RAJA MANSINGH TOMAR MUSIC & ARTS UNIVERSITY, GWALIOR, M.P.

BACHELOR OF DESIGN INTERIOR DESIGN

Syllabus 2024-25 (Four Years)

Yearly Examination : Duration 4 Years

Note:

1st year & 2nd year New Syllabus 3 theory & 4 practical = 700 marks scheme

3rd year - 4 theory & 4 practical 400+400 = 800 marks scheme

4th year – 4 theory & 4 practical 400+400 = 800 marks scheme

B. DESIGN INTERIOR DESIGN YEAR 1

Scheme of Examination

THEORY	**TIME**	**SIZE**	**EXT. MARKS**	**C.C.E.**	**TOTAL (TH)**
Fundamentals & Theory of Design	3Hrs.	-	70	30	100
History of Indian Architecture	3 Hrs.	-	70	30	100
Ergonomics & Anthropometrics	3 Hrs.	-	70	30	100
				Total TH	300
PRACTICAL			Ext. Mark	Internal Marks	TOTAL (PR)
Fundamentals of Drawing & Design	6 Hrs.	A3	70	30	100
Engineering Drawing & Graphics	6 Hrs.	A3	70	30	100
Ergonomics & Anthropometrics Practices	6 Hrs.	A3	70	30	100
Construction - 1	6 Hrs.	A3	70	30	100
				Total PR	400
				Grand Total	**700**

B. DESIGN INTERIOR DESIGN YEAR 1

PAPER - 1 (THEORY) – FUNDAMENTALS & THEORY OF DESIGN

UNIT 1 — ELEMENTS & PRINCIPLES OF DESIGN

- **Line**: Definition of Line, Lines and Visual Illusion, Line and Impression. Different 1am of firms and Drawings,, Development and Possibilities of Line Drawings. Knowing the Tools and Materials, Drawing—its Evolution and Possibilities, Line -Visual Kinetics (Flow and Weight), Energy and Lines, Other Values of Line. Point. Plane. Point-nothingness of the point-things come out of nothing – abstract Point
- **Shape & Form**: Definition of Shape, Primary Shapes, Geometric & Organic Shapes, Abstract Shapes, Compound shapes, Psychology of shapes in design. Planes / shapes-natural shapes-abstract shapes-geometric shapes-Form-form & shapes
- Definition of form. Properties of Form, Regular & Irregular Forms, Transformation of Form, Types of Form – Additive & Subtractive Forms, Centralized, Linear, Radical, Clustered, Grid, Rotated Grid. What is form. What is space. Relationship between space & form. Study of illusion. Tectonics& Characteristics of Form.
- **Texture**: Meaning and Definition, Classification, Texture and Space. Texture and Principles of composition, Texture Creating. Tools and Ways of Creating Texture, Texture Exploration. Texture and Painting, Texture and Sculpture.
- What is **composition** (general meaning and definition). Types of Composition. Understanding Alignments
- **Unity**: Definition, object, unity and vision, unity and visitor, unity and relativity, unity creation in - painting, unity and opposite (discord)
- **Harmony**: Definition, line-harmony, form-harmony, texture-harmony, conceptual harmony. color harmony, process of harmony creation
- **Balance**: definition, balance and visual weight (line, form, color and tone), principles of balances. etc.
- **Dominanc**e: Definition and object, fundamentals, dominance and background, ways to create dominance point of interest in a painting space.
- **Rhythm**: Definition, different types, ways of creating rhythm, feeling of rhythm. Repetition. Hierarchy.
- **Proportion** — Definition, Proportion and space division, form and proportion, color and proportion, human forms and proportion. Proportion & Scale – Material, Structural & Manufactured Proportions, Proportioning Systems, Golden Sections, Renaissance Theories

UNIT 2 – COLOR THEORY

- What is Color? — Physiology, how light gives objects colors, Factors involved in color perception. Local, Optical and Arbitrary Colors,
- Color Systems and Color Wheels —The Pigment Wheel. The Process Wheel. The Munsell Wheel, The Light Wheel, The Visual Wheel.
- Coloring Agents --Additive Color Mixing Subtractive Color Mixing, Dimensions of Color - Value, Intensity, Temperature,
- Color in Compositions — Rhythm, Balance, Proportion, Scale, Emphasis, Harmony. Transparency. Volume Color, Film Color, Intensity and Space, Line, Texture, Light, Contrast. Shadows.
- Color Schemes and color harmonies.
- The Influence of Color — Color Symbolism, Ho Color Influences Life, Color Association in Language and Emotion, influences of the Dimensions of Color
- Tone: Definition, Classification, Impression, Tone-Its Importance and Application, Emotional Aspects of Tone, Relation of Tone with Space
- Medium and methods — All about painting medium and methods relating to creation

- Drawing and rendering — Definition, problem relating two-dimensional drawing and rendering, and three-dimensional effects, do's and don'ts in it.

B. DESIGN INTERIOR DESIGN YEAR 1

UNIT 3 – SPACE IN INTERIOR DESIGN

- Space: Definition, Types of spaces – Social, Private, Work & Storage.
- Theories / & Principles Relating Space & Space planning.
- Role Of Space - Negative/Passive, Passive/Active, Neutral/Assisting and Their Importance)
- Process of Space Planning. Measuring a Space. Scales and units used in Space Planning.
- Organization Of Space, Shapes, Form and and other elements of design in relation To Space, Form Defining Space.
- Element defining space – Horizontal Elements, depressed Elements, Overhead elements, Vertical Elements-Linear, L Shaped, Parallel Planes, U Shaped, Four Planes

UNIT 4 – THEORY OF DESIGN

- What is Design? How to Design? Creative Process. Developing Concepts,
- Problem Solving Process in Design
- Information Required to Start Design. How to get information? Site Analysis – Soil analysis, Elevation from the road analysis, Water sources on and near site analysis, Breeze and ventilation analysis, Sunlight analysis,
- Types of diagrams, Diagramming elements , Diagramming Relationships. Diagramming Concepts,
- Understanding Transformation. Dimensional Transformation, Subtractive Transformation, Additive Transformation, Grouping Forms . Surface Articulation, Form and Movement,
- Layering , Recombining, rotating,

UNIT 5 – FUNDAMENTALS OF ARCHITECTURE

- How Architecture is Organized. Organization of Form and Space. Space within a Space.
- Interlocking spaces, Adjacent spaces, Space linked by a common spaces, Spatial organization of spaces,
- Centralized Organization, Liner Organization, Radial Organization, Clustered Organization, Grid Organization, Circulation governed organization
- Ordering Principles – Axis, Symmetry, Hierarchy, Datum, rhythm, transformation,
- Qualities, Characteristics and Behaviors of Architectural Materials.
- Optimal Balance between built and open spaces.
- Drawing Classification systems used in Interior & Architecture. Types of Architectural Drafting. Drafting Media,
- Drafting Standards and symbols.

SUGGESTED READING

Introduction to Architecture by Francis D.K. Ching

Design Process: A Primer for Architectural and Interior Design by Sam F. Miller

Design Thinking Process and Methods 3rd Edition by Robert Curedale

Design Literacy for All – A Hand book by IIID

The Pattern Language by Christopher Alexander

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B. DESIGN INTERIOR DESIGN YEAR 1

PAPER - 2 (THEORY) – HISTORY OF INDIAN ARCHITECTURE

UNIT 1 – ANCIENT INDIAN ARCHITECTURE

- Understanding Time line and classification of Indian Architecture
- Town planning of Mohenjo-Daro and Harappa, . Dholavira , Lothal, Bet Dwarka
- Rock Cut Buddhist Architecture - Barabar caves in Bihar, Ajanta caves, Ellora Caves, Badami Caves, Bhaja Caves, Karla Caves, Bedse Caves,Kanheri Caves, Jogimara Caves, Sitamarhi Cave of Rajgir, Udayagiri and Khandagiri Caves, Sittanavasal Cave, Sittanavasal Cave, Bagh Caves, Elephanta Caves,
- Salient features of a Chaitya hall and Vihara. Stupa of Sanchi & Stupa of Nagarjunakonda

UNIT 2 - TEMPLE ARCHITECTURE

- Basic Features of the Hindu Temples - Garbhgriha, Mandapa, Shikhar or Vimana, The Vahan, Gopura,
- Concept and evolution of Hindu Temple - Nagara style, Dravida style , Vesara style
- Famous Temples of India - Tigawa temple, Ladh Khan temple, Aihole Papanatha and Virupaksha temple at Pattadakal. Kailasanathar temple, Dashavatara temple in Deogarh.
- Mandapas & Rathas Example of masonry temples – Shore Temple, Mahaballipuram, Kanchipuram, , Brihadeeswarar Temple, Tanjore , Meenakshi Amman temple, Madurai
- Lingaraja Temple, Bhubaneswar & Sun Temple, Konarak.
- Kandariya Mahadeva temple, Khajuraho –Surya Temple, Modhera.

