolution of forces, finding resultant force by analytical and graphical method.

REFERENCE BOOKS

1. Technics and Architecture: The Development of Materials and Systems for Building by Cecil D. Elliott

2. Structures for Architects- by Bryan J. B.
3. Building structures illustrated: patterns, systems, and design by Francis D. K. Ching, Barry and
4. Building Construction by Rangwala
5. Applied Mechanics by R. K. Rajput

HUMANITIES & VERNACULAR ARCH.

Subject code: - 105 Credits:3 Internal: 50

Lecture Hours:54 periods of 50 minutes duration -45 hours External: Nil

Studio Hours: NIL Theory: 50

Course Objective: Understand the rich culture of the prehistoric and cave architecture, early civilization and understanding the vernacular traditions of building structures for habitation, made without the intervention of professional architects.

UNIT 1: PREHISTORIC

Prehistory relies on archaeological evidence like tools, artifacts, and remains to understand human life and culture. Life style dwelling, first city Stone Age, Paleolithic, Mesolithic, and Neolithic, Bronze and Iron Ages, Evolution of human civilization:
Prehistory provides insights into the development of human societies, from hunter-gatherer groups to settled agricultural communities and early civilizations. Study of rural settlements and village formation in local

UNIT 2: CAVE ARCHITECTURE/ROCK CUT ARCHITECTURE

Cave architecture reflects the rich cultural and religious history of India, showcasing the artistic and architectural achievements of past civilizations. Ajanta and Ellora Caves, Badami Cave Temples, Elephanta Caves, Barabar Caves:

UNIT 3 INDUS VALLEY

Bronze Age, Trade and Commerce Grid Pattern, Standardized Bricks, Town Planning (Advanced Drainage System, Citadel and Lower Town, Public Structures, Residential Areas, Well-planned Water Management), Harappa and Mohenjo Daro

UNIT 4 EGYPTIAN

Egyptian architecture offers a unique lens into ancient history, particularly massive pyramids, temples and other structures showcasing impressive engineering feats and construction methods, which includes the use of post-and lintel systems, mud and stone etc. Pyramids & types of Pyramids, Materials, Cultural context, Mastabas, Ziggurat, Sphinx, Other Burial Molds.

UNIT 5 CHINESE AND JAPANESE

Chinese and Japanese architecture provides insights of culture, history, aesthetics an architectural innovation, as well as the influence of philosophical and traditions on design.
CHINESE: - Pagodas, Chinese columns, Great wall, Templ Ningpo, Temple of heaven at Beijing
JAPANESE: - Pagodas, Nara, Monasteries, Shrines, Temples, Inns & Tea houses

UNIT 6: Introduce traditions of building structures for habitation, made without the intervention of professional architects.: Familiarity with simple ways of building and settling a community that related

to local customs, social systems, climate, available materials and construction methods. Vernacular architecture including primitive or aboriginal architecture; indigenous architecture; ancestral or traditional architecture; folk, popular, or rural architecture;

REFERENCE BOOKS

1. The Great Ages of World of Architecture (-G.K. Hiraskar)
2. A History of Architecture (- Sir Banister Fletcher)
3. Knowledge Encyclopedia: Art and Architecture (-Wonder House)
4. Smithsonian: History Year by Year (- Peter Chrisp, Joe Fullman and Susan Kennedy)
5. Concise History of World: National Geographic (-Neil Kagan)
6. Let's Build with Bamboo vol -I, Let's Build with Bamboo vol -II Ar. Neelam Manjunath
7. Vernacular Architecture of India - Traditional Residential styles & spaces: Tejinder S. Randhawa
8. Rammed Earth Structure: A code of Practice: Julian Keable & Rowland Keable
9. Vernacular Architecture an illustrated handbook: R.W. Brunskill
10. The Rural studio project: Jayshree Deshpande, Aneerudh Paul
11. Courtyard Houses of India Yatin Pandya

ENVIRONMENTAL STUDIES 1

Subject code: - 106 Credits:2 Internal: 50

Lecture Hours:36 periods of 50 minutes duration External: Nil

Studio Hours: Nil Theory: Nil

Unit 1: Introduction to Environmental Studies

Definition, scope and importance. Multidisciplinary nature of environmental studies. Need of public awareness

Unit 2: Ecosystem: Concept of ecosystem and its structure (biotic & abiotic components) Types of ecosystems: Forest, grassland, desert, aquatic. Energy flow in the ecosystem (food chain, food web, ecological pyramids)

Unit 3: Natural Resources: Renewable and non-renewable resources. Water conservation, rainwater harvesting, watershed management. Role of architecture in resource efficiency.

