Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-I)	
Course Category: PC	**Credits: 09**
Course Code: ARC101	Examination Scheme
Course Name: Basic Design-I	Mid-Semester Examination-Nil MSE Duration NA **Continuous Internal Evaluation: 150 Marks** End Semester Examination Theory -Nil ESE theory Duration NA **End Semester Examination - Oral : 150 Marks**
Teaching Scheme : Studio : 09 Hrs./Week	

Course Objectives	1. To make the students familiar with the basics of design. 2. To enable the students to understand generation of geometrical forms and importance of Visual Arts and its relation to Architectural Design. 3. To develop skills in free hand drawing and rendering with exposure to different medium for visual expression. 4. To understand Human Scale and Proportion, Anthropometry.
Course Outcome	1. Creation of 2 dimensional and 3-dimensionalcompositions using elements and principles of design 2. Use of colors in design 3. Synthesis of multi-sensory aspects of space. 4. Develop manual presentation techniques 5. Use of Anthropometry.

Unit	Course Content	Hours
Unit 1	**Elements of Design**: Introduction to elements of design like point, line, plane, solid and void. **Principles of Design**: Understanding the importance of design principles like balance, harmony, rhythm, contrast, symmetry, scale, proportions, colours, textures etc. **Gestalt Principles**: Understanding the importance of principles in visual communication.	36
Unit 2	**Colour Theory**: Explore play of light & shade. Importance and application of colours in Architecture.	12
Unit 3	**Study of Linearity.** **Shape Grammar**- Exercises on Planes: Combining and Organising geometric shapes. **Basics of Architectural Art**: Development of geometric patterns by division, addition and subtraction. Expressing the design with the use of Colours.	30
Unit 4	**Study of Solid** Forms: Study of solids & voids to evolve sculptural forms & spaces. **Concept of Space.** Understanding of positive and negative space. Interrelationship between space, volume and order.	30
Unit 5	**Free-hand drawing and rendering**: Human figures, furniture, vehicles, trees, buildings etc. to have a better understanding of proportion and to develop visual perception and thinking. Outdoor/Indoor exercises for sketching: Use of various sketching materials like pencils, pen, ink, colour, charcoal etc.	22
Unit 6	**Human Scale & Proportion and Anthropometry**: Anthropometric study, Ergonomics of human figure, dimensions of furniture and its relationship with Human Anthropometrics.	14

References Books:

Sr. No.	Title	Author	Publisher
1	Architecture: Form, Space and Order	Francis D. K. Ching	John Wiley & Sons, Inc. New York
2.	Architectural Composition	Krier, Rob	Academy Editions, London, 1988
3.	Design Awareness	Robert Sommer	San Francisco: Rinehart Press, 1972
4.	Elements of Space Making	Yatin Pandya	Mapin Publishing
5.	Visual Thinking	Am Heim Rudolf	University of California Press
6.	Rendering with Pen and Ink	Arthur Leighton	Thames and Hudson

Recommended Readings

1.	Innovation Through Design: Think, Make, Break, Repeat.	https://www.coursera.org/learn/innovation-through-design
2.	The Language of Design: Form and Meaning	https://www.coursera.org/learn/design-language

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology
Syllabus of First Year. B.Arch. (Semester-I)

Course Category: PC	**Credits: 03**
Course Code: ARC102	Examination Scheme
Course Name: Architectural Drawing and Graphics- I	Mid-Semester Examination-Nil MSE Duration NA
Teaching Scheme: Lecture: 01 Hr./Week Studio : 02 Hrs./Week	**Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE theory Duration NA **End Semester Examination - Oral : 100 Marks**

Course Objectives	1. To educate the students in geometrical drawing and drafting techniques. 2. To enable the students to present elements of design in graphic forms. 3. To develop skills and techniques of design through 2D & 3D geometry. 4. To develop understanding of surfaces during intersections and development of solids. 5. To understand scales and types of scales.
Course Outcome	1. To recognize and select drawing tools and techniques for drafting basic drawing. 2. To identify a type of line, intensity, thickness, text to draw a shape. . 3. To demonstrate a line, plane or solid into drawing using orthographic projections. 4. To integrate the 2-dimensional drawings and 3-dimensional form using development of surfaces. 5. To implement a scale, dimension for a layout of sheet or drawing.

Unit	Course Content	Hours
Unit 1	**Drafting Techniques**: Lines and 2D shapes. Plane geometry. Construction of planes, circles, curves, polygon Architectural lettering and Annotations for building materials and components	10
Unit 2	**Orthographic Projections**: Lines, planes, solids (Cube, Sphere, Prism, Pyramid, Cylinder, Cone) and its methods **Sections of solids**- Elevation, Section lines and section drafting. **Intersection of solids**	12
Unit 3	**Development of Surfaces**: Types, Methods and its use in practice. Intersection of surfaces	10
Unit 4	**Scales**: Construction of Plain scale, Diagonal Scale and Isometric scale.	8
Unit 5	**Measured drawing**: Simple built form. Detailing in terms of construction and ornamentation	8

Textbooks

Sr. No.	Title	Author	Publisher
1	Engineering Drawing	N. D. Bhatt	Charotar Harola Publishing House Pvt. Ltd.
2.	Building Drawing	Shah, Kale, Patki	McGraw Hill

Reference Books:

1.	Architectural Graphics	Francis D. K. Ching	Wiley Publishers
2.	Architectural Graphics	C. Leslie Martin	The Macmillan Company. NY 1964

Recommended Readings:

1.	Architectural Graphics - Part I - Orthographic projection	https://onlinecourses.nptel.ac.in/noc25_ar01

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

This page is intentionally left blank

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-I)	
Course Category: PC	**Credits: 02**
Course Code: ARC103	Examination Scheme
Course Name: History of Culture and Civilization	**Mid-Semester Examination- 20 Marks** MSE Duration: 1Hr. **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory: 50 Marks** ESE theory Duration: 2Hr. End Semester Examination - Oral : Nil
Teaching Scheme: Lecture: 02 Hrs./Week	

Course Objectives	1. To understand the chronological developments along the timeline and across geographies. 2. To study the influence of geology, geography, climate, beliefs, religion and culture on the Architecture of the region. 3. To understand social, religious and political character, construction methods, building materials and their influence on their built form and settlement pattern.
Course Outcome	1. An understanding of architecture, including settlements, landscapes and buildings as a cultural product shaped by various factors. 2. To recognize importance of architecture and design through time and across cultures 3. Identify different styles of historic architecture. 4. An understanding of the formal and structural aspects of architectural development. 5. Analyze the contributing factors for the design development of different styles.

Unit	Course Content	Hours
Unit 1	**TimeLine of History of Architecture:** From early civilization to contemporary design. **Prehistoric/Primitive Architecture:** Primitive people, settlements, type of shelters, burial systems, megaliths and memorials Study of Oval huts near Nice, Dolmen tomb, Gallery grave, Passage grave, Cairns, Tumulus, Houses at Catal Huyuk, Stonehenge	06
Unit 2	**River valley Civilization overview:** Introduction toIndus Valley, West Asiatic, Egyptian & Yellow River civilization	02
Unit 3	**Nile Valley Civilisation (Egyptian):** Study of socio-cultural, religious and political systems, people's beliefs, climate and other factors influencing Architecture, character of human settlements, typology of Shelters and buildings, religious burial systems and Cult temples of Egypt, construction methods and materials used Pyramid at Cheops at Giza, Mastaba, Stepped pyramid at Djoser, concept of Necropolis at Saqqarah, Temple of Amun-Ra, Temple at Luxor & Karnak	06
Unit 4	**Indus Valley Civilization:** Contributions of Archaeologists, Timeline, socio-cultural, religious and political systems, settlement planning pattern (Harappa and Mohenjo Daro), typology of Shelters and civic buildings, Citadel-Grannary-Great baths, civic utility systems	06
Unit 5	**Aryan / Vedic Civilization:** Timeline with reference to Indus Valley Civilization, settlement planning pattern and Town forms by planning pattern (Dandaka, Nandyavartha etc.), typical Vedic village, shelter types by shape and material used Introduction to Mauryan empire art, architecture, Palatial complex at Pataliputra,	06