UNIT 3 – INDO-ISLAMIC ARCHITECTURE

- Evolution of Islamic Architecture in India - Time line : Early Islamic Architecture (12th to 16th century, Mughal Architecture (16th to 18th century & Indo-Islamic Architecture (18th to 19th century)
- Key Features of Islamic Architecture in India - Domed Roofs, Minarets, Archways, Calligraphy, Geometric Patterns, Courtyards, Water Features, Ornate Decoration, Perforated Screens
- I**MPERIAL STYLE** - Delhi Sultanate - Kutub Minar & Kutub Complex, Tomb of Ghiyasuddin Tughlaq, Alai Darwaza,
- **PROVINCIAL STYLE** – (Mandu, Gujarat, Bengal, and Jaunpur) – Jahaj Mahal, Jami masjid, Ahmedabad,
- **THE MUGHAL STYLE** (Delhi, Agra, And Lahore) - Humayun's Tomb, Delhi, Fatehpur Sikhri (lay out, Buland darwaza, Diwan-i-Khas, The Taj Mahal, Agra, Red Fort, Delhi
- **THE DECCANI STYLE** (Bijapur, Golconda) - Gol Gumbaz, Bijapur, & Charminar, Hyderabad

UNIT 4 - COLONIAL & MODERN INDIAN ARCHITECTURE

- Characteristics of Indo-Serenic Architecture : St. Paul's Cathedral, Calcatta, Bombay Town Hall, University of Madras Senate House & Victoria Memorial hall, Calcatta
- Renaissance, Art Deco, Gothic Architecture in India - Mumbai High Court, David Sassoon Library, Wellington

Fountain, Regal Cinema, Victoria Terminus

- Contribution of Edwin Lutyens & Herbert Baker to the lay-out and Architecture of New Delhi – Rashtrapathi Bhavan & Parliament House.

UNIT 5 – REGIONAL ARCHITRCTURE OF INDIA

- Rajput Architecture, Sikh Architecture, Maratha Architecture
- Indian Vernacular Style of Architecture
- Dravidian Architecture
- Kalinga Architecutre

SUGGESTED READING : 1. History of Indian Architecture : Binda Thapar 2. Modern Architecture History of India – Keneth Franpton 3. Art and Architecture of Indian Subcontinent – Harle J C 4. Indian Architecture by Percy Brown

B. DESIGN INTERIOR DESIGN YEAR 1

PAPER - 3 (THEORY) – ERGONOMICS & ANTROMOMETRY

UNIT 1 – INTRO TO ERGONIMICS & ANTROPOMETRY

- What is ergonomics . What is Anthropometries. Definition of Anthropometry. applications of Anthropometry
- Human proportion basics - Ergonomics & Design, Five Fundamental Fallacies. User Centered Designs.
- Application of Ergonomics in various fields.
- Domains of Ergonomics - Psychical, Cognitive & Organizational.
- Psychology, Anatomy and Engineering relationship in Ergonomics.
- Relationship of Human requirements and Ergonomic. Physiology (work physiology) and stress.
- Environmental factors influencing human performance.

UNIT 2 : PRINCIPLES AND PRACTICE OF ANTHROPOMETRIES

- Constraints and criteria in Ergonomics & Anthropometrics.
- Clearance. Reach. Posture & Principle of the limiting the user. Zones of convenient reach.
- Criteria for optimal & satisfactory working heights. The normal working area
- Ergonomic injuries. User difficulties, Fatigue, Accidents, injuries and errors
- Environmental factors influencing human performance

UNIT 3 : HUMAN BODY STRUCTURE AND FUNCTION

- Anatomical terminology. Human physical dimension concern: Human body- structure and function,
- Anthropometry: body growth and somato types, Static and dynamic anthropometry
- Human Body Structure and Function.Working posture. Working height.
- Posture and strength. Vision and the posture of the head and neck . Anthropometry of the hand
- Sitting and Seating. Fundamentals of seating

UNIT 4: ERGONOMICS IN DESIGN

- Anthropometry landmark - Standard Anthropometric postures
- Standard Standing postures
- Standard Sitting, squatting and cross legged postures. Normal Seating Slump
- Posture and job relation, Posture and body supportive devices,
- Vertical work surface, Horizontal work surface, movement peetaining to work surfaces,

- Ergonomics in the Home - The kitchen, The bathroom, The bedroom
- Ergonomics in the Office - The office desk The office chair.

UNIT 5 : ANTROPOMETRIC DATA

- Anthropometric measuring techniques, Statistical treatment of data and percentile calculations
- Anthropometric Variance Parameters - Genter, Age, Ethnicity
- Anthropometric data sources.
- Techniques of Data collection - Purist approach & Pragmatic Approach, rule of Thumb Approach, Ratio scaling approach.
- Standard Anthropometric PLANES - Horizontal reference plane, vertical reference plane, Median Plane, Seat Reference point (SRP)..

SUGGESTED READING:

- Body Space - Anthropometry, ergonimics & the design of work - Stephen Pheasant
- Handbook of Human Factors & Ergonomics Methods - Stanton & Hedge
- Ergonomics & Design: a reference guide - Scott Openshaw
- Introduction to Humarn Factors and Ergonomics - Bridger

B. DESIGN INTERIOR DESIGN YEAR 1

PRACTICAL -1 FUNDAMENTALS OF DRAWING & DESIGN

DRAWING

- Still Life - Study of various objects in pencil and color (cube, sphere, cone. etc.) Study of drapery, pots, jugs, glass, random objects. Study of various forms of nature leaves, flowers, plants, fruits, etc.
- Fundamentals of Perspective (1 Point & 2 Point)
- Study of Figures — Human figures , Animals, Birds, Fishes, Human Gestures etc.
- Line –movement –conversion into strips n checks
- Shape –visualization of an image through line and plane using '-ve' '+ve' space
- Measuring & Drawing to Scale - Scales, simple object, reduction and enlargement of drawings.
- Architectural representation of landscape elements such as trees, indoor plants, planters, hedges, foliage, vehicles, Street Furniture etc by using different Media and techniques by integrating into presentation drawing.-
- Rendering Tonal Values in Architectural / Interior drawing.

COMPOSITION & COLOR STUDIES

- Geometric Shape Compositions with lines & shading.
- Compositions of Organic shapes.
- Color Study – Color Schemes – Primary, Secondary, Analogous, Tints & Shades, Achromatic & Monochromatic, Di Chromatic Colors, Color Wheels.
- Color Harmonies – Complementary, Split Complementary, Triad, Tetrad
- Print Making & Textures –an introduction to the basic materials, creating textures using all, art media like pencils, crayons, pastels, paints etc

PRACTICAL SUBMISSION All assignments to be done on A3 Size Sheets

- Still Life 15 Sheets (5 Pencil & 5 Color)
- Nature Study 15 Sheets (5 Pencil & 5 Color)
- Color Schemes – 10 Sheets (1 sheet of each color scheme and color harmony)
- Free Hand drawing of Interior Perspective of various rooms & Measured drawings - 30 sheets -

- 5 sheets of wall paper print designs in poster or pencil color rendering using Flowers & Leaves or other organic shapes as design reference.

SUGGESTED READING :

1. Light, Shade and Shadow (Dover Art Instruction) by E. L. Koller, 2. Now to Draw What You See (Practical Art Books) by Rudy De Reyna, 3. Bridgman's Complete Guide to Drawing from Life by George B Bridgima, 4. Color by Edith Anderson Feisner, 5. Color by Betty Edwards, 6. How Color affect Design – Aaris Sherin

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PRACTICAL -2 ENGIREEING DRAWING & GRAPHICS

- Drawing for Idea Generation. Drawing as Design and presentation media. Drawing as Guide for construction
- Drawing Tables & Surfaces. Drawing Papers, Films, Pencils, Leads & Pens
- Parallel Bar, T- Square & Drafting Machines, Triangles, Templates, Compass, Scales, Erasers, Erasing shields & Brushes.
- Methods of Architectural, Engineering, Interior drawings.
- Introduction to the basic principles of drawing, sign conventions. Line Types & Line Weights.
- Lettering & use of stencils in drawings. Lettering used in architectural drawings and drawing different fonts.
- Introduction to plane geometry and exercises in lines and angles, construction of triangles, quadrilaterals and regular polygons.

B. DESIGN INTERIOR DESIGN YEAR 1

- Construction of plane curves, ellipse, parabola, hyperbola and ovals.
- Arches, typical arch forms and methods of drawing them.
- Scales, construction of plain and diagonal scales and their uses in practice.

PROJECTIONS - Orthographic projection (first angle projection). Principles of orthographic projection, projection of points, lines, planes, solids.