Unit 4: Biodiversity and Its Conservation: Definition and value of biodiversity. Hotspots of biodiversity (with a focus on India). Threats to biodiversity and conservation strategies.

REFERENCE BOOKS

1. Ecology - Michall L. Cain, William D. Bowman, Sally D. Hacker

2. Environmental science - American Geological Institute

3. Green Building: Principles & Practices in Residential Construction - Abe Kruger & Carl Seville

ARCHITECTURAL GRAPHICS-1

. Subject code: - 107 Credits:5 Internal: 150

Lecture Hours: Nil External: Nil

Studio Hours :108 periods of 50 minutes duration 90 hours Theory: Nil

Course Objectives Make use of Orthographic Projection Drawing as a representation tool & medium of effective visual communication. Appraise skills of visualization Maximize the potential of two-dimensional drawing as tool of design development and representation.

Unit 1: Geometrical Construction: elements of design and their properties, Constructing and dividing lines and angles Constructing and dividing circles and arcs, Constructing Regular Polygons

Unit 2: Orthographic Projection: Orthographic projection and auxiliary projection of plane geometry, Projections of points, Lines and Planes, Projections of solids (Prisms & Pyramids) Sections of Solids

Unit 3: Development of Surfaces Introduction of D.O.S, Regular Polygons and Plutonic Solids, D.O.S of inclined planes and objects

REFERENCE BOOKS

1.Bhatt, N. D. (2014). Engineering Drawing: Plane and Solid Geometry. Anand: Charotar Publishing House Pvt.

2.Ching, F. D. (2015). Architectural graphics. Hoboken: John Wiley & Sons.

3.Ching, F. D., & Juroszek, S. P. (2018). Design drawing. Hoboken, NJ: John Wiley & Sons.

4.Elements of Space making by Yatin Pandya. Mapin Publishing

5.Cooper, D. (2007). Drawing and perceiving: Life drawing for students of architecture and design. Hoboken: Wiley.

6.Johnston, G. B. (2008). Drafting culture: A social history of architectural graphic standards. Cambridge, MA: MIT Press.

MODEL MAKING AND WORKSHOP

Subject code: - 120 Credits:4 Internal: 100

Lecture Hours: External: Nil

Studio Hours :108 periods of 50 minutes duration 90 hours Theory: Nil

Course Objectives: Introduce different techniques of model making in various materials and basic processes for fabrication and assembly of simple building components

Anticipated Learning Outcomes: Ability to make true scale models of architectural designs, manually and mechanically and familiarity with carpentry, joinery, smithy and molding with different materials and techniques.

Content:

UNIT I. Use of standard materials in model making- paper, boxboard, thermocol, foam core board, wood, acrylic etc., use hand tools and hand-held power tools, innovative representational mimicry.

UNIT 2. Model making techniques like surface development, paper folding, origami, hand cutting laser cutting and 3D printing etc. Making of block models and detail models.

UNIT 3 Simple workshop practice with machines like circular saw, lathe, sander, jig, airbrush etc.

To be coordinated with the Architectural Design, Basic Design & Visual Arts and Building Construction studios. Practical exercises related to making models of simple buildings, furniture and everyday objects; fabrication of full-size mock-up or prototype of an actual building component such as a door jamb, baluster, or luminaire.

REFERENCE BOOKS

1. Model Making for Architects Matt Driscoll
2. Architectural Modelmaking Nick Dunn
3. Styrene modeling: How to build, paint, and finish realistic styrene models Bob Hayden

COMMUNICATION SKILLS

Subject code: - 121 Credits:3 Internal: 50 marks

Lecture Hours: External: Nil

Studio Hours :54 periods of 50 minutes duration 45 hours Theory: Nil

Course Objectives To develop verbal, written, visual, and graphical communication abilities essential for architecture students, enabling them to express design ideas, collaborate effectively, and present their work with clarity.