	Eurasian trade, Hindu form of worship. Torana and Sacred railings	
Unit 6	**Euphrates and Tigris Valley Civilisations (Mesopotamia):** Architectural character as a reflection of climate and geology, planning of Palaces of Assyria and Persia, Ziggurats and corbelled drains of Assyria, Staircases of Persepolis, physical planning of Babylonia, Ur-Sumar Ziggurat of Ur, Ur Nammu, Hanging gardens of Babylon, Ishtar Gate, Palace of Khorsabad, Assyrian summer palace, gates & fortifications, Palace of Sargon, City planning of Persepolis **Chinese Civilisation:** Architectural character, building typologies, settlement pattern, Settlement layout and planning principles adopted	06

Textbooks:

Sr. No.	Title	Author	Publisher
1	History of Architecture –The Great ages of World Architecture	G. K. Hiraskar	Dhanpat Rai Publications
2	The Architecture of India	Satish Grover	Vikas Publishing House Pvt. Ltd, 1985

Reference Books:

1	History of Architecture	Spiro Kostaff	2nd edition, OUP, USA, 1995
2	Global History of Architecture	Francis Ching	3rd edition, Wiley, 2017
3	History of Architecture	Bannister Fletcher	Architectural press, 1996
4	Architecture: From Pre-History to Post modernity	Martin Trachtenberg & Isabelle Hyman	2nd edition, Harry N. Abrams Inc, 2002

Recommended Readings:

1	World History I	https://www.classcentral.com/course/study-com-history-112-world-history-i-111309

Master Copy

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-I)	
Course Category: PC	**Credits: 02**
Course Code: ARC104	Examination Scheme
Course Name: Model Making	Mid-Semester Examination- Nil MSE Duration: NA
Teaching Scheme: Studio: 02 Hrs./Week	**Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory: Nil ESE theory Duration: NA End Semester Examination - Oral : Nil

Course Objectives	1. To equip students with the basic skills necessary to represent their ideas in simple models' format using simple materials. 2. To make students practice with various tools essential for making architectural models. 3. Understanding Scale and Proportion through models.
Course Outcome	1. To understand relevance of model making both in the process of design and as a Product 2. To become aware about the usage of various materials for production of artwork. 3. To apply different mediums and machine tools for production various types of artwork. 4. To create art forms with different mediums.

Unit	Course Content	Hours
Unit 1	**Architectural Model Making:** Need for architectural models. Role of scale-models in design. General practices in model making. Types of models: block, detailed, construction & interior models.	02
Unit 2	**Simple Joinery:** Simple exercises in cutting, finishing and joinery with simple blocks, composition of basic geometrical forms etc.	04
Unit 3	**Joinery and Carpentry**: Joinery details in wood, Pipes and sleeve joints. Metal: welded joints, nut bolt joints, riveted joints	04
Unit 4	**Tools and Materials:** Selecting suitable material and creating scaled models. Introduction to various materials for model making like paper, clay, plaster of paris, ceramic, plastic, metal, wood, fabric etc Use of materials, viz. Acrylic, softwood, plastics, glass fibre, metals in architectural models.	12
Unit 5	**Presentation Models:** Skills to use the tools with precision for model making. Techniques for preparation of presentation models. General information and practice with different finishing materials.	10

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Reference Books:

Sr. No.	Title	Author	Publisher
1	Model Building for Architects and Engineers	John Taylor	McGraw-Hill Inc.,US
2.	Model Making	Werner, M. (2011)	Princeton Architectural Press
3.	Architectural Graphics	Ching, F. D. K. (2009) , 5th Ed.	Hoboken : John Wiley & Sons.
4	Paper Scissor Glue	Catherine Norman	Charotar Publishing
5	Architectural Model making	Nick Dunn	Laurence King Publishing

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology
Syllabus of First Year. B.Arch. (Semester-I)

Course Category: BSAE	**Credits: 04**
Course Code: ARC106	Examination Scheme
Course Name: Building Construction and Materials -I	**Mid-Semester Examination- 20 Marks**
Teaching Scheme: Lecture: 01 Hrs./Week Studio: 03 Hrs./Week	MSE Duration: 1Hr. **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory: 50 Marks** ESE theory Duration: 2Hr. **End Semester Examination - Oral : 100 Marks**

Course Objectives	1. To understand principles and basics of building construction. 2. To understand the process and methods of building construction. 3. To apply the knowledge of the principles and practices in the studio for working drawings and details. 4. To understand different materials used in construction, properties, characteristics. 5. To understand specific uses of material in building construction.
Course Outcome	1. Will develop a basic understanding of the relationship of materials to construction systems, techniques and methodology. 2. To define basic building elements. 3. To recognize the various types of masonry and foundation made up of suitable materials. 4. To be aware of the properties and applications of various materials. 5. To understand the construction of openings in various types of masonry.

Unit	Course Content	Hours
CONSTRUCTION		
Unit 1	**Tools and Terminologies**: Simple tools, plant & machinery used in construction. Sequence of construction. Primary elements in buildings and their construction. Terminology used in building construction. **Components of a building**: Structural and functional components.	12
Unit 2	**Brick Masonry**: Standard terms in brick, different types of bricks, bonds in brickwork (English, Flemish, Garden wall, Rat-Trap Bond), Brick Pillars & Piers. **Stone Masonry**: Different types and techniques of Stone Masonry (Rubble and Ashlar) **Composite Masonry** : Using two or more materials	12
Unit 3	**Foundation**: Simple types of foundations (Shallow foundations) in Stone, Brick. RCC Foundation: Isolated and Combined footing, plinth beams etc.	10
Unit 4	**Types of Openings**: Principles of construction of various types of Arches, Lintels, Jali-work in Brick and Stone masonry.	10
MATERIALS		
Unit 5	**Stone**: Natural bed, quarrying of stone, properties, characteristics, behaviour, types of	08

	stone dressings. Their specific uses in the building construction **Sand, Mud and Clay**: Types, properties, characteristics, grades, behaviour and their specific uses in the building construction	
Unit 6	**Timber and Bamboo**: Classification, characteristics, defects, seasoning, market forms and uses in building construction	06
Unit 7	**Lime:** Types, Manufacturing process, properties, testing of lime, storage of lime and uses in building construction **Cement** - Different types of cement. Manufacturing Process, properties, testing of cement, storage of cement and uses of cement in building construction	06

Textbooks:

Sr. No.	Title	Author	Publisher
1.	Building Construction.	Dr. B.C. Punmia.	Laxmi Publications
2.	Building Construction	S.P.Arora & S.P. Bindra	Dhanpat Rai Publications.
3.	Building Construction Materials	Rangwala	Charotar Publishing House Pvt.Ltd.
Reference Books:			
1.	The Elements of Structure.	W Morgan	Pitman Publishing.
2.	Building Construction	Sushil Kumar	Standard Publisher Distributors
3.	Building construction (Vol. 1 to 4)	Mckay W. B	Longman and Pearson Education
4.	The Construction of Buildings. (Vol. I to V)	R Barry	Wiley Blackwell
5.	Construction Technology (Vol. I to IV)	Roy Chudley	Pearson Education India
6.	Building Construction Illustrated	Francis D.K. Ching	Wiley Publications
7.	Building Construction	Rangwala	Charotar Publishing House Pvt. Ltd.