- Principles of Isometric, Oblique, Axonometric projections.
- Three dimensional representation, isometric and axonometric projection of solids.

SCIOGRAPHY - Principles of Shade & Shadows in plan, elevation & different views. Rendering techniques of 2D and 3D drawings and sciography,

- Human Figures and accessories in 2D and 3D.
- Measured Perspective Drawings - 1 point, 2 point & 3 Point.
- Drafting Standards. Dimensioning Floor Plans, Designation of Materials, Multi View Drawings

PRACTICAL SUBMISSION – Portfolio in A3 Sheets of above topics.

SUGGESTED READING :

1. Architectural Graphics – D K Ching,
2. Color & Graphics Basics – Cole,
3. Interior Graphics Standard – Corky Binggeli,
4. Perspective for Interior Design - John Pile,
5. Engineering Drawing by N.D. Bhatt.

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PRACTICAL -3 ERGONOMICS & ANTROMOMETRY PRACTICES

HUMAN BODY STRUCTURE AND FUNCTION

- Human Proportions – Drawing Men, Women and Kids figures in scale, Human Forms, Human Dimensions
- Stature, Body dimensions, Eye Height, Shoulder Height, Elbow Height, Hip Height, Knuckle height, Fingertip height, Sitting height, Sitting eye Height, Sitting Shoulder Height, Sitting Elbow Height.
- Thigh Thickness, Buttock - Knee Length, Buttock-Popliteal length, Knee Height, Popliteal Height.
- Shouder Breadth (Bideltoid), Shouder Breadth(Bicromial),
- Hip Breadth, Chest(Bust) depth, Abdominal Depth, Shoulder elbow length, Elbow-fingertip length,
- Upper limb Length, Shoulder Grip length, Head Length, Head Breadth,
- Hand Length, Hand Breadth, Foot Length, Foot Breadth, Arm Span. Elbow Span.
- Clearance in Various positions. Zones of convenient reach
- Space requirements for circulation – detailed chart of various circulation spaces and standard requirements.

FURNITURE SKETCHES - Standard Dimension sketches of : chairs, beds, cupboards, almira, residential & commercial furniture. Furniture Sketches of Office Furniture : Desk, Chairs, Work Stations, Storages,

PRACTICAL SUBMISSION - A3 Sheets of above mentioned topics.

SUGGESTED READING

1. Body Space - Anthropometry, ergonimics & the design of work - Stephen Pheasant,
2. Handbook of Human Factors & Ergonomics Methods - Stanton & Hedge,
3. Ergonomics & Design: a reference guide - Scott Openshaw,
4. Introduction to Humarn Factors and Ergonomics - Bridger

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B. DESIGN INTERIOR DESIGN YEAR 1

PRACTICAL -4 CONSTRUCTION - 1

- Design & Construction Drawings. Bubble Diagram.
- **PLAN DRAWING** - Ceiling plan, Floor Plans, Scale and Orientation, Sections, Floor Plans Checklist
- **ELEVATIONS** - Exterior Elevations, Interior Elevations, Scale of Interior Elevations, Dimensioning of Interior Elevations
- **SECTION DRAWINGS**, Sections of Interior Spaces, Wall Sections, Floor Sections, Ceiling Sections
- Components of interior space - from foundation to roof,
- Stairs & Ramps,
- Different types of Doors, Windows, Ventilators.
- Different types of Floors – Construction drawings of flooring,
- Veranda, Balcony and railings.
- Planning of Kitchens
- Planning of Toilet & Bath
- Planning of various Rooms - Drawing, Living, Dining, , Bedroom. .
- drawing & rendering with environmental study
- Planning & Drawing Full Residence plan, elevations & views.

• Planning & Drawing an Office Plan, Elevation & Views.

• **SUGGESTED ACTIVITY** – Site Visits to understand various construction phases.

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B. DESIGN INTERIOR DESIGN YEAR 2

Scheme of Examination

THEORY	TIME	SIZE	EXT. MARKS	C.C.E.	TOTAL (TH)
Material and Construction 1	3Hrs.	-	70	30	100
History of European Architecture	3Hrs.	-	70	30	100
Interior Services 1	3Hrs.	-	70	30	100
				Total TH	**300**
PRACTICAL			Ext.Mark	Internal Marks	TOTAL (PR)
Furniture Design	6Hrs.	A3	70	30	100
Interior Services	6 Hrs.	A3	70	30	100
Studio 1 –Residential& Commercial Spaces	6Hrs.	A3	70	30	100
Computer Aided Design -1	6Hrs.	A3	70	30	100
				Total PR	**400**
				Grand Total	**700**

B.DESIGN INTERIOR DESIGN YEAR 2

PAPER-1 (THEORY) – MATERIAL & CONSTRUCTION 1

UNIT 1 - INTRODUCTION TO BUILDING COMPONENTS & BASIC MATERIALS

- **BUILDING COMPONENTS**: Basic components of a building structure - Foundation, Plinth, Footings, Columns, Beams, Slabs, Lintel, Staircase, Trusses, Rafters, Damp Proof Course etc. Structural Systems – load bearing, non load bearing & framed structures.
- **BRICKS**: Types of bricks - Sun-dried bricks, Burnt clay bricks, Fly ash bricks, Concrete bricks, Engineering bricks, Calcium silicate brick, Eco bricks, Firebricks. Qualities of a good brick. Brick Manufacturing Techniques, Types of Bonds. Brick laying techniques, Precautions in brick laying.
- **STONE**: Classification, Qualities of good stone, Stone Laying techniques and bonds, Dressing of stones and finishes of stones, Different textures and applications of stone in interiors and exteriors.
- **MASONRY**: Types, Material used, Methods used, types of structures, advantages & disadvantages.

UNIT 2 - CEMENT, MORTAR& CONCRETE& SAND

- **CEMENT**: Definition, Types of cement - OPC, PPC, RHC, ERHC, QSC, LHC, Sulphate Resisting Cement, Blast Furnace Slag Cement, High Alumina Cement, White Cement, Coloured Cement, Air entraining Cement, Expansive Cement, Hydrographic Cement, Portland Limestone Cement, Grades of Cement.
- **MORTAR**: Definition, Functions, Properties of Mortar, Types of Mortar, Applications of Mortar.
- **CONCRETE**: What is concrete, Types of Concrete, compositions, properties & usage of concrete.
- **AGGREGATES**: Definition, characteristics and types of aggregates.
- **SAND**: Types of sand for construction and their application

UNIT 3 - WOOD, LAMINATE, VENEER

- **TIMBER**: Anatomy of wood, Properties of wood - Grain, Texture, moisture contains, shrinkage. Special Characteristics, Fire Resistance, Electrical, Thermal & Acoustical properties, Defects in timber - knots, checks, shakes, Seasoning of timbre, Hardwood & Softwood.
- **PLYWOOD**: Wood By-Product & composite -Ply Wood, Block Board, Hard Board, Chip Board, Massonite Board, MDF, Laminated board, HDHMR etc. Cane & Bamboo.
- **LAMINATES** & **VNEERES**: Properties, types, manufacturing process, preservation & maintenance. Adhesive (Chemical adhesive, Animal glue, Epoxy resin etc.)

UNIT 4—FLOORING, CEILING & WALLS

- **FLOOR & FLOOR FINISHES**: Interior floors Mud, cement, brick granolithic, terrazzo, mosaic, tiled, marble, timber, rubber, cork, glass, plastic or PVC floors. Exterior floor -Concrete slabs, Brick Floors, Exterior tiles.
- **TILES**: Classification, properties, usages and laying techniques. Skirting & Moldings.
- **CEILING**: Types of Ceilings and roofs. Materials used for ceilings &roofs, plastering, Embossing, fresco, plaster of Paris, plastic, Kerala tiles, wooden paneling, glass.
- **WALLS**: Types of walls-Load Bearing Wall, Drop Wall, Shear Wall, Retaining Wall, Brick Masonry,, Course Rubble Masonry, Random Rubble Masonry Wall, Core Wall, Precast Wall, Parapet Wall, Curtain Wall, Compound Wall.
- **PARTITION WALLS** – Types, advantages & disadvantages:-Brick partition, Clay brick partition, AC Sheet or G.I Sheet partition, Glass partition, Concrete partition, Plaster slab partition, Metal lath partition, wood wool partition, Wooden or Timber partition. Materials and finishes used for walls. Partition Systems. Wet & Dry wall cladding in different materials.

UNIT 5—DOORS, WINDOWS & VENTILATION SYSTEMS

- **DOORS**: Types of wooden doors, Types of Metal Doors, Types of specialty doors based on usages. Common fittings for Doors.
- **WINDOWS**: Types/styles of Wooden/Metal Windows, Types of Sky lights, Common fittings for windows.
- **VENTILATION**: Definition & needs of ventilation in interior design. Natural ventilation systems. Mechanical Ventilation systems, Ventilation with fans. Ventilation with Ducts, Air Circulation principles for residential and

commercial establishments.