Unit 1: Fundamentals of Communication: Definition, process, and types of communication. Verbal and non-verbal communication in architectural practice. Barriers to effective communication and how to overcome them. Listening skills and empathy in design discussions

Unit 2: Oral Communication & Presentation Skills: Effective speaking in critiques, reviews, and meetings, Use of voice modulation, tone, and body language. Public speaking and presentation techniques for architectural juries. Role play and group discussion exercises related to design themes

Unit 3: Written Communication: Basics of grammar, sentence construction, and vocabulary Writing skills: emails, memos, notices, reports, and minutes Writing design briefs, concept notes, and case study reports Descriptive writing for documenting design processes Captioning drawings and architectural documentation

Unit 4: Visual & Graphic Communication: Basics of visual storytelling for design presentations. Using diagrams, sketches, infographics, and models to communicate ideas. Introduction to layout design (manual and digital). Poster and sheet composition techniques

Unit 5: Digital & Media Communication (Introductory): Introduction to tools like PowerPoint, Canva, and basic design software. Basics of digital etiquette and communication on online platforms. Presenting via online platforms: Zoom, Meet, etc. File types, exporting sheets, and naming conventions:

Unit 6: Communication in Professional Practice

Client communication and interviews, Writing proposals and cover letters, CV and Portfolio basics (Introduction only), Communication within a multidisciplinary team

Assignments & Activities Group discussions and debates on architecture-related topics Mock presentation of a design concept Writing a case study report of a local building Sketch-to-speech exercises: explaining your sketch to peers Presentation and critique sessions

REFERENCE BOOKS

1. Constructive communication skills for the building industry: Richard Ells

SEMESTER 2

SR. NO	CODE	SUBJECT	HRS/ WEEK	TYPE OF CLASS	MARKS						TOTAL, MARKS	CREDI
					INTERNAL		EXTERNAL		THEORY			
					MAX	MIN	MAX	MIN	MAX	MIN		
1	201	ARCHITECTURAL DESIGN STUDIO -2	7	STUDIO	100	50	50	20	----	-----	150	6
2	202	VISUAL ARTS AND BASIC DESIGN 2	5	STUDIO	150	75	-----	----	-----		150	5
3	203	ARCHITECTURAE BUILDING CONSTRUCTION AND MATERIALS-2	6	LECTURE+ STUDIO	80	40	-----	----	70	28	150	5
4	204	APPLIED MECHANICS	3	LECTURE	50	25	-----	----	50	20	100	3
5	205	HISTORY OF ARCHITECTURE	2	LECTURE	50	25	-----	----	50	20	100	3
6	206	CLIMATE AND BUILT ENVIRONMENT	2	LECTURE	50	25	-----	----	-----	----	50	2
7	207	ARCHITECTURAL GRAPHICS-2	6	STUDIO	150	75	-----	----	-----	----	150	5
8	220	WORKSHOP	3	STUDIO	100	50	-----	----	-----	----	100	4
9	221	SOCIOLOGY AND CULTURE	2	TUTORIAL	50	25	-----	----	-----	----	50	3
			36								1000	36

ARCHITECTURAL DESIGN STUDIO 2

Subject code: - 201 Credits:6 Internal:100

Lecture Hours: 7 External: 50

Studio Hours: 72 periods of 50 minutes duration -50 hours Theory: Nil

Course objective Introduction to Architecture as Environment Definition of Environment in the architectural context. Architecture as an environmental response. Built vs. Natural Environment.

Syllabus:
Course objective: Understanding of architecture with built form as part of environment or distinctness of environment.

UNIT 2 – Contextual study of Environment

- Physical setting context: Land, Topography, Vegetation, Climate.
- Analyze site-specific and culture-Adaptive reuse and conservation in contemporary design. Contextual response in urban projects. Contemporary Interpretations Modern vs. contextual design

UNIT 3 –

- Design a Residential unit of any typology
- Design a small commercial space

  Note: the contextual study, design principles should reflect in the planning process of student work.