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology
Syllabus of First Year. B.Arch. (Semester-I)

Course Category: BSAE	**Credits: 02**
Course Code: ARC107	Examination Scheme
Course Name: Theory of Structure-I	**Mid-Semester Examination- 20 Marks** MSE Duration: 1Hr. **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory: 50 Marks** ESE theory Duration: 2Hr. End Semester Examination - Oral : Nil
Teaching Scheme: Lecture: 02 Hrs./Week	

Course Objectives	1. To understand structural behavior: How different structures work and the forces acting on them. 2. To build analytical skills: Analyze supports, loads, and materials for safe and stable structures. 3. To apply design principles: Design structures that are strong, stable, safe, and efficient. 4. To enhance practical calculations: Calculate centroids and moments of inertia for real-world engineering applications.
Course Outcome	1. Understand the fundamental concepts of structural behavior and analyze the forces acting on various structural forms. 2. Identify and classify different types of supports and loads and evaluate their effects on structural stability and safety. 3. Explore the characteristics and classifications of plane trusses and analyse their structural behaviour. 4. Apply the principles of factor of safety and understand the significance of strength, stiffness, and stability in structural design. 5. Analyze structural elements by applying design criteria to ensure effective and efficient performance under various loads. 6. Calculate centroids and moments of inertia for standard steel sections and apply these concepts to structural analysis and design.

Unit	Course Content	Hours
Unit 1	**Introduction to Structural Behaviour**: Technical Terminology: To understand key terms used in structural analysis. Natural and Man-Made Structures: Relationship and intuitive understanding of the behaviour of natural and man-made forms. Functions of Structures: Exploring primary and secondary forces acting on structures, including dead loads, gravitational forces, live loads, superimposed load, impact load, wind loads, and the effects of temperature variations.	5
Unit 2	**Structural Supports and Load Analysis:** Fundamentals: Laws of mechanics, co-planar and non-coplanar force system, components, resultant, moment of a force, Varignon's Theorem, couple, Equivalent force couple system. Types of Supports and Characteristics: Simple, Fixed, Hinged, and Roller Supports. Load Classification: Analysis of UDL (Uniformly Distributed Load), Point Load, and Varying Load. Classification of loads as Dead, Live, Wind, Snow, and Seismic. Beam Analysis: Understanding Simply Supported Beams, Cantilevers, Overhanging Beams, Propped Cantilevers, and Fixed and Continuous Beams. Load applications,	6

	including UDL from slabs and point loads from abutting beams. (No Derivations, Simple Numerical only)	
Unit 3	**Plane Trusses:** Introduction, classification of trusses, assumption made in the analysis of truss, Analysis of statically determinate truss by method of joint and method of section. (Structural Behaviour Only, No Numerical)	4
Unit 4	**Structural Safety and Characteristics:** Factor of Safety: Understanding the concept and factors affecting safety in structural design. Structural Characteristics: Characteristics of structures including strength, stiffness, and stability.	5
Unit 5	**Design Criteria and Structural Analysis**: Design Criteria: Principles for designing safe and effective structures. Structural Analysis: Analysis of primary structural elements, with emphasis on safety, strength, stiffness, and stability.	6
Unit 6	**Centroid and Moment of Inertia:** Centre of Gravity and Centroid: Definitions and calculations for regular and complex shapes, limited to standard steel sections like C, T, L, I, and compound sections. Moment of Inertia (M.I.): Definition and calculations for standard shapes. Application of the Parallel Axis Theorem, Perpendicular Axis Theorem, and Radius of Gyration for complex shapes using standard steel sections. (No Derivations, Simple Numerical only)	6

Textbooks:

Sr. No.	Title	Author	Publisher
1.	Engineering Mechanics	S.S. Bhavikatti	New Age International Publishers, 2014
2.	Strength of Materials	R.K. Bansal	Laxmi Publications, 2010
Reference Books			
1.	Structural Analysis	V.N. Vazirani, M.M. Ratwani	Khanna Publishers, 2016
2.	Engineering Mechanics	R.S. Khurmi	S. Chand, 2016
3.	Structural Analysis	R.C. Hibbeler	Pearson Education India, 2017 (Indian Edition)

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-I)		
Course Category: SEC		**Credits: 02**
Course Code: ARC126		Examination Scheme
Course Name: Computer Studio-I		Mid-Semester Examination- Nil MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory: Nil ESE theory Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio: 02 Hrs./Week		
Course Objectives	1. To familiarize students with understanding the development of computers, 2. To learn operating systems, documentation and presentation software. 3. Develop skills of computer driven communications and usage- Customization and Templates for repetitive function.	
Course Outcome	1. Develop understanding of computer for creating reports, presentation techniques and organization of data in tabular form. 2. Comprehends computer aided drafting and its parameter as tools and its application in architecture. 3. Use computer as a tool to generate drawings and presentations. 4. Students should be able to comprehend and express distinctions of graphic language through various presentation techniques and methods learnt. 5. Students should be able to communicate various ideas through architectural graphic representations.	
Unit	**Course Content**	**Hours**
Unit 1	**Introduction to Computers:** General Historical background of computer development. Brief description of various Hardware and Software. Basic knowledge of operating systems	04
Unit 2	**Basic Operations:** Introduction to various software for documentation, presentation & drawing purposes. Simple operations such as creating, editing, formatting, saving and printing documents. Familiarizing the use of scanners, printers, plotters etc.	06
Unit 3	**Word processing:** Introduction to Applications of MS Office in presentation: Microsoft Word, Microsoft Power Point, Microsoft Excel. **Spreadsheets:** Use of spreadsheet and for various architectural calculations-estimation, area calculations, project reports. Preparation of templates for regular repetitive functions.	08
Unit 4	**Presentations:** Introduction of various software available for Architectural presentation. Packaging – surface decoration such as print, Printmaking – photo screen-printing and etching, scanning and laser printing	08
Unit 5	**Workshops (Anyone)** A - Workshop on Sketch-up as modelling tool B - Workshop on In-Design as presentation tool (Introduction to other commonly used software tools in a one-day workshop)	06

Reference Books:			
Sr. No.	**Title**	**Author**	**Publisher**
01	An Introduction to Adobe Photoshop.	Bark, S.	Sheffield: Ventus Publishing ApS. (2012).
02	Fundamentals of Three-Dimensional Computer Graphics	Alan Watt	Addison Wesley. Publication date. 2 November 1989
03	Computer Aided Design Guide For Architecture, Engineering And Construction	Ghassan Aouad, Song Wu, Angela Lee, Timothy Onyenobi	Routledge18 November 2011
04	Architectural drawing: a visual compendium of types and methods.	Rendow Yee	John Wiley and Sons, 2007

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-I)	
Course Category: SEC	**Credits: 02**
Course Code: ARC127	Examination Scheme
Course Name: Communication Skills	Mid-Semester Examination- Nil MSE Duration: NA
Teaching Scheme: Studio: 02 Hrs./Week	**Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory: Nil ESE theory Duration: NA End Semester Examination - Oral : Nil

Course Objectives	1. To understand the role and types of communication—verbal, non-verbal, written, and visual in architecture. 2. To develop effective public speaking, presentation, and group discussion skills, including the use of non-verbal cues. 3. To enhance skills in technical and professional writing for reports, proposals, and correspondence. 4. To utilize visual communication and digital tools to create impactful presentations and manage online platforms.
Course outcome	1. Gain confidence in making public presentations. 2. To analyze and express individual opinions and views. 3. To present oneself professionally in the industry. 4. To express ideas and views through oral and written mediums. 5. To initiate thinking process. 6. Identifies the important aspects on verbal communication. 7. Interprets verbal and non-verbal communications.