SUGGESTED READING : 1.Gurucharn Singh, "Building Materials., 2. Sanjay Mahajan "Building Construction I and II 3. Sushil Kumar, "Building Construction.

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B.DESIGN INTERIOR DESIGN YEAR 2

PAPER - 2 (THEORY) – HISTORY OF EUROPEAN ARCHITECTURE

UNIT 1—ANCIENT EUROPEAN ARCHITECTURE

- **EGYPT** – Characteristics of Egyptian Architecture. Materials and construction methods. Decoration and Motifs. Egyptian Columns & Capitals. Tomb and Temple architecture - Great Pyramids at Giza, Great Temple of Amman at Karnack, Mortuary temples of and Queen Hatshepsut.
- **GREEK** - Factors influencing Greek architecture. Orders in Greek architecture - Doric, Ionic and Corinthian. Optical corrections in Greek temples – Parthenon & Erectheon.
- **ROME** - Roman masonry types – Methods of vault and dome construction. Roman Orders of Architecture –Tuscan and Composite .Architectural characters of Amphitheaters, Temples, Aqueducts, Baths and Insuale. Features of The Colosseum or Rome &Pantheon.

UNIT 2—BYZANTINE, ROMANESQUE & GOTHIC

- **BYZANTINE** – Main characteristics of Byzantine Art& Architecture - Domes, Symmetrical Central plan, combination of basilica and central plan& Iconography. Salient features of building styles of Constantinople. Principles of Design, Materials used and Mosaics of Hagia Sophia cathedral. Design Features of Basilica Cistern, Sangarius Bridge, Karamagara Bridge, Brontochion Monastery.
- **ROMANESQUE**-Salient features of Romanesque Architecture - thick walls, round arches, sturdy pillars, barrel vaults, large towers and decorative arcading. Pisa Cathedral & Leaning Tower of Pisa, Basilica of Saint-Sernin, Durham Cathedral, Modena Cathedral..
- **GOTHIC** - Periods of Gothic Architecture. Style pointers of Gothic Architecture - Flying Buttresses, Pointed Arches, Ribbed Vaults, Large Stained-glass Windows, Rose Windows, Gargoyles and Ornate Decoration Stone, Symbolism and Aesthetics.
- Key architectural monuments of Gothic Architecture - The Cologne Cathedral, Notre Dame de Reims, The Duomo at Florence, Sainte-Chappelle at Paris, St. Anne's Church, Siena Cathedral, Palace of Westminster.

UNIT 3 - RENAISSANCE, BAROQUE & ROCOCO

- **RENAISSANCE** – Definition and periods of Renaissance Architecture. Key Characteristics of Renaissance Architecture - Symmetry and Proportion, Golden Ratio, Ashlar Masonry, Vibrant interiors painted by masters, Domes, decorative sculpture etc.
- Major Monuments of Renaissance St. Peter's Basilica in Rome, Florence Cathedral by Brunelleschi, Basilica Palladiana by Palladio, Gates of Paradise and other sculptures of Lorenzo Ghiberti, Interiors of The Sistine Chapel by Michelangelo,. Interiors of Palazzo Medici Riccardi by Michelangelo, Donatello, Benozzo Gozzoli, and Botticelli, Double helix, or DNA staircase of Château de Chambord by Cortona.
- **BAROQUE**-Characteristics of Baroque architecture - Large domes or cupolas, Elaborate motifs and decorations, Gilded sculpture on the interior and exterior, Attention-grabbing features, Double-sloped mansard roof, Contrast between light and dark, Illusion & Life-Like Appearances in Baroque Architecture.
- Monuments of Baroque Architecture - Church of Saint Charles at the Four Fountains by Borromini, St. Peter's Square, Vatican by Bernini, St Paul's Cathedral, London by Christopher Wren. Palace of Versailles by Mansart,
- **ROCOCO** - Definition and origin of Rococo architecture. Characteristics of Rococo architecture - Curves, Stucco, Pastels, Asymmetry, Nature, Trompe l'oeil, Decorative flourishes, Mirrored glass, crystal chandeliers, gilded wall sconces, boiserie (wood paneling), Influenced by the natural world.
- Notable Examples - Amalienburg at Munich, Catherine Palace, Russia, Sanssouci Palace, Berlin, Hotel de Soubise, Paris, Würzburg, Bavaria.

UNIT 4 - NEOCLASSICAL, ART NOUVEAU & ART DECO

- **NEOCLASSICAL**–Definition and Characteristics of Neo Classical architecture - Purity of form, Use of orders, Symmetry and proportion, Grand scale, Simple geometric forms, Greek (especially Doric) or Roman detail, dramatic columns, Pediments and Porticos, Friezes, Coffered Ceilings.
- Iconic Buildings of Neoclassical architecture - U.S. Capitol Building – Washington D.C., Trafalgar Square – London, Panthéon – Paris, Lincoln Memorial – Washington D.C., The Brandenburg Gate – Berlin, the Victor Emmanuel II Monument in Rome.
- **ART NOUVEAU**-Origin and Defining Features of Art Nouveau Architecture - Organic Curving Forms, Natural materials, Holistic Design, Sculptural Concrete and Ironwork, Hand-Crafted Meticulous Details.

B.DESIGN INTERIOR DESIGN YEAR 2

- Iconic Monuments of Art Nouveau - Municipal House, Prague, Hotel Tassel – Brussels, The Secession Building, Vienna, House of Chimaeras, Ukraine, Casa Milà, Barcelona.
- A**RT DECO** - Origin and history of Art Deco. Defining elements and characteristics of Art Deco Architecture - Vertical Emphasis, Chrome and Other Metals, Art-Deco Style Sculptures, Elongated Lines, Geometric Shapes and Details. Types of Art Deco Architecture.
- Examples of Art Deco Architecture - Chrysler Building, New York, Majorelle Garden, Morocco , Eastern Columbia Building, Los Angeles, Helsinki Central Station – Helsinki,Miami Beach Art Deco District, Florida.

UNIT 5—MODERNISM & POST MODERNISM

- Defining Modernist architectural movement. Explaining Features of modernist architecture.
- Styles of Modern Architecture - BAUHAUS - origin, style pointers, major architects & their creations. DE STILJ- Origin, Characteristics, Architects, famous buildings. EXPRESSIONISM -Origin, Characteristics, Architects, famous buildings. FUNCTIONALISM- Origin, Characteristics, Architects, famous buildings. MINIMALISM - Origin, Characteristics, Architects, famous buildings.
- POST MODERNIST STYLES -DE CONSTRUCTIVISM - Origin, Characteristics, Architects, famous buildings
- LIFE & WORKS of - Frank Lloyd Wright, Le Corbusier, Ludwig Mies van der Rohe, Zaha Hadid& Norman Foster.

SUGGESTED READING : 1. Brooker, G. and Weinthal, L. - The Handbook of Interior Architecture and Design,
2. Pile, J. - A History of Interior Design

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PAPER-3 (THEORY) INTERIOR SERVICES

UNIT 1—LIGHTING

- NATURAL LIGHTING – Daylight factor. Recommended daylight factors for interiors. Calculation of the openings for natural lighting. Guidelines for good natural lighting. Factors affecting illumination. Reflection and transmission. Emotional Impact of good lighting.
- ARTIFICIAL LIGHTING -. Methods of lighting – Direct lighting, Indirect lighting, Concealed lighting, Spot lighting, Task lighting, Decorative lighting, Ambient lighting, Rope lights, Neon lights, Flood lighting, Underwater Lighting, special purpose lighting,
- Luminous intensity of light sources. Types of lamps and modern lighting options. Principles of positioning lighting points. Nominal illumination levels in building interior, lux, lumen intensity, colour temperature based lighting schemes.
- LUMINARIES AND FIXTURES - Free Standing, Portable, Fixed, hanging, wall mount, adjustable light fixtures. Types of Fans. Types of switches, sockets, dimming controles. Legends used in lighting plan.

UNIT 2 - ELECTRICAL SYSTEMS

- ELECTRICAL SYSTEMS: Electrical system fundamentals. Voltage, Amperage, Wattage, Generation and transmission of power, HT & LT consumers, Single Phase and Three Phase Supply.

- WIRING SYSTEMS - Service wires, metering, light & power circuits, electrical safety devices, Distribution boards. ISI codes & standards of electrical materials.
- WIRING METHODS. Electrical layouts, Electrical symbols, Types of earthlings, Conductors, switch boards & Electrical points in a general building. Precautions and safety standards.