Unit 3 Exposure to architecture,

Introduction to Architecture Role of the Architect Understanding the architect's responsibilities. Famous architects and their philosophies (brief intro).4: Architecture and the Built Environment: Observation, Analysis & Representation, Introduction to architectural photography and visual

REFERENCES

Towards a Critical Regionalism – Kenneth Frampton Architecture of the City – Aldo Rossi

Architecture and Context – Simon Unwin

Architecture: Form, Space & Order – Francis D.K. Ching

Design with Climate – Victor Olgyay

World Architecture: A Cross-Cultural History – Richard Ingersoll

Modern Architecture Since 1900 – William J.R. Curtis

Understanding Architecture – Leland M. Roth

Online platforms: Arch Daily, Dezeen, Design Boom, TEDx Architecture Talks verandahs, water systems, etc. Sustainable community or campus design.

Design with Climate – Victor Olgyay

Architecture and the Environment – David Lloyd Jones

A Pattern Language – Christopher Alexander

Biophilic Design – Stephen Kellert

VISUAL ARTS AND BASIC DESIGN - 2

Subject code: - 202 Credits:5 Internal:150

Lecture Hours: External: Nil

Studio Hours :72 periods of 50 minutes duration - Theory: Nil

Studio Exercises / Assignments

Unit 1 Principles of Design

Core Principles of Design application in architecture: façade design, layout plans.

Proportion & Scale: Relative size of elements Human scale, golden ratio, modular proportion Use in architecture

Unit 2 Perspective

1: One-Point Perspective Definition and rules .vanishing point ,Two-Point Perspective Difference between one- and two-point perspective Setting up horizon line and two vanishing points Three-Point and Advanced Perspectives Introduction to three-point perspective (worm's-eye and bird's-eye view) Curved surfaces and circles in perspective Shadows and reflections (basic introduction) Perspective with human figures, trees, vehicles for scale and context Measured Perspective Drawing, draw perspective from orthographic plans and elevations, Using station point and plan grid method Exterior and interior space visualization

Unit 3. Sociography:

Introduction to Light & Shadow: Nature and types of light: point, parallel (sunlight), diffused. Importance of light and shadow in architecture

Sociography Basics – 2D Geometry: Shadows of geometric shapes on ground and vertical planes. Casting shadows in plan and elevation.

Sociography in 3D, Shadows of solids: cube, cone, cylinder, prism, pyramid Shadow construction in isometric and perspective views

Reference Books

1) Human dimension & interior space, Julius paneer and martin zartin zelnik

2) Rendering with pen + ink, Thames& Hudson

3) Francis D.K. Ching, Architecture form, space and order, John Miley and Sons.

4) Albert O Hales, McGraw, Architectural rendering Hill Book Company.

5) V. S. Pramar, Design Fundamentals in Architecture, Somaiya Publication Pvt. Ltd.

6) Francis D.K. Ching, Architectural Graphics, John Miley and Sons.

7) Francis D.K. Ching, Global History of Architecture, John Miley and Sons.

8) Teen Eiler Rasmussen, Experiencing Architecture, MIT press, 1964

ARCHITECTURAL BUILDING CONSTRUCTION AND MATERIALS - 2

Subject code: - 203 **Credits:**5 Internal**:** 80

Lecture Hours: 36 periods of 50 minutes duration -30 hours External: Nil

Studio Hours: 54 periods of 50 minutes duration -45 hours Theory : 70

NOTE: Unit I - 20 Mark and Unit II, III, IV, V, VI, - 50 Mark

Course Objective

- To develop a fundamental understanding of basic building elements, their function and behavior under various conditions with specific reference to Timber construction.

- To study the principles of designing components of Timber Structure – Floor, Roofs, Door, Windows

UNIT- I Introduction to materials used in civil construction. Concrete, Mortar, Structural Steel, Mild Steel, Glass, Aluminum, PVC, u-PVC Properties of materials and Quality tests of materials

UNIT- II ● Types of Roofs. Types of trusses

UNIT- III Cavity Wall, Precast Partition Wall, Internal Partition Wall in Gypsum & Wood, External Wall Section

UNIT- IV Types of Lintels, Terminology of Arches, Types of Arches

UNIT- V Types of windows, Types of doors, External Cladding Material and Their detail Of Application