Unit	Course Content	Hours
Unit 1	**Introduction to Communication skills:** Introduction to types of communication, methods, use & application. Verbal Communication. Developing group discussions and elocution skills. Academic writing & referencing, avoiding Plagiarism.	8
Unit 2	**Verbal and Non-Verbal Communication:** Public speaking, presentation skills, group discussions. Non-verbal cues and visual communication techniques. **Technical and Professional Writing:** Letters, reports, proposals and correspondence	8
Unit 3	**Illustration techniques** - preparing flow charts, tables & diagrams, Books and magazines, film and television posters, coverage etc., reprographic techniques.Advertising - Typography, artwork, Multimedia - 2D digital graphic design techniques, 3D digital modeling techniques.	8
Unit 4	**Visual Communication and Digital Tools:** Social media and digital platforms for architectural communication. Preparing visual presentations. media presentation, Audio-visual projection and Computer based presentations. Movie making Flash movies, animation graphics, and walkthroughs.	8

Master Copy

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Reference Books:			
Sr. No.	**Title**	**Author**	**Publisher**
1	Architectural Communication: A Design-Based Approach	David J. Lewis	Routledge, 2017
2	Talk Like TED: The 9 Public-Speaking Secrets of the World's Top Minds	Carmine Gallo	St. Martin's Press, 2014
3	Visual communication for architects	Julie A. Stien	Thames & Hudson, 2020

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Semester-II
Detail Course Curriculum

First Year B. Architecture Syllabus

Master Copy

WEF AY 2024-25

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)		
Course Category: PC		**Credits: 09**
Course Code: ARC151		Examination Scheme
Course Name: Basic Design-II		Mid-Semester Examination-Nil MSE Duration NA **Continuous Internal Evaluation: 150 Marks** End Semester Examination Theory -Nil ESE theory Duration NA **End Semester Examination - Oral : 150 Marks**
Teaching Scheme: Studio: 09 Hrs./Week		
Course Objectives	1. To develop the ability to generate solutions to spatial constructs, which integrate principles of design with functional requirements. 2. To develop space visualization, basic skills of design and design expression. 3. To understand Architectural Design Process, its scope and fundamentals, understand Space and User Relationship. 4. To learn to design spaces/building of simple activity.	
Course Outcome	1. To understand human scale and proportion and apply in design 2. The student would be able to analyze simple spaces, identify factors affecting their design and be able to design a simple space for human use. 3. To transform human behavioral needs into architectural program requirements. 4. To compose the architectural spaces in a design project 5. To communicate architectural drawings with the help of various mediums	
Unit	**Course Content**	**Hours**
Unit 1	Form and Space: Volumes, Elements of volumes, Enclosure of space, semi enclose spaces, defining space by elements	**12**
Unit 2	Principles of Design: Basic principles of spatial organisation, symbiosis of form and function concept, generation conversion and diversion thinking in design	**18**
Unit 3	Design process: Understanding the relationship between idea, context, space (form & structure), and functional requirements Use of Matrix, Concept, Idea Board, circulation diagrams etc. Relationship between function, space, form, concept & structure Introduction of fundamentals of Architecture –Culture, function, environment, structure and their integration into architecture	**26**
Unit 4	Anthropometry: Study of human dimensions, concept of percentile in Indian standards, Space required for various simple activities, circulation patterns	**22**
Unit 5	Furniture and Facilitation: Need of furniture, as an aid to enhance activities, study of various furniture in isolation and combination Design of functional furniture layout with requisite circulation, lighting and ventilation for a specific function	**26**
Unit 6	Design of Spaces such as, living, dining, bedrooms, pavilion, gazebo, kiosk, bus stop Architect's office, Doctor's clinic etc	**40**

Reference Books:			
Sr. No.	**Title**	**Author**	**Publisher**
1	Time Saver Standards for building types,		Mc Graw Hill Professional 2001
2.	Time Saver Standards for interior design and ace planning		Mc Graw Hill Professional 2001
3.	Neuferts Architects data.		Blackwell 2002
4.	Architecture: Form, Space and Order	Francis D. K. Ching	John Wiley & Sons, Inc. New York.
5.	Design Awareness	Robert Sommer	San Francisco: Rinehart Press, 1972.
6.	Elements of Space Making	Yatin Pandya	Mapin Publishing.
Recommended Readings			
1.	Innovation Through Design: Think, Make, Break, Repeat.	https://www.coursera.org/learn/innovation-through-design	
2.	The Language of Design: Form and Meaning	https://www.coursera.org/learn/design-language	

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: PC	**Credits: 03**
Course Code: ARC152	Examination Scheme
Course Name: Architectural Drawing and Graphics- II	Mid-Semester Examination-Nil MSE Duration NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE theory Duration NA **End Semester Examination - Oral : 50 Marks**
Teaching Scheme: Lecture: 01 Hr./Week Studio : 02 Hrs./Week	

Course Objectives	1. To understand the use of manual drawing and drafting tools and techniques for Architectural design communication. 2. To study methods of presentation and perspective views. 3. To study the sciography of 2D and 3D objects.
Course Outcome	1. Recognize the need to combine the use of manual drawing tools and techniques for drafting and freehand drawing for architectural design communication. 2. Apply the projected drawing method of exterior and interior perspective. 3. Construct one- and two-point perspective drawings from floor plans and elevations. 4. Produce by Drawing/sketching 3- Dimensional Architectural drawings using and freehand techniques. Demonstrate an understanding of furniture, people and accessories in one- and two-point projected perspective drawing. 5. Construct conceptual and presentation drawings as a design presentation tool for various purposes.

Unit	Course Content	Hours
Unit 1	**Building Elements:** Learning to draw plan, elevations and sections of a simple built form using appropriate scale	06
Unit 2	**Development of 2D Drawing:** Plan, elevations, sections from a given drawing of adequate complexity Development of 3D Drawings: Isometric, Axonometric, Oblique, and Perspective Views	08
Unit 3	**Perspective Drawing:** Scientific methods and concepts. One point and Two points perspective of simple geometrical shapes like cube, prism, combination of shapes, room interior and exterior views. Rendering techniques	12
Unit 4	**Sciography:** Shadow of points, lines and shapes. Shade and shadow of 3D solids (cubes, pyramids, prisms, cones, cylindrical forms and combination of the forms) Sciography of Site plan, Building plans, sections and elevations	08
Unit 5	**Measured drawing:** Documentation of a building incorporating all above learnings.	14

Master Copy

BOARD OF STUDIES ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Textbooks			
Sr. No.	**Title**	**Author**	**Publisher**
1.	Engineering Drawing	N. D. Bhatt	CharotarHarola Publishing House Pvt. Ltd.
2.	Building Drawing	MG Shah, CM Kale, SY Patki	McGraw Hill
Reference Books			
1.	Rendering with Pen and Ink	Robert W. Gill	Thames and Hudson, London
2.	Architectural Graphics	Francis D. K. Ching	Wiley Publishers
Recommended Readings:			
1.	Architectural Graphics - Part II - Isometric and Axonometric Drawings	https://onlinecourses.nptel.ac.in/noc25_ar02/preview	

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology
Syllabus of First Year. B.Arch. (Semester-II)

Course Category: PC	**Credits: 02**
Course Code: ARC153	Examination Scheme
Course Name: History of Architecture - I	**Mid-Semester Examination- 20 Marks** MSE Duration: 1Hr. **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory: 50 Marks** ESE theory Duration: 2Hr. End Semester Examination - Oral : Nil
Teaching Scheme: Lecture: 02 Hrs./Week	

Course Objectives	1. To provide an insight into the architecture of Classical antiquity & early Medieval period. - 700 BCE –1100 CE 2. To provide an understanding of the evolution of Classical architecture in the west, Indian Architecture in its various stylistic modes characterized by technology, ornamentation and planning practices. 3. To study the influence of geology, geography, climate, beliefs, religion and culture on the architecture of the region. 4. To understand social, religious and political character, construction methods, building materials and their influence on their built form and settlement pattern.
Course Outcome	1. Identify different styles of historic architecture. 2. Identify prominent / important historic buildings by their components / style of design. 3. Describe prominent / important historic buildings. 4. Analyze the contributing factors for the design development of different styles. 5. Compare and Contrast various styles based on the contributing factors responsible for their development.