UNIT 3 - WATER SUPLY SYSTEMS

- WATER SOURCES: The sources of water supply. Water treatment: Methods of water treatment - screening, aeration, sedimentation, filtration, disinfection, and softening.
- COMPONENTS OF WATER DISTRIBUTION SYSTEM - Storage facilities, types of valves, fire hydrants, and service connections. Types of Pumps, Types of pipe materials, Types of joints, bends & junctions. Types of Storage tanks,
- WATER STORAGE AND DISTRIBUTION: Methods of water distribution. Direct & Indirect Water Supply systems. Return Circulation System. Layouts of water distribution networks. Hot & cold Water Supply systems. Types of Heaters & Hot water piping requirements.

DESIGN INTERIOR DESIGN YEAR 2

UNIT 4 - SANITATION & DRAINAGE

- INTRODUCTION TO SANITATION - Distribution systems of sanitary, storm and combined sewerage system, Specification and design of sewerage systems,- sewage systems, waste water treatment, activated sludge, trickling filters, drainage and vent pipes.
- Building drains, sewers, gullies, inspection chambers, manholes. Conditions of flow in building drainage pipes, traps, vents and their material specifications.
- WASTE-WATER DISPOSAL SYSTEMS - Septic tank and its design, soil adsorption system, Connection to public sewer, cross connections., solid wastes collection and removal from buildings, On-site processing and disposal methods, Aerobic and Anaerobic decomposition, purifying capacity of water bodies, Bio-chemical Oxygen Demand. Sanitary land filling, composting, Incinerators and their limitations.

UNIT 5 - PLUMBING & SANITARYWARE

- PLUMBING: Introduction to plumbing. Plumbing terminologies. Standard sizes of washrooms, kitchens and utility areas. Standard Heights of Bathroom Fixtures & Sanitary ware.
- PLUMBING FITTINGS: Taps & Faucets, Showers, Jets, Cocks, Mixers, Diverters, Traps, Valves & Check Valves.
- SANITARYWARE: Types of Bathtubs, Toilet seats, Urinals, Shower Stalls, Basins and sinks. Quality standards in Sanitary ware & CP Fittings.

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B.DESIGN INTERIOR DESIGN YEAR 2 - PRACTICAL

PRACTICAL 1 – FURNITURE DESIGN

- Terminology used in furniture construction.
- Different types of Joints, its importance and application in Furniture Technology.
- Rendering Furniture essentials – legs, arms, backs, fabrics etc.
- Making reference sheets of Standard Dimensions of Living Room Furniture, Dining Area Furniture, Bedroom Furniture, Kitchen Furniture & Office Furniture in 2D drawings.
- Drawing plan, elevation, views & renders with Standard measurements :
- Single seat, 2 seat & 3 seat SOFA. L shape Sofa, Curved section of Sofa.
- Various types of Dining tables, & Dining Chair,
- Various types of Office Tables & Office Chairs.
- Various types of Beds,
- Various types of Wardrobes & vanity.

- Racks, Book Stand, Cabinets & different types of shelf, stool & seating options, Kitchen Counters and Shop counters.
- Various types of Doors, Windows & ventilators.
- Drawing Cane & Bamboo joineries & their application in furniture
- Drawing free hand furniture pieces which will identify the architectural era explained in your theory paper 1 of world history. Minimum 5 different furniture pieces of each topic.

Prepare Presentation drawings with renders of different Component detailing –

- Minimum 2 furniture pieces designed during or by :
- Deutscher Werkbund, Thonet Thonet's Bentwood Furniture.
- Furniture designed by Mies Vader Rohe, Le Corbusier, Frank Lloyd Wright, Alver Alto
- Arne Jacobsen, Kjaerholm Poul, Klint Karre, Erro Saarinen, Charles Eames, Ettore Sotsus.

PRESENTATION DRAWING & RENDERED DRAWINGS : 40 marks

2D Drawings & technical Drawings: 60 marks

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B.DESIGN INTERIOR DESIGN YEAR 2

PRACTICAL 2 – INTERIOR SERVICES - 1

ELECTRICAL SYSTEMS PLANNING & LIGHTING DESIGN

- Drawing Electrical Symbols, Drawing Electrical Layouts for Residence. Drawing Electrical Layouts for offices and shops. Market research on the availability of electrical fittings & Wires in the market.
- Market survey on different types of lamps available in the market. Calculation of lighting requirements as per layouts for Residence and Commercial projects.
- Designing Lighting layouts for Residential and Commercial projects

WATER SUPPPLY , PLUMBING & SANITATION SYSTEMS DESIGN

- Drawing Plumbing & Sanitation systems Symbols
- Drawing Plumbing system Layouts for Residence. Drawing Plumbing system Layouts for offices and shops.
- Drawing traps . Drawing Drainage services – Waste water drainage system, Solid waste disposal. waste water disposal-inspection chamber, septic tank and ventilation.
- Drawing water distribution & storage systems for Residence. Drawing Water supply systems – hot and cold, taping, water purifier systems for kitchen, bathroom and other relevant areas.
- Market research on the availability of Plumbing & Sanitary fittings in the market.

DESIGNING FOR PARTITIONS & WALLS

- Drawing various types of Brick & Stone Masonry details. Drawing various types of arches.
- Drawing various types of partition walls based on material used. Drawing Modular partition system – half partitions, movable partitions, folding partitions, sliding partitions,
- Market survey of various fittings available to create various partition systems based on different materials. For examples fittings for glass partitions, fittings for aluminum partitions etc.

DESIGNING FOR FLOORING DESIGN

- **Drawing layouts for tile laying** – 1. Grid layouts for different types of tiles. (Square, Mini, Checkerboard, Staggered Grid, Diagonal Grid etc.) 2. Brick layouts – Subway, Running Bond etc. 3. Chevron, 4. Herringbone, 5. Circular & Redial patterns 6. Hexagoneal & Picket Fence patterns. 7. Using Spacer or Spaced patterns. 9. Using 2 or more types of tiles. 10. Transition / Staggered layouts.
- Market Survey of availability of Tiles & tile laying accessories.

DESIGNING FOR CEILING DESIGN

- **Preparing sketches and working drawings for** :
- 1. Conventional Ceiling, 2. Suspended Ceiling, 3. Coffered Ceiling, 4. Beam Ceiling, 5. Coved Ceiling 6. Cathedral Ceiling, 7. Stretch Ceiling, 8. Tray Ceiling, 9. Various Sloped Ceiling, 10. Dome Ceiling 11. Barrel Vaulted Ceiling
- Market Survey for various materials used in ceiling designs viz – POP, Gypsum board, channels, etc.

SUBMISSION: A3 Sheets of the above in hand drawng or CAD Drawings
20 marks for each section.

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B.DESIGN INTERIOR DESIGN YEAR 2

PRACTICAL 3 – STUDIO 1 (Designing Residential and Commercial Spaces)

STUDIO PROJECT GUIDELINES: Prepare each project (total 5 projects in the studio 1) by making sheets as per guide lines given below:

- Design brief
- Picture board
- Bubble diagram
- Concept of Design (write-up)
- Measurement Plan
- Furniture Layout
- Interior Elevations of Walls
- Planning of Living Room
- Planning of Dining Area
- Planning of Bedroom
- Planning of Kitchen
- Planning of Bathroom
- Planning of the Circulation Space
- Flooring Layout
- Reflected False ceiling layout
- Electrical Layout
- Plumbing layout

- Room Orientation
- Color schemes
- Perspective & 3D views
- Material Chart

PROJECTS TO BE SUBMITTED IN RESIDENTIAL PLANING:

- Studio Apartment - 10 marks
- 3 BHK luxury Flat - 15 marks
- 3. G+1 or G+2 Bungalow - min size 1500 sq.ft. & Max size 3000 sq,ft. - 25 marks

PROJECTS TO BE SUBMITTED IN COMMERCIAL PLANING:

- Shop - min. size 20 feet x 10 feet to max size 20 feet x 50 feet - 20 marks
- Office of a professional - CA / Lawyer / Advertising agency / Software Development Firm Minimum size – 30 feet by 50 feet to maximum size 50 feet by 80 feet. – 30 marks
- PRACTICAL 4 – COMPUTER AIDED DESIGN - 1

FINAL SUBMISSION :

- Various assignments as exercised during learning of the 3 software . 20 marks
- G+1 or G+2 Bungalow - Minimum size 1500 sq.ft. & to maximum size 3000 sq,ft. of the studio to be created using AutoCAD, Photo Shop & Sketchup learnings. 30 marks.
- Office of a professional - Minimum size – 30 feet by 50 feet to maximum size 50 feet by 80 feet of the studio to be created using AutoCAD, Photo Shop & Sketchup learnings. 50 marks

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B.DESIGN INTERIOR DESIGN YEAR 2