Submission Required for Sessional Work

● Types Of Roofs● Details of King Post● Details of Queen Post● Cavity Wall and Expansion Joint● Internal Partition Wall in Gypsum & Wood● Types of Lintel Types of Arches● Terminology of Arch● Types of windows● Types of doors ●wooden Joinery detail

REFERENCE

1. S.c. rangwala (2013) engineering materials (fortieth edition), charotar publishing pvt.ltd. S.k. Duggal (2016) building materials (4th edition) – new age international publishers.
2. Willam morgan (1977) the elements of structure: an introduction to the principles of building and structural engineering distributed by sport shelf; 2nd edition w.b.
3. McKay (2015) building construction vol. 1 (5th edition), vol. 2 (4th edition) and vol. 3 (5th edition).
4. Roy chudley, roger Greeno (2016), construction technology, 11th edition Routledge.
5. Dr. B.c punmia (2012) building construction (10th edition) Laxmi publications.
6. Building Material Construction and Planning - S. Mehboob Basha
7. Building Construction - B.C Punia

8. Engineering Construction and Material - Gurcharan Singh
9. Building Construction - Sushil Kumar
10. Engineering Material- R.K Rajput

APPLIED MECHANICS

Subject code: - 204 Credits:2 Internal: 50

Lecture Hours:54 periods of 50 minutes duration -45 hours External: NIL

Studio Hours: Theory: 50

UNIT I Centroid, Centre of gravity of different simple and composite sections (rectangular, circular, semicircular, sector of circle, composite section T section, I section, C section etc.).

UNIT II Moment of inertia and section modulus of different simple and composite sections (rectangular, circular, semicircular, sector of circle, composite section T section, I section, C section etc.), parallel axis theorem, perpendicular axis theorem.

UNIT III Types of beams and their behavior, types of loading, types of support, support reactions for simply supported, cantilever and overhanging beam.

UNIT IV Bending stresses and shearing stresses in beams, distribution of shear stress over different sections like rectangular, circular, triangular, I and T sections.

Reference Books

1. ● Engineering Mechanics by S. Ramamrutham
2. ● Strength of Materials by R.K. Bansal
3. ● Strength of Materials by R. S. khurmi
4. ● Fundamentals of Solid Mechanics by M. L. Gambhir
5. ● Engineering Mechanics and Strength of Materials by R.K. Bansal

HISTORY OF ARCHITECTURE

Subject code: - 205 Credits:2 Internal: 50

Lecture Hours:54 periods of 50 minutes duration -45 hours External: Nil

Studio Hours: Theory: 50

UNIT 1: GREEK ARCHITECTURE

Parthenon, Architectural orders (Doric, Ionic, Corinthian), Hellenistic Influences, Greek Cities (Athens, Delphi Sparta)

UNIT 2: ROMAN ARCHITECTURE

Building Typologies (Amphitheaters, Aqueducts, temples, baths, triumphal arches, the colosseum, pantheon, forums, Arenas, Colosseum, Therma, Caracalla, Basilicas etc.), Roman Orders, Arches, Vaults and Materials.

UNIT 3: MIDDLE EAST ARCHITECTURE: Mesopotamian Babylon, Persian Architecture. (Ziggurats, Palaces, Temples, Planning and Materials)

UNIT 4 BAMIYAN AND JORDAN ARCHITECTURE Rock-cut Architecture, Landscape, Sculptures, Churches, Villages

1. The History of Indian Art -Sandhya Ketkar
2. The Great Ages of World of Architecture (-G.K. Hiraskar)
3. A History of Architecture (- Sir Banister Fletcher)
4. Knowledge Encyclopedia: Art and Architecture (-Wonder House)
5. Smithsonian: History Year by Year (- Peter Chrisp, Joe Fullman and Susan Kennedy)
6. Concise History of World: National Geographic (-Neil Kagan)

CLIMATE AND BUILT ENVIRONMENT

Subject code: - 206 Credits:2 Internal:50

Lecture Hours: 2 External: NIL

Studio Hours: 108 periods of 50 minutes duration -90 hours Theory: Nil

Course Objective: It is Science that explores aspects of human comfort and energy efficiency in built environment for sustainable habitat. Tools, data, standards, methods and principles for design of climate responsive built environments, are dealt particularly for tropical climates found in India.

UNIT 1 – Architecture in response to environment.