Unit	Course Content	Hours
Unit 1	**Classical Period:** Introduction to Minoan & Mycenaean Civilization Island of Crete, Palace of Knossos, Labyrinth pattern, Linear scripts A & B. Citadels of Mycenae & Tiryns, Burial Tholos, Lion gate, cyclopean masonry **Greek Civilization:** Landscape, culture & religious beliefs of Archaic & Classical period: Golden ratio, optical corrections, classic Column orders- Doric, Ionic & Corinthian. Public buildings- agora, stoa, theatres etc, Temples- Parthenon, Erechtheion	06
Unit 2	**Roman Civilization** Etruscan architecture & construction. Roman history, religion & culture. Materials & techniques, Introduction to Tuscan & Composite column orders, Key roman buildings- Pantheon, amphitheatre, thermae, forum, circus maximus, aqueducts etc	05
Unit 3	**Early Christian Architecture** Study of Architectural character, evolution of Church form, building typologies (Greek Cross and Latin Cross) and building elements, polymath architecture, Baptisteries, early Basilican churches; settlement planning, and fortification systems. Old Saint Peter's Basilica, Basilica of San Vitale, Ravenna	05

Unit 4	**Buddhist Architecture in India:** Post Mauryan empire- religious & cultural shift to Buddhism Study of religious philosophy, resultant evolution of building typologies, building elements and associated forms during Hinayana and Mahayana phases. Types of structures and elements developed e.g.: Stupas, Viharas, Chaityas, Stambhas, Toranas, sacred railing etc. In India. Study of form variations across various countries. Introduction to Jainism. Rock cut architecture- Ajanta, Ellora, Karla caves Sanchi stupa, Ashokan pillar, Sarnath, Angkor Wat Cambodia	05
Unit 5	**Evolution of Temple Architecture** Form of worship, symbolism, philosophy & social importance. Early temple forms- (Bhitargaon& Deogarh). Introduction to Nagara, Dravidian &Vesara styles of temple architecture. Durga temple, Lad Khan temple at Aihole **Indo Aryan Architecture** Development of fortification, walled towns, settlement patterns and the causative factors. Role of Shilpasasthras and Arthashasthra in settlement planning. Study of worshipping places in Indo Aryan / Nagara style, design of buttressed shikharas, rock-cut and structural examples of temples Parsurameswara Temple, Muktheswara Temple, Bhuvaneshwar, Kandariya Mahadeva Temple at Khajuraho	06
Unit 6	**Dravidian Architecture** Development of fortification, walled towns, settlement patterns and the causative factors. Role of Shilpasasthras in settlement planning. Study of worshipping places in Dravidian style (Satavahana, Rashtrakutas, Chalukya, Pallava, Chola, etc.) design elements of temple. Badami cave Temples, Kailash Temple Ellora, Shore temple & Monoliths at Mahabalipuram, Brihadeeswara Temple at Thanjavur	05

Textbooks:

Sr. No.	Title	Author	Publisher
1.	Indian Architecture	Percy Brown	Read books, 2010
2.	The Architecture of India	Satish Grover	Vikas Publishing House Pvt. Ltd, 1985

Reference Books:

1.	History of Architecture	Spiro Kostaff	2nd edition, OUP, USA, 1995
2.	Global History of Architecture	Francis Ching	3rd edition, Wiley, 2017
3.	History of Architecture	Bannister Fletcher	Architectural press, 1996
4.	Indian Architecture	Percy Brown	Read books, 2010
5.	The Architecture of India	Satish Grover	Vikas Publishing House Pvt. Ltd, 1985
6.	History of Architecture in India	Christopher Tadgell	AD & T press, London, 1990
7.	Architecture: From Pre-History to Post modernity	Martin Trachtenberg & Isabelle Hyman	2nd edition, Harry N. Abrams Inc, 2002

Recommended Readings:

1.	Introduction to History of Architecture in India	https://onlinecourses.nptel.ac.in/noc25_ar04/preview

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: BSAE	**Credits: 04**
Course Code: ARC156	Examination Scheme
Course Name: Building Construction and Materials -II	**Mid-Semester Examination-20 Marks** MSE Duration 1 Hr **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory -50 Marks** ESE theory Duration 2 Hrs **End Semester Examination - Oral : 100 Marks**
Teaching Scheme: Lecture : 01 Hr./Week Studio : 03 Hrs./Week	

Course Objectives	1. To understand Principles and basics of building construction and the process, methods of building construction. 2. To apply the knowledge of the principles and practices in the studio for working drawings and details. 3. To study the performing standards and codes where in application of each material would be discussed in detail and include study of latest trend in practice and usage of new technologies and material for each topic 4. To understand different materials used in construction, their properties, characteristics, behaviour and their specific uses in the building industry
Course Outcome	1. Students will expand their basic knowledge about doors, windows and roofs. 2. Understand the contextual relevance of natural and man-made materials and their applicability in various construction practices. 3. Understand materials and their use in construction with specific reference to timber, Cement concrete and Metals. 4. In-depth knowledge and understanding of different building materials used for construction. 5. Understanding of properties, construction techniques of timber with specific reference to use of timber in superstructure (spanning, framing techniques). 6. Understanding of properties, construction techniques of steel with specific reference to use of timber in superstructure (spanning, framing techniques).

Unit	Course Content	Hours
CONSTRUCTION		
Unit 1	**Doors:** Types of doors based on the make (battened, ledged, braced, flush, panelled, framed etc.) usage (single leaf, double leaf, pivoted, sliding, folding, revolving, swing, rolling shutter, safety doors, collapsible) Types of materials used in doors (wood, metal, glass, aluminium, PVC). Door accessories- Fittings and fixtures, applications	12
Unit 2	**Windows:** Types of windows based on the make (casement, sliding, folding, pivot, louvered, fixed) Classification of windows and materials used (wood, steel, glass and aluminium, PVC) Window accessories- Fittings and fixtures, applications **Ventilators:** Types of ventilators (Top Hung, Bottom Hung, pivot, fixed and adjustable louvered) Classification of Ventilators and materials used (wood, steel, glass and aluminium, PVC) Ventilator accessories- Fittings and fixtures, applications	08
Unit 3	**Smart Technology for Doors and Windows:** (Smart Locks and Access Control, Sensors and Automation, Connectivity and Home Automation)	08

	Sustainable and Eco-Friendly Door Options: Use of Sustainable Materials, Energy Efficiency. Low VOC Finishes.	
Unit 4	**Roofs and Roof Coverings**: Introduction-Definition, requirement and classification of roofs- Pitched/sloping, Flat or Terrace, Technical terms in roofs Simple roof (short span up to 9.5mts.) pitched/sloping in wood Lean to roof, couple roof, closed couple roof, collar beam roof, King post, queen post, Mansard roof Construction detail Steel trusses (short span up to 9.00 mts. to 12 mts.) in steel Simple Steel truss, Scissors truss, howe truss, fan fink, compound fink truss Construction detail	12
MATERIALS		
Unit 5	**Cement Concrete:** Definition, properties, specification, water cement ratio, preparation, placing curing, casting and different equipment used, fine and coarse aggregate, types of concrete (aerated, polymer, ready-mix, fibre reinforced) and grades of concrete, PCC and RCC **Plastering and Pointing:** Different types and methods of Plastering and Pointing.	06
Unit 6	**Floor Finish:** Outdoor (Concrete, Paver, Tile, Decking, stone, paver, Artificial grass, Resin Bound) Indoor (Tile, Vinyl, Hardwood, Natural Stone, Carpet, Cork, Concrete, Rubber, Bamboo, Linoleum, Terrazzo)	06
Unit 7	**Roofing Finishes:** Materials like Clay tiles, slates, GI, Aluminium, PVC Sheets, and other composite roofing sheets characteristics and uses	04
Unit 8	**Ferrous Metals: Iron and Steel and Non-Ferrous Metals** Study the manufacture, characteristics, properties & use of these materials in building. **Glass:** Study the manufacture, characteristics, properties & use of these materials in building.	08

Textbooks:

Sr. No.	Title	Author	Publisher
1.	Building Construction.	Dr. B.C. Punmia.	Laxmi Publications
2.	Building Construction	Sushil Kumar	Standard Publisher Distributors
3.	Building Construction Materials	Rangwala	Charotar Publishing House Pvt.Ltd.