PRACTICAL 4 – COMPUTER AIDED DESIGN - 1

AUTOCAD

- Introduction to Auto Introduction to CAD, importance and application of CAD in interiors. Fundamentals of computers, file menu-saving closing files, importing and exporting files, saving files in different formats. Printing and publishing, undo/redo, matching properties & its application.
- Introduction to object drawing, different types of lines - pline, construction lines, splines, multiline, types of objects, circles and curves arc, polygon, ellipse, donut and its application and use in interiors
- Introduction to drawing setting and types of setting drawing limits units, object selection, drafting, setting, polar tracking, grid and snap, its application advantages and uses.
- Introduction to object editing, types in editing the drawing with different command trim, extend, stretch, erase delete, introduction to viewing, types of viewing – zoom, pan, holstering utility and its advantages and important, hatch boundary, hatch, editing , introduction to layers, types of layer creation and uses in interiors
- Introduction to hatch, dimensions, text, layer, point style creation, dimension, text, multiline, pline, editing, creating and inserting blocks, attributions, along with different types, application and Importance.
- Introduction to creation of solid, wireframe, objects, basic rendering skills, use of viewport command, different options of view command. Working on model space, paper space, setting the scale for drawings, different type faces, its application and importance in presenting your final drawing

- Introduction to 3D Modeling – point fixing method – absolute co-ordinate systems, relative cylindrical and relative spherical co-ordinate systems. Types of model –wire frame model, surface model and solid models.
- Standard primitive tools - Box, cone, wedge, torus, cylinder, sphere. Boolean operation –union, subtract, Intersect, Interference, Extrude, Revolve.

PHOTOSHOP

- Workspaces: Navigating and customizing your workspace. Editing: Opening and editing images from other programs, such as AutoCAD and SketchUp. Selection tools: Understanding and using a variety of selection tools. Layers: Using the layers panel. Color and texture: Adding color and textural patterns, and creating custom patterns from imported materials. Hue, tone, and chroma: Manipulating hue, tone, and chroma. History panel: Using the history panel and multiple undo commands. Pixels: Duplicating, transforming, and cropping pixels. Resolution: Working with resolution and understanding the difference between print and web images. Type: Adding and editing type. Filters and tools: Using filters and tools to create finishing touches. Vision boards: Creating a vision board. Saving: Saving your work in the best format for print and digital. Rendering: Rendering a complete project design of a residential property

SKETCHUP

- Basics: Downloading and choosing a template, navigating the interface, and learning the basics of 2D and 3D geometry. Modeling: Creating 3D geometry, modeling furniture, cabinetry, and accessories, and drafting and modeling a floor plan. Adding details: Adding color and textures, using the 3D Warehouse, and importing images as textures. Lighting and materials: Adding lighting fixtures, background images, and using material replacers. Creating drawings: Creating 2D drawings, such as floor plans, furniture plans, and reflected ceiling plans. Using extensions: Using extensions to add realistic details.

SUBMISSION :

Portfolio work prepared using above software of this year's practical and theory course guidelines. Submit separate portfolio / projects fr each software defining clearly which software is used to create the portfolio.

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B. DESIGN INTERIOR DESIGN YEAR 3

Scheme of Examination

Paper	Time	Size	Ext. Marks	C.C.E.	Total
Material & Construction II	3Hrs.	-	70	30	100
Interior Services II	3Hrs.	-	70	30	100
Interior Landscape Design	3Hrs.	-	70	30	100
Furniture Design	3Hrs.	-	70	30	100
				Total	**400**
Practical			**Ext. Marks**	**Internal Assignment**	
Construction II	6Hrs.	A2,A3	70	30	100
Interior Design Studio II	3Hrs.	A2,A3	70	30	100
Interior Design Studio III	3Hrs.	A2,A3	70	30	100
3DSMAX	2Days	-	70	30	100
				Total	**400**
				Grand Total -	**800**

B.DESIGN INTERIOR DESIGN YEAR - III

PAPER – 1 (THEORY)–MATERIAL&CONSTRUCTION - II

- FLOORS - Floor coverings – Softwood, hardwood, resilient flooring, linoleum, asphalt tile, vinyl, rubber,corktiles,terrazzo,marble&granite,properties,uses&laying.Floortiles –Ceramicglazed, mosaic and cement tiles, properties, uses and laying, details for physically handicapped.
- FALSECEILING–Constructionofvariouskindsoffalseceilingsuchasthermacol, plaster of paris, gypsumboard, metalsheets, glassandwood. Constructionofdomes, vaults,&other specialceilings.
- WALLPANELING–Paneling-Usingwoodenplanks,laminatedplywood,corksheets,fibreglass wool & fabric for sound insulation and wall paneling for thermal insulation.
- FINISHES –Paints- enamels, distempers, plastic emulsions, andcement basedpaints, properties, usesandapplications.Paintingondifferentsurfaces –defectsinpainting,clearcoatings&strains, varnishes, lacquer, shellac, waxpolish&strains, properties, usesandapplication. Specialpurpose paints-bituminous, luminous, fireretardant andresistingpaints-properties, uses andapplications.
- PARTITIONS –Detailsoffixed, slidingandslidingandfoldingpartitions withwood, steeland aluminum frames & panels in glass, particle board, MDF, gypsumboard and plywood.
- WINDOWSINSTEELANDALUMINIUM –Detailsofslidingandopenablewindowsin aluminum and steel frames with glazed panels
- STAIRCASE – Types according to profile – straight flight, doglegged, quarter turn, half turn, bifurcated,spiral&helical.Typesbasedonmaterials(timber,wood,steel,syntheticmaterials). Details of handrails & balusters. Designing and detailing for physically handicapped.

SUGGESTED READINGS – 1. Building Constructionby B.C.Punmia 2. Building Construction : Metric - Vol.1 –3 by W.B .McKay 3. Engineering Materials by RANGWALA 4. Interior Design Illustrated by Francis D.K. Ching 5. Contemporary Ceilings Vol1-3byIAG

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PAPER – 2 (THEORY)–INTERIOR SERVICES - II

- BASICCONCEPTSANDSYSTEMCOMPONENTSINAIRCONDITIONING–Vapour compression cycle– Compressors–Evaporators–Refrigerant control devices–Electric motors–
- Air handling units–Cooling towers.
- AIR-CONDITIONING SYSTEM AND APPLICATIONS –Window type and packaged air conditioners– chilled water plants –Fan coiled systems –Water piping–Cooling load. Air- conditioning systems for different types of buildings –Duct layout. Codes for Ventilation– Ventilation rates – air changes per hour – relative humidity – cross ventilation, stack effect, recommended ventilation rates for kitchen, toilet.
- ELECTRICALSYSTEMS–Single/threephasesupply–Protectivedevicesinelectricalinstallation – ISI Specifications –Types of wires, Wiring systems and their choice – Planning electrical wiring for building interiors – Main and distribution boards- Typical Electrical layout for interiors. Codes for Electrical Layout – Typical electrical layout for a building – location requirement for switch rooms and distribution panels – codes for fan pints, power points and light points – PVC sheathed wiring system – protective earthling – earth electrode.

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B.DESIGN INTERIOR DESIGN YEAR - III

PAPER–3 (THEORY)–INTERIOR LANDSCAPE DESIGN

- INTERIO RLANDSCAPING–Definition,classificationofplants,indoorplantsandtheirfunctions, layout & components, Floriculture, commercial ornamental, Selection of plants & pest control.
- PHYSICALREQUIREMENTSOFPLANTS–Physical requirements o fplants –light, temperature, water,plantingmedium,soilseparator,weightofplants,acclimatization&maintenance.Techniques to meet physical requirements.
- INTERIOR LANDSCAPING ELEMENTS & PRINCIPLES – Various interior landscaping elements,waterbodies,pools,fountains,cascades,plants,rocks,artifacts,paving&lighting.Design guidelines-plant texture & colour, plant height, plant spacing.
- ROOF ANDDECKLANDSCAPE –Protectionoftheintegrityoftheroofandstructure, provisions for drainage, light weight planting medium, irrigation, selection of materials, water proofing, provision for utilities and maintenance.