Ecology and Habitat with respect to geographical region. . Architecture shaped by climate, geography, and materials. Emotional and psychological connections to space. Climate and Site Understanding Architecture and Ecology Relationship between architecture and ecology. Role of biodiversity, green roofs, and landscape in design.

UNIT 2: Introduction to Building Climatology:

Global climatic factors, Elements of climate and graphic representation of climatic data, macro and micro climate, Climate control elements of building, Climate and built form interaction, Mahoney Tables. (Tropical Climates) General classification of tropical climates, Indian classification of climate, Characteristics of different climatic zones and design considerations, Traditional built forms with respect to climatic and cultural conditions.

UNIT 3: Human Comfort:

Elements of heat exchange between man and environment, Physiological and sensory responses, Biophysical effects of environmental factors, Thermal and visual comfort factors, indices/charts.

TEXT BOOKS:

1) Manual of Tropical Housing and Building by Koenigsberg, Ingersoll, Mayhew, Szokolay, 2) Man, Climate and Architecture by B. Givoni, 3) GRIHA Manuals Volume 1-5, Ministry of New and Renewable Energy, Govt. of India 4) Energy Conservation Building Code, Bureau of Energy Efficiency, India

REFERENCE BOOKS:

1) Design for Hot Climates by Konya Allan, 2) Tropical Architecture by Kukreja, C.P., 3) Buildings, Climate and Energy by Markus T.A., Morris E.N, 4) Solar Control and Shading Devices by Olgyay A., Olgyay V., 5) Sun, Wind and Light by Brown G.Z., 6) Climate Responsive Architecture by Arvind Krishnan, Nick Baker, SimosYannas, S.V. Szokolay, 7) Website: http://www.gsa.gov/portal/category/21049

ARCHITECTURAL GRAPHICS-2

. Subject code: - 207 Credits:5 Internal: 150

Lecture Hours: External: Nil

Studio Hours: 108 periods of 50 minutes duration -90 hours Theory: Nil

Course Objectives

At the end of the course, students will be able to –

Learn various techniques to represent an idea 3-dimensionally making use of the Isometric projection concept of sociography and perspective.

Maximize the skills of visualization and learn to utilize them to represent basic form and space.

Syllabus: (6 hours/ week) Total Teaching hours: 60 Hr.

Unit 1. Projection of auxiliary plane

Orthographic projection of solid geometry on auxiliary plane. Orthographic projection of tilted geometry. Sections of Solids, Interpenetrations of Solids (Basic)

Unit 2. Isometric projection of solid geometry Isometric projection of different solid form Axonometric projection

Unit 3: Perspective: Perspective drawing as representation tool Different Types of Perspective Drawings and it's applications One Point Perspective· Two Point Perspective· Perspective Views of forms and Spaces

1. Bhatt, N. D. (2014). Engineering Drawing: Plane and Solid Geometry. Anand: Charotar Publishing House Pvt.

2. Ching, F. D. (2015). Architectural graphics. Hoboken: John Wiley & Sons.

3. Ching, F. D., & Juroszek, S. P. (2018). Design drawing. Hoboken, NJ: John Wiley & Sons.

WORKSHOP

. Subject code: - 220 Credits:4 Internal-100

Lecture Hours: External: Nil

Studio Hours: 108 periods of 50 minutes duration -90 hours Theory: Nil

Objective: Explore 3D forms using paper, clay, wire, or foam. Activities: Folding, cutting, stacking, and bending materials to create abstract forms. Skills Gained: Understanding form, structure, and transformation.

Architecture students, designed to boost creativity, spatial understanding, hands-on skills, and foundational design thinking:

Unit 1. Form Exploration Workshop

Explore 3D forms using paper, clay, wire, or foam. Activities: Folding, cutting, stacking, and bending materials to create abstract forms. Skills Gained: Understanding form, structure, and transformation.

Unit 2. Sketching & Visual Thinking Workshop

Objective: Improve freehand drawing and visual communication. Activities: Urban sketching (street, parks, market t, bus stop public spaces views), object drawing, perspective, live sketching. Skills Gained: Observation, visualization, rendering skills.

Unit 3. Design Thinking & Ideation Workshop

Objective: Train students in the process of creative problem-solving. Activities: Brainstorming sessions, concept mapping, storyboarding. Skills Gained: Ideation, problem-solving, concept development.