Reference Books:

1.	The Elements of Structure.	W Morgan	Pitman Publishing.
2.	Building Construction	S.P.Arora & S.P. Bindra	Dhanpat Rai Publications.
3.	Building construction (Vol. 1 to 4)	Mckay W. B	Longman and Pearson Education
4.	The Construction of Buildings. (Vol. I to V)	R Barry	Wiley Blackwell
5.	Construction Technology (Vol. I to IV)	Roy Chudley	Pearson Education India
6.	Building Construction Illustrated	Francis D.K. Ching	Wiley Publications
7.	Building Construction	Rangwala	Charotar Publishing House Pvt.Ltd.

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: BSAE	**Credits: 02**
Course Code: ARC157	Examination Scheme
Course Name: Theory of Structure-II Teaching Scheme: Lecture : 02 Hrs./Week	**Mid-Semester Examination-20 Marks** MSE Duration: 1 Hr **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory -50Marks** ESE Theory Duration: 2 Hrs. End Semester Examination - Oral : Nil

Course Objectives	1. Explore Material Properties: To understand the behavior of different materials and structural systems under various loading and failure conditions. 2. Master Structural Concepts: To understand shear force, bending moment, and stress distribution in beams. 3. Analyze Beam Behavior: To calculate deflection, slope, and stress in beams under various loading conditions. 4. Understand Column Stability: To analyze the stability and buckling of short and long columns using fundamental theories.
Course Outcome	1. Understand the behavior of different structural systems and materials under various loading and failure conditions. 2. Analyze stress and strain relationships and apply the principles of elastic constants for axially loaded members. 3. Interpret shear force and bending moment diagrams for various types of beams and identify critical points of loading. 4. Evaluate stress distributions and shear stresses in beams with different cross-sections to determine their strength and performance. 5. Calculate slope and deflection in beams using analytical methods to ensure their safety and functionality. 6. Examine the stability and buckling of columns using fundamental theories and assess their behavior under various loading conditions.

Unit	Course Content	Hours
Unit 1	**Material Properties and Structural Systems** Basic Structural Systems: Introduction to post and beam, load bearing wall systems, trusses, rigid frames, and their structural behaviour. Load distribution and transfer through these systems. Material Behaviour: Elastic, plastic, brittle, and ductile behaviour of materials. Failure of Material in Tension and Compression: Ductile and Brittle Metals in Tension and Compression Test.	5
Unit 2	**Simple Stress-Strain and Elastic Constants** Stress, strain and their types, Allowable stresses, Saint Venant Principal, Hooke's law and its assumptions, Elastic constants and relation between them. Deflection of axially loaded members, principle of superposition. Temperature stresses in composite bars. (No derivations, Simple numerical only)	5

Unit 3	**Shear Force and Bending Moment** Basic Concepts: Introduction to shear force and bending moment. Diagrams: Shear force and bending moment diagrams for various beam types: Cantilever beams subjected to point loads, uniformly distributed loads (UDL), and uniformly varying loads. Simply supported beams with similar load types. Overhanging beams. Key Points: Points of zero shear, maximum shear force, maximum bending moment, and contra-flexure. (No derivations, Simple numerical only)	5
Unit 4	**Stresses in Beams** Theory of Simple Bending: Assumptions in simple bending. Flexural formula and stress distribution across sections (rectangular, circular, T, C, L, I sections). Strength of Sections: Calculation and comparison of different beam cross-sections. Shear Stress Distribution: Shearing stress distribution across various beam sections, including square and round columns. (No derivations, Simple numerical only)	5
Unit 5	**Deflection of Beams** Slope and Deflection: Introduction to deflection in beams. Methods for calculating slope and deflection: Double integration method and Macaulay's method. Applications: Simple problems focused on deflections in simply supported and cantilever beams. (No derivations, Simple numerical only)	6
Unit 6	**Analysis of Columns** Short and Long Columns: Elastic stability and buckling analysis. Euler's theory: Assumptions and limitations, slenderness ratio, and effective length. Rankine's formula and core of a column section. Analysis for different end conditions and eccentric loading. (No derivations, Simple numerical only)	6

Reference Books:

Sr. No.	Book	Author	Publisher
1.	Mechanics of Solids	B.C. Punmia	Laxmi Publications, 2018
2.	Strength of Materials	R.K. Bansal	Laxmi Publications, 2010

Reference Books:

1.	Mechanics of Materials	Ferdinand P. Beer, E. Russell Johnston Jr., John T. DeWolf, David F. Mazurek	McGraw-Hill Education, 2014
2.	Mechanics of Structures (Vol. I & II)	S.B. Junnarkar, H.J. Shah	Charotar Publishing House Pvt. Ltd., 2015
3.	Structural Analysis	R.C. Hibbeler	Pearson Education India, 2017 (Indian Edition)

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)		
Course Category: BSAE		**Credits: 02**
Course Code: ARC158		Examination Scheme
Course Name: Environmental Science		**Mid-Semester Examination-20 Marks** MSE Duration: 1 Hr **Continuous Internal Evaluation: 30 Marks** **End Semester Examination Theory -50Marks** ESE Duration: 2 Hrs. End Semester Examination - Oral : Nil
Teaching Scheme: Lecture : 02 Hrs./Week		
Course Objectives	1. To provide an overview of natural resources, various Eco systems and its characteristics 2. To provide an overview of conservation of biodiversity 3. To create an awareness about the impact of human activities such as pollution and its consequences 4. To stress the importance of environmental protection and sustainable development	
Course Outcome	1. To grasp the interdisciplinary nature of environmental science and its interdependence on development and society. 2. Gain in-depth knowledge on natural processes that sustain life. 3. To think holistically about the environment when taking architectural design decisions. 4. Learn to develop strategies for environmental protection and conservation. 5. Learn to assess the technical, social, and economic potential of green infrastructure.	
Unit	**Course Content**	**Hours**
Unit 1	**Introduction to Ecosystems and Environment, Environmental Resources:** Concepts such as Environment, Atmosphere, Ecology, Ecosystem. Types of Ecosystems, Characteristics features, structures and functions of ecosystem-Forest, Grassland, Dessert, Aquatic (Lakes, Rivers and Estuaries). Energy flow of ecosystem	5
Unit 2	**Biodiversity and Conservation:** Value of Biodiversity- consumptive and productive use. Social, ethical, aesthetics and option values. Bio geographical classification of India-India as a mega diversity habitat. Threats to biodiversity habitat –Hotspots, habitat loss, poaching of wildlife, loss of species. Seeds. Etc. Value of biodiversity. Endangered and Endemic species of India, Conservation of biodiversity.	8
Unit 3	**Energy Resources:** Natural resources – Renewable and non-renewable resources, Energy resources,Water and land sources, Use of natural resources in overall development of mankind. Role of individual in conservation of natural resources	7
Unit 4	**Social and Environmental issues:** Environment from unsustainable to Sustainable development Population explosion, resource exploitation and depletion, human wildlife conflict, loss of wetlands, mangroves, increasing dessert area. Urban Problems related to energy, Human population and environment.	8

	Climate change and global warming. Impacts of housing, mining, transportation activities and waste generation. Role of an individual in preventing pollution. Introduction to Disaster management – Earthquake, cyclone and Landslides	
Unit 5	**Institution and Governance:** Introduction to Government regulations, Monitoring and enforcement of environmental regulations. Introduction to Environmental Acts (water and air) Environmental protection act, wildlife protection act, forest conservation act.	2
Unit 6	**Water conservation**: Rainwater harvesting and Water shed management	2

Textbooks:			
Sr. No.	**Title**	**Author**	**Publisher**
1	Textbook for environmental studies	Erach Bharucha	Erach Bharucha
Reference Books:			
1.	Housing Climate & Comfort	M.Evans	Architectural Press
2.	Manual of Tropical Housing and Building	O.H. Koenigsberger	Universities Press
Recommended Readings:			
1.	Environmental Management & Ethics	https://www.coursera.org/learn/environmental-management-ethics#modules	

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: OE	**Credits: 02**
Course Code: ARC166	Examination Scheme
Course Name: Open Elective I: Indian Art and Culture	Mid-Semester Examination-NIL MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE theory Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio : 02 Hrs./Week	

Course Objectives	1. Understand the historical and cultural evolution of Indian art and culture. 2. Appreciate the significance of different art forms in Indian society and religion. 3. Explore key art movements, architectural styles, and cultural traditions in India. 4. Critically analyse Indian art and culture from the perspective of history, philosophy, and aesthetics.
Course Outcome	1. Appreciate the highlights and salient features of Indian art, both traditional and modern. 2. Understand the objectives and ethos of the cultural period that produced each artwork. 3. Exposure to the broad spectrum of sensory arts, including architecture. 4. To develop aesthetic sensibilities.