SUGGESTED READINGS– The Professional Practice of Landscape Architecture: A Complete Guide to Starting and Running Your Own Firm by Walter Rogers,

2. Foundations of Land scape Architecture :Integrating Form and Space Using the Language of Site Design by Norman Booth

3. Residential Landscape Architecture: Design Process for the Private Residence by NormanK. Booth (Author), James E. Hiss

PAPER–4 (THEORY)–FURNITUREDESIGN

- HISTORY OF FURNITURE DESIGN – Furniture designs during Egyptian, Greek, Roman, Romanesque, Gothic, Renaissance, Industrial Revolution, Contributions in the beginning of the 20th centurybythefour pioneer architectsinfurnituredesign, Bauhaus, DeStijl&other modernfurniture designs.
- HUMANFACTORS–Study of Anthropometry & Design criteria involved in the design of :
- Sofa,setee,couch,etc. 2. Cot,bedsidelockers, wardrobes 3. Cupboards,shelves 4. Bunk beds, study table
- 5. Display furniture 6. Furniture for the physically challenged persons
- PRINCIPLESOFDESIGN&DETAILINGS - Form– Colour,Symbols. Materials & finishes–Wood, Glass, Metal, Plastics and Upholstery, include various finishes. Fabrication Techniques involved.
- Multiple Utility Oriented Approaches to Furniture Design.
- ROOM PLANS AND FURNITURE ARRANGEMENT – Types of furniture, Built in furniture, Movable furniture, Systems furniture, Specially Designed furniture, Readymadef urniture, Modular, Knockdown & Economy Furniture.Traffic pattern and furniture layout for residence, commercial and office areas.
- DESIGN&DETAILING – Residential Furniture– Seating, Sleeping Storage & Children's furniture Commercialfurniture–Showcases,Counters,Displayunits,Restaurantfurniture,Barfurniture. Office furniture–Adjustable desks & storage, Mobile & Resilient chairs, Portable chairs, Movable Tables, Lounge seating.
- SuggestedReadings– Furniture: World styles from classical to contemporary by David Linley.
- The Encyclopedia of Furniture: by Joseph Aronson, Designofthe20thCenturybyCharlotte&PeterFiell
- InteriorDesignandDecoration:Whiton:InteriorDesignDécorbyAugustusSherrillWhiton

B.DESIGN INTERIOR DESIGN YEAR – III - PRACTICAL

PRACTICAL1–CONSTRUCTION - II

- Construction details of wooden flooring and ceiling. Skirting detail.
- Working Drawingofa1 bhk residence showing:
- 1. Kitchen counter details (all civil counter details) 2.Flooring details 3. False ceiling details with electrical & AC layout. 4. Construction details of all furniture units. 5. –All toilet details.
- **SKILLPROJECT** 3: Model Making-Makeanactual1:10scalefurnituremodelfor the1bhk. Residence designed by the student in 2nd year.
- SuggestedReadings– Architectural Graphics by Francis D.K. Ching, Orthographic Projection Simplified by Charles Quinlan, Engineering Drawing by v.m. panchal,pramodr.inglen.d.bhatt , Perspective for Interior Designers by John Pile, Drawing Geometry: APrimer of Basic Forms for Artists, Designers and Architects by JonAllen,

PRACTICAL2–INTERIORDESIGNSTUDIOII

- SHOPS – Planning for retail activity – anthropometrics, types of Shop layouts Modular units. Materialsusedincounters,shelves,worktops,theircomparativestudy.Lighting&colourscheme – natural & artificial light.
- COMMERCIALSPACES –Theartofselling-displays/products/marketing,designof displayunits, design of boutiques, showrooms. Concepts in modern day Retail interiors – materials & finishes, colour, texture & pattern.
- SHOPPING MALLS – Product display – windows/internal displays/hierarchy of product display/powerofvisualcommunication/graphics.Exhibitionspaces –displayforexhibition,Lighting designfor commercialspaces – task/display/atmospheric/focal lighting. Coloringcommercial spaces – coding/decoding/visual communication. Design of commercial Environments such as Malls, Shopping Arcades, etc.
- CONSULTING OFFICEF OR PROFESSIONAL PRACTIONER –Planningfor smalloffice–office of architects, interior designers, lawyer, and auditor – individual layouts, Modular units, play with levels. Lighting & colour scheme – natural & artificial light.
- CORPORATE OFFICE - Interior designing for multi-functional, multi-level planning, design and detailingofvariousworkspaces, interactionszones. DesignofcorporateEnvironmentssuchasBPO, corporate office.
- CODES FOR BARRIER FREE ENVIRONMENT – Requirement of toilets, corridors, for handicappedperson–wheelchair clearance–rampsfor handicapped, accordingtoISO9001 Standards.
- DESIGN PROBLEM–Small commercial office accommodating 10 to15people. Area –1500 sq.ft. Built Up Area PREPARE : Case Study, Site Analysis, Conceptual sketches, Zoning Plan, Make the plan, elevation & sections, Prepare Large scale details of furniture items, Scheme Detailing of Flooring and Ceiling. Working Drawings of Toilets, Sanitary Details etc. PREPARE as Computer Drafting or Hand Drafting. SUBMIT Final Presentation drawings using different views

- Suggested Readings–
- Designsfor20thCenturyInteriorsbyFionaLeslie
- Interior Graphic Standards: Student Edition by Corky Binggeli
- Interior Color by Design by Jonathan Poore
- Designing Commercial Interiors by Christine M .Piotrowski

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B.DESIGN INTERIOR DESIGN YEAR – III - PRACTICAL

PRACTICAL 3–INTERIOR DESIGN STUDIO III

- DESIGN A 3 BHK RESIDENTIAL APARTMENT.
- Case Study 2. Site Analysis 3. Conceptual sketches, Zoning Plan 4. Make the plan, elevation & sections
- 5. Large scale details of woodwork–paneling &furniture items 6. Scheme Detailing of Flooring and Ceiling.
- 7. Working Drawings of Kitchen, Toilets 8. Complete electrical plus AC & plumbing drawings
- 8. Fabrication drawings for gate, stairs, railing, parapet railing, etc. 9. Basic Landscaping
- PREPARE as Computer Drafting or Hand Drafting. SUBMIT Final Presentation drawings using different views

SUGGESTED READINGS - Contemporary Houses by Indian Architects by IAG

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PRACTICAL 4–3DSMAX

- INTRODUCTIONTO3DSMAX:AnoverviewofGUI, types of modeling, transforming objects, Compound objects, modifiers & modifier stack.

- MODELLINGTECHIQUES:Lathing,displacement,lofting,Booleanoperationsusingstandardand compound primitives, modeling with lofts, low polygon modeling and nurbs modeling.

- TEXTURESANDTEXTUREMAPPING:Usingmaterialeditor,materialbrowser,mappingtextures

- RENDERING:Lighting,camerasandrendereffects,environmentmapping,fogsandatmospheres

SUGGESTED READINGs–

- Autodesk3dsMax2014 Bible by Kelly L. Murdock
- MasteringAutodesk3dsMax2013byJeffreyM.Harper

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B. DESIGN INTERIOR DESIGN YEAR 4

Scheme of Examination

Paper	Time	Size	Ext. Marks	C.C.E.	Total
Estimation & Costing	3Hrs.	-	70	30	100
Sustainable Design	3Hrs.	-	70	30	100
Project Management	3Hrs.	-	70	30	100
Acoustics	3Hrs.	-	70	30	100
				Total	**400**
Practical			**Ext. Marks**	**Internal Assignment**	
Interior Design Studio IV	3Hrs.	A2,A3	70	30	100
Interior Design Studio V	3Hrs.	A2,A3	70	30	100
Professional Training	3Hrs.	-	70	30	100
Final Design Project	3Hrs.	A2,A3	70	30	100
				Total	**400**
				Grand Total -	**800**

B.DESIGN INTERIOR DESIGN – YEAR IV

PAPER–I (THEORY)–ESTIMATION&COSTING

- INTRODUCTION TO ESTIMATION – Estimation – definition, purpose, types of estimate, and procedure for estimating the cost of working order to implement an interior design projector to make products related to interior design like furniture, artifacts.
- RATEANALYSIS&ESTIMATIONFORMAT –Rate Analysis–definition, method of preparation, quantity & labour estimate for woodwork, steelwork, Aluminum work, glass & its rate for different, thickness & sections, finishing (enamel paint, duco paints, melamine, DU coats, Hand polishing, veneering and lamination) for walls & ceiling. Electrical & plumbing products, wiring, ducting, and laying of tiles & wall paneling in the estimate format of the project.
- DETAILEDESTIMATE –DetailedEstimate–datarequired, factorstobeconsidered, methodology of preparation, abstract of Estimate, contingencies, labour charges, bill of quantities, different methods of estimate for interior design works, methods of measurement of works.
- COSTING OF FIXTURES & FITTINGS – Cost of the following items: electrical fitting like, luminaries, fan, cables, switches, tilesinskirting& dado, cement plaster, joineryinwood, steel& aluminum, painting to walls – cement paint, oil paints, distemper acrylic emulsion, enamel paint paintingtojoinery,varnishing,Frenchpolishingplumbingequipmentslikepiping,shower panels, shower panels, cubicles, tubs, Jacuzzis, taps, motors, fountains, falseceilingof aluminumpanels, steel & wooden frame work, thermocol. Wall paneling of ceramic tiles & other tiles of materials suitable for the same, partitions made of materials like aluminum wood, steel.
- INTRODUCTION TO SPECIFICATION – Specification – Definition, purpose, procedure for writing specification for the purpose of calling tenders, types of specification. Specification for different itemrelated to interior design project – woodwork for furniturewindowframes & pelmets, partitionsalsoof materialslikesteelaluminumglassofvariouskind.Wallpaneling&falseceilingof materials like aluminum, steel, wood, electrical, plumbing, air conditioning & fighting equipments.
- **Suggested Readings**– EstimatingandCostinginCivilEngineering:TheoryandPracticeIncludingSpecifications and Valuations by UBS Publishers & Distributors The Interior Designers Guide to Pricing Estimating and Budgeting by