Unit 4. Typography & Graphic Communication Workshop

Objective: Understand visual communication through text and graphics. Activities: Poster design, font experimentation, visual hierarchy exercises. Skills Gained: Layout design, communication design principles. Communication in graphics in context to user (e.g. use of symbols in traffic, roads, maps, software, logos, apps etc.)

Unit 5. Clay and Terracotta Workshop

Objective: Hands-on understanding of form through clay. Activities: Hand-sculpting, tile design, miniature modeling. Skills Gained: Tactile material awareness, organic design.

REFERENCES

1) Drawing for landscape architecture author - Edward Hutchison

2) model making for architects author - Matthew Driscoll

3) drawing and illustrating architecture.Author - Edward Hutchison

SOCIOLOGY AND CULTURE

Subject code: - 221 Credits:3 Internal: 50

Lecture Hours: NIL External: Nil

Studio Hours: 54 periods of 50 minutes duration -45 hours Theory: Nil

Course Objectives: Introduce the social dimension of architecture as an aspirational response to cultural and economic realities of a community

Anticipated Learning Outcomes: ability to understand basic sociological concepts and learn their applications in space planning and architectural design

This course will help students understand how societal values, traditions, behaviors, and cultural diversity shape human settlements and influence architectural design.

Content:

UNIT 1. Sociology, Economics and Culture

sociology and its uses in human settlement studies, socio- cultural processes, socio economic parameters in community planning Definition and scope of sociology, Meaning and elements of culture. Relationship between society, culture, and architecture. Evolution of human settlements and social organization

UNIT 2. Society And Architecture:

relationship of sociology with architecture impact of house form and culture, socio cultural transformation through ages and impacts on built environment; social identity and architectural relevance. Contribution of society, social structure and culture on the development of vernacular architecture, design approaches with social perspective

Unit 3: Society and Built Environment

Role of social structure in shaping spaces. Influence of community, class, caste, religion, and gender on architecture. Rural vs urban society: lifestyle and housing patterns. Informal settlements and slum culture

Unit 4: Cultural Influences on Architecture

Understanding tradition, rituals, and cultural symbols in built forms. Vernacular architecture as an expression of culture. Cultural sustainability and preservation Case studies: temples, mosques, traditional homes, ghats, chowks, etc.

Unit 5: Architecture in the Context of Change

Globalization, migration, and changing lifestyles. Influence of media, fashion, and modern culture on architecture. Modernity vs tradition in architecture. Adaptive reuse and cultural integration

Unit 6: Architects as Social Agents

Role of architects in shaping society. Social responsibility in architectural practice. Participatory design and community engagement. Ethics and inclusivity in design

Unit 7. Urbanization And Social Stratification

urbanization, rural urban continuum, urban growth, impact on society and urban area, social aspects of housing, territoriality and neighborhood, impact of socio-economic parameters on built form, slum and squatter settlements.

Activities

Case studies of culturally significant buildings

Field visit to a rural/urban settlement and socio-cultural mapping

Group presentation on cultural symbols in architecture

Interviewing people from diverse cultures about their living spaces

Essay: “Culture as the Backbone of Architecture”

2. REFERENCE BOOKS
3. "Architecture: The Story of Practice" - Dana Cuff's
4. "The Sociology of Architecture: Constructing Identities" -Paul Jones
5. "Space, Time and Architecture" - Siegfried Giedion
6. "Architecture and Narrative: The Formation of Space and Cultural Meaning" -Sophia Psarra
7. "Sociology: Exploring the Architecture of Everyday Life" - Janet L.
8. Gated Luxury Condominiums in India: A Socio-Spatial Arena for New Cosmopolitans-by Dhara Patel
9. Gandhi and Architecture: A Time for Low-Cost Architecture-by Venugopal Maddi Pati
10. Modern Indian Culture: A Sociological Study-by D.P. Mukerji
11. Architecture in India: History of Science, Philosophy and Culture in Indian Civilization-
12. Lok ani Sanskruti- Girish Prabhune
13. Tibet: Turning the wheel of life-Francoise pommaret
14. City: A guidebook for urban age-P.D. Smith