Unit	Course content	Hours
Unit 1	Introduction to Indian Art and Culture, Significance of Indian Culture in the Global Context	5
Unit 2	Ancient Indian Art and Architecture	5
Unit 3	Religious and Philosophical Influence on Art and Culture	5
Unit 4	Classical Indian Art Forms, Folk Arts and Crafts of India	5
Unit 5	Indian Literature and Performing Arts	5
Unit 6	Modern Indian Art and Culture	5

Reference books

Sr. no	Title	Author	Publisher
1	Indian Art & Heritage	Kota Mrutyunjaya Rao	Motilal Banarsidass
2	The Philosophy of Indian Art	D.C. Bhattacharyya	Routledge, 2005
3	Indian Folk Art	V. Raghavan	Oxford University Press, 2006
4	The Art of India: Traditions of Indian Sculpture and Painting	B.N. Goswamy	Phaidon Press, 1997

Bhatia
BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: OE	**Credits: 02**
Course Code: ARC167	Examination Scheme
Course Name: Open Elective I: Yoga and Meditation	Mid-Semester Examination-NIL MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio : 02 Hrs./Week	

Course Objectives	1. Practice basic Yoga and Pranayama in daily life to maintain physical and mental fitness. 2. Practice meditation regularly for improving concentration and better handling of stress and anxiety. 3. Follow healthy diet and hygienic practices for maintaining good health.
Course Outcome	1. To improve students' emotional balance and self-awareness. 2. Improve mental clarity, concentration, and body awareness 3. To deal with stress and developing strategies to prevent its effects

Unit	Course Content	Hours
Unit 1	**Foundations of Yoga Practice:**1. Define yoga and its historical context. 2. Explain the eight limbs of yoga and their significance. 3. Perform basic warm-up exercises and relaxation techniques. 4. Understand the importance of alignment and safety in yoga postures.	8
Unit 2	**Asana Practice and Alignment:**1. Demonstrate a variety of foundational yoga asanas with proper alignment. 2. Identify the benefits and contraindications of each asana. 3. Create a sequence of asanas targeting specific areas of the body. 4. Explore modifications and variations to accommodate different skill levels.	8
Unit 3	**Pranayama and Breath Control:**1. Describe the connection between breath and prana (life force). 2. Practice different pranayama techniques, such as Ujjayi, Nadi Shodhana, and Kapalabhati. 2. Understand the physiological and psychological effects of pranayama. 3. Incorporate pranayama into asana practice to enhance focus and relaxation.	8
Unit 4	**Meditation and Yoga Philosophy:**1. Define meditation and its role in stress reduction and mental clarity. 2. Explore various meditation techniques, including mindfulness and loving-kindness meditation. 3. Discuss the concepts of Dhyana (meditation) and Samadhi (blissful absorption) from yoga philosophy. 4. Reflect on the ethical principles of yoga, such as Yamas and Niyamas, and their application in daily life.	8

Reference Book

Sr. No.	Title	Author	Publisher
1	Patanjalis Yoga Sutras	Swami Vivekananda	Fingerprint Publishing (2023) Prakash Books India Pvt Ltd, New Delhi
2.	Yoga for Every Body: A beginner's guide to the practice of yoga postures, breathing exercises and me	Luisa Ray, Angus Sutherland	Vital Life Books (2022)

3.	Science of Yoga: Understand the Anatomy and Physiology to Perfect Your Practice	Ann Swanson	Dorling Kindersley Limited
4	The Relaxation and Stress Reduction Workbook	Martha Davis, Elizabeth Robbins, Matthew McKay, Eshelman MSW	A New Harbinger Self-Help Workbook (2019)

Bhatia

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: OE	**Credits: 02**
Course Code: ARC168	Examination Scheme
Course Name: Open Elective I: Universal Human Values	Mid-Semester Examination-NIL MSE Duration: NA
Teaching Scheme: Studio : 02 Hrs./Week	**Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE Theory Duration: NA End Semester Examination - Oral : Nil

Course objectives	1. Understand key concepts of universal human values and their relevance in the contemporary world. 2. Reflect on the role of individual and collective responsibility in promoting human dignity and well-being. 3. Develop a framework for making value-based decisions in both personal and professional contexts.
Course Outcome	1. Develop better critical thinking abilities and are more sensitive to their commitment to what they have learned. 2. Able to apply what they have learned to their own lives in different day-to-day settings. 3. Distinguish between ethical and unethical practices and start working out strategies to create a harmonious environment. 4. Become more responsible in life, and in handling problems with sustainable solutions. 5. Develop commitment and courage to act.

Unit	Course content	Hours
Unit 1	**Introduction to Universal Human Values** • Definition and Scope of universal human values • Fundamental Principles: Respect for life, dignity, justice, equality, and freedom. • Cultural Diversity and Shared Values: Exploring similarities and differences in value systems. • The Importance of Universal Values in Global Society	8
Unit 2	**Human Values in Various Philosophies** • Human Values in Bauddh and Jain Darshan • Human Values in Vedic Darshans (Sankhya, Yoga and Vedanta) • Human Values in Madhyasth Darshan	8
Unit 3	**The Role of Human Dignity in Universal Values** • Concept of Human Dignity • Human Rights Framework • Empowerment • The Relationship between Human Dignity and Equality	8
Unit 4	**Universal Human Values in Personal and Professional Life** • Value-based Decision Making • Ethical Leadership • Personal Integrity and Accountability • Navigating Moral Dilemmas	8

Reference books			
Sr no	**Book**	**Author**	**Publisher**
1.	The Philosophy of Human Rights	Todd May	Blackwell Publishing, 2010
2.	The Ethics of Human Rights	Alasdair MacIntyre	Cambridge University Press, 2008
3.	Human Rights: A Very Short introduction	Andrew Clapham	Oxford University Press, 2007

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: OE	**Credits: 02**
Course Code: ARC169	Examination Scheme
Course Name: Open Elective I: Indian Constitution	Mid-Semester Examination-NIL MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE theory Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio : 02 Hrs./Week	

Course objectives	1. Explores the basic structure and operational dimensions of the Indian Constitution. 2. Highlights historical events leading to the creation of the Constitution. 3. Defines the fundamental political code, structure, procedures, powers, and fundamental rights. 4. Highlights the role of the Constituent Assembly in the Constitution's drafting. 5. Discusses the preamble of the Constitution, defining its destination. 6. Discusses the relationship between fundamental rights and duties.
Course Outcome	1. List salient features and characteristics of the constitution of India. 2. Follow fundamental rights and duties as responsible citizen and architecture of the country. 3. Analyse major constitutional amendments in the constitution. 4. Follow procedure to cast vote using voter-id.