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PAPERII(THEORY)–SUSTAINABLEDESIGN

- NEED FOR ADAPTIVE REUSE: Cultural inheritance – heritage buildings and old structures – ascertaining the structural stability– estimation of the prolonged life of the building –strategies of adaptive reuse – investigation into material finishes, etc
- NEEDFORRECYCLINGOF MATERIALS: The logic behind recycling –recycling of steel, wood, glass etc – estimation of the quality of recycled timber – criteria for recycling of steel, glass, etc
- CONCEPTOFSUSTAINABILITY: Earth summit declaration–definitionofsustainability– economic, social and environmental issues–green rating of buildings–criteria for LEED rating.
- RECYCLING OF WASTE WATER: Sullage and sewage–techniques of water purification for sullage – treatment plant for sewage – techniques of biological and chemical purification.
- ENERGYEFFICIENCY–Reasonsfor EnergyCrisis -Needfor theEnergyConservation–Concept of conventional, non-conventional, renewable, non-renewable energysources – GlobalEnergyuse– Impacts of energy use – Merits and demerits of both conventional and non-conventional Energy sources.
- NEED FOR CONSERATION :Architecturalconservation–conservationof heritageandimportant buildings – levels of intervention – structural, construction related, finishes etc. Revival of old building techniques and finishes.
- VERNACULARARCHITECTURE -Urbanandruralvernaculararchitecture,roleofsustainability in vernacular architecture, Environment & Resource Management, Vernacular building materials- Recognize the different ways in which these materials were used at different times and in different parts of the country. Case studies of Vernacular towns within Kerala. Knowledge of vernacular architecture in contemporary regional designs.
- SuggestedReadings– Sustainable Design: A Critical Guide)by DavidBergman, Stainable Construction:

Green Building Design an Delivery byCharlesJ.Kibert SolidWasteManagementbySasikumarK LessonsfromVernacular ArchitecturebyWilliWeber,SimosYannas

B.DESIGN INTERIOR DESIGN – YEAR IV

Old Syllabus

PAPER–III (THEORY)–PROJECTMANAGEMENT

- INTRODUCTION – Project planning and project scheduling and project controlling, Role of Decisioninproject management,Methodofplanningandprogramming,Humanaspectsofproject management, work breakdown structure, Life cycle of a project, disadvantages of traditional management system.
- ELEMENTSOFNETWORK–Event,activity,dummy,networkrules,graphicalguidelinesfor network, numbering of events.
- CRITICALPATHMETHODANDPERT ANAYSIS –CPMnetworkanalysis&PERT time estimates, time computation & network analysis.
- PROJECTTIMEREDUCTIONANDOPTIMIZATION–Projectcost,Indirectprojectcost,direct project cost, slope of the direct cost curve, totalproject cost and optimumduration, contractingthe network for cost optimization, steps in cost-time optimization.
- PROJECTUPDATINGANDALLOCATION–Whentoupdate?Datarequiredfor updating,steps in the process of updating. Resource usage profile: Histogram, Resource smoothing and Resource leveling, Computer applications in project management.
- SuggestedReadings– ProfessionalPracticefor InteriorDesignersbyChristineM.Piotrowski
- ProjectManagementfor theDesignProfessional:AHandbookfor Architects, Engineersand Interior Designers by David Burstein (Author), Frank A. Stasiowski TimeManagementfor Architects&

PAPER IV (THEORY)–ACOUSTICS

- INTRODUCTION TO ACOUSTICS – Definition, Theory of sound generation, transmission – receptionofsound–Termsrelatedtoacoustics –soundwaves, frequency,intensity,wavelength– measurement of sound.
- ROOM ACOUSTICS –Characteristics of speech – Making of sound – Human ear characteristics – Behaviour ofsoundinenclosedspace–Reverberation,RT,Optimumreverberation,simpleexercise using Sabine's formula. Echo.
- SOUNDABSORPTION,INSULATION,SOUNDREINFORCEMENT–Soundabsorption,
- absorptionco-efficientandtheirmeasurements –soundabsorbingmaterials–soundinsulation–
- materials–soundamplificationandsoundreinforcement.
- NOISECONTROL–Sourcesandtypesof noise–effectonhumanbehavior, noisecurves, transmission of noise – noise control – materials and techniques.
- ACOUSTICSINBUILDINGS –Designanddetailing–Basicprinciples indesigningoflecture halls, auditorium
- theatres, cinema halls, broadcasting studio, recording studio. Acoustical requirements of different types of building.
- FIRE SAFETY – Mechanism of fire spread in building and prevention – Fire safety standards – concepts in fire protection- Fire fighting installation and requirements – Heat sensitive detectors – Smoke detectors – Automatic water sprinkler system- Foam systems. Fire Safety Codes – Fire- combustibility–NBC – fireresistantratingof materials –firefightingrequirements –wetriser, dry riser, fire zones, fire escape stair case, fire alarms, smoke detectors and fire lifts.

- SuggestedReadings–
- MasterHandbookof Acoustics, SixthEditionPaperbackbyF.AltonEverest,KenCPohlmann
- AcousticDesign(ArchitecturalPresslibraryofdesign&detailing)by DuncanTempleton,DavidSaunders

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B.DESIGN INTERIOR DESIGN – YEAR IV PRACTICAL

PRACTICAL 1–DESIGN PROJECT IV

- RESTURANTINTERIORS–Interiordesigningfor multi-functionalRestaurantsandBanquet halls, multi-level planning, design and detailing of various work spaces, interactions zones. Design of hospitality spaces such as theme-based restaurants, corporate banquet venues etc
- HEALTHCAREINTERIORS-ThedesignofHealthcarespaces, suchashospitals, consulting, treatment rooms, Diagnostic facilities – study of special acoustics and functional materials and furniture detailing.
- AUDITORIUM – Spatial and environmental standards for various auditorium – performing arts, cinema, convention centre. Detail schematics of wall paneling, falseceiling andcarpeting tosatisfy acousticrequirements. Lightingstudytodevelopideasfor foyer,auditoriumandstagerequirements.
- FIVE STAR HOTELS – Spatial and service standards for five-star hotels – integration of interior designschemesfor rooms, restaurants,bars,healthclubs, shoppingarcadeandother guestareas with the general theme of the hotel. Special ideas for suites and banquet halls – contemporary interior schemes to integrate new concepts in lighting and materials.
- ENTERTAINMENT SPACES: Study of interiors for entertainment buildings such as clubs, multiplexandamusementparks –schemesfor videogamesparlour,foodcourtareasandexclusive indoor game areas of clubs.
- EDUCATIONALSPACES:Studyofinteriorsforclassrooms,seminarhallsandAVhalls –schemes for library, smart class rooms and discussion areas.
- SPORTINGSPACES:Studyof interior requirementsfoegymnasium,indoor stadiumandaquatic complex – schemes for interiors of stadium with focus on lighting requirements and visibility.
- COMMERCIALSPACES:Studyofinteriorsinsalons, pubs,discothequeandbanks, etc –schemes for the same.
- TRANSPORTATIONSPACES:Studyofinteriorsfor airports,MRTS,railwaystationsandbus terminals–schemes for the same
- DESIGN PROBLEM– Design a 3-star hotel. Plot Area – 1 acre. Construction – 50,000 Sq. ft.The hotel shouldinclude100rooms (divideintosinglebed, doublebed, triplebed& suits),2restaurants,gym, spa, parking, landscape, swimming pool, 2-3 kitchens.
- PREPARE : Case Study, Site Analysis, Conceptual sketches, Zoning Plan, Make the plan, elevation & sections, Prepare Large scale details of furniture items, Scheme Detailing of Flooring and Ceiling. Working Drawings of Toilets, Sanitary Details etc. PREPARE as Computer Drafting or Hand Drafting. SUBMIT Final Presentation drawings using different views.
- Scheme Detailing (Any4) – Lobby, Swimming Pool, Suite, Gym & Spa, Banquet, Landscaping drawings.
- SUBMISSION : Computer Drafting on AutoCAD, Final Presentation drawings using different views. 3D views to be prepared on 3DS Max or Sketch up.

PRACTICAL 2–DESIGN PROJECT V

- Design problem – i) Lounge with disco. ii) Restaurant.
- Site Area–5000sqft .Design should cater minimum150 people.
- SUBMIT : Case Study, Site Analysis, Conceptual sketches, Zoning Plan, Make the plan, elevation & sections, Prepare