Unit	Course content	Hours
Unit 1	**Constitution and Preamble** The Constitution of India, a historical document, is a fundamental document defining the country's legal system and guiding its citizens' rights and governance.	8
Unit 2	**Fundamental Rights and Directive Principles** The fundamental rights, duties, and relevance of Directive Principles of State Policy under Part-III, Part-IV-A, and Part-IV A	8
Unit 3	**Governance and Amendments** The constitutional amendment procedures, their types, the principle of Federalism, and the establishment of special committees, and the major constitutional amendment procedures.	8
Unit 4	**Electoral Literacy and Voter's Education** Electoral rights, registration processes, ethical participation, voter motivation, voter guides, prospective empowered voters, voting procedures, voter awareness, and online registration.	8

Reference books

Sr no	Title	Author	Publisher
1	The Constitution of India	P.M.Bakshi	Universal Law Publishing, New Delhi 15th edition, 2018
2	Introduction to Indian Constitution	D.D.Basu	Lexis Nexis Publisher, New Delhi, 2015
3	Introduction to Constitution of India	B. K. Sharma	PHI, New Delhi, 6thedition, 2011
4	The Constitution of India	B.L. Fadia	Sahitya Bhawan,Agra, 2017

Master Copy

Bhatia

BOARD OF STUDIES ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: OE	**Credits: 02**
Course Code: ARC170	Examination Scheme
Course Name: Open Elective I: Life Skills	Mid-Semester Examination-NIL MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE theory Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio : 02 Hrs./Week	

Course objectives	1. To provide with the knowledge of necessary life skill for the application in everyday life. 2. To enhance the quality of addressing issue relevant to the life situations. 3. To enable the students to establish productive interpersonal relationships with others. 4. To equip students for handling specific issues.
Course Outcome	1. Define and identify different life skills required in personal and professional life. 2. Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress 3. Gain effective communication skills. 4. To recognize the impact of their actions and take responsibility. 5. To foster creativity and innovation. 6. To learn time and stress management techniques.

Unit	Course content	Hours
Unit 1	**Overview of Life Skills:** Meaning and significance of life skills, Life skills identified by WHO: Self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, problem solving, Effective communication, interpersonal relationship, coping with stress, coping with emotion. **Life skills for professionals:** Positive thinking, right attitude, attention to detail, having the big picture, learning skills, research skills, perseverance, setting goals and achieving them, helping others, leadership, motivation, self-motivation, and motivating others, personality development, IQ, EQ, and SQ	8
Unit 2	**Self-awareness:** Definition, need for self-awareness; Coping With Stress and Emotions, Human Values, tools and techniques of SA: questionnaires, journaling, reflective questions, meditation, mindfulness, psychometric tests, feedback. **Stress Management:** Stress, reasons and effects, identifying stress, stress diaries, the four A's of stress management, techniques, Approaches: action-oriented, emotion oriented, acceptance-oriented, resilience, Gratitude Training, Coping with emotions: Identifying and managing emotions, harmful ways of dealing with emotions, PATH method and relaxation techniques. Morals, Values and Ethics: Integrity, Civic Virtue, Respect for Others, Living Peacefully. Caring, Sharing, Honesty, Courage, Valuing Time, Time management, Cooperation, Commitment, Empathy, Self-Confidence, Character, Spirituality, Avoiding Procrastination, Sense of Engineering Ethics.	8

Unit 3	**21st century skills:** Creativity, Critical Thinking, Collaboration, Problem Solving, Decision Making, Need for Creativity in the 21st century, Imagination, Intuition, Experience, Sources of Creativity, Lateral Thinking, Myths of creativity, Critical thinking Vs Creative thinking, Functions of Left Brain & Right brain, Convergent & Divergent Thinking, Critical reading & Multiple Intelligence. Steps in problem solving: Problem Solving Techniques, Six Thinking Hats, Mind Mapping, Forced Connections. Analytical Thinking, Numeric, symbolic, and graphic reasoning. Scientific temperament and Logical thinking	8
Unit 4	**Group and Team Dynamics**: Introduction to Groups: Composition, formation, Cycle, thinking, clarifying expectations, Problem Solving, Consensus, Dynamics techniques, Group vs Team, Team Dynamics, Virtual Teams. Managing team performance and managing conflicts, Intrapreneurship. **Leadership:** Leadership framework, entrepreneurial and moral leadership, vision, cultural dimensions. Growing as a leader, turnaround leadership, managing diverse stakeholders, crisis management. Types of Leadership, Traits, Styles, VUCA Leadership, Levels of Leadership, Transactional vs Transformational Leaders, Leadership Grid, Effective Leaders.	8

Reference books

Sr no	Title	Author	Publisher
1	You Can Win	Shiv Khera,	Macmillan Books, New York, 2003
2	Personality Development & Soft Skills	Barun K. Mitra	Oxford Publishers, Third impression,2017
3	The First Book of Life Skills.	Larry James,	First Edition, Embassy Books, 2016.
4	The Emotionally Intelligent Manager: How to Develop and Use the Four Key Emotional Skills of Leadership	Caruso, D. R. and Salovey P	John Wiley & Sons, 2004

BOARD OF STUDIES, ARCHITECTURE
Maharashtra Institute of Technology,
Chhatrapati Sambhajinagar (M.S.)

Master Copy

Faculty of Science & Technology Syllabus of First Year. B.Arch. (Semester-II)	
Course Category: SEC	**Credits: 02**
Course Code: ARC171	Examination Scheme
Course Name: Computer Studio-II	Mid-Semester Examination- Nil MSE Duration: NA **Continuous Internal Evaluation: 50 Marks** End Semester Examination Theory -Nil ESE Duration: NA End Semester Examination - Oral : Nil
Teaching Scheme: Studio : 02 Hrs./Week	

Course Objectives	1. To familiarize students with understanding the development of computers, 2. To learn use of computers to create 2D and 3D drawings in Computer Aided Software AutoCAD. 3. Develop skills of computer driven communications and usage- Customization and Templates for repetitive function.
Course Outcome	1. Develop understanding of computer aided drafting. 2. Demonstrate the concepts of CAD drafting methods and techniques in 2D and 3D through various architectural projects of progressive complexity. 3. Comprehends computer aided drafting and its parameter as tools and its application in architecture. Evaluates CAD techniques for quicker methods and presentation skills.

Unit	Course Content	Hours
Unit 1	**Introduction to AutoCAD as 2D drafting tool** Digital drawings tools, drawing lines and shapes, modifying lines and shapes, drawing with accuracy and speed. Organizing plans, sections and elevations, drawing and printing to scale, text styles and sizes, hatches and dashed lines. Stencils and blocks, advanced editing tools, and dimensioning drawings.	08
Unit 2	**3D Modeling using AutoCAD** Introduction to 3D-modelling technique using AutoCAD. 3D basics: Axes, Planes and Faces. 3D Object Modification: Rotate, Mirror, Array and Scale. 3D Boolean operations: Union, Subtract, Intersect. 3D primitive objects: Box, Wedge, Cone, Sphere, Cylinder, Torus and Pyramids. Solid modeling: Revolve, Shell, Taper, Loft, Path extrusion and sweep.	08
Unit 3	**Introduction to 3D Modeling and Rendering** Building Modeling and basic rendering techniques, using 3DSMax or equivalent.	08
Unit 4	**Workshops** A - Workshop on Sketch-up as modeling tool B - Workshop on In-Design as presentation tool (Introduction to other commonly used software tools in a one-day workshop)	08

Reference Books:

Sr. No.	Title	Author	Publisher
01	An Introduction to Adobe Photoshop	Bark, S.	Sheffield: Ventus Publishing
02	Fundamentals Of Three-Dimensional Computer Graphics	Alan Watt	Addison Wesley Publication
03	Computer Aided Design guide For Architecture, Engineering and Construction	Ghassan Aouad, Song Wu, Angela Lee, Timothy Onyenobi	Routledge
04	Architectural drawing: a visual compendium of types and methods	Rendow Yee	John Wiley and Sons, 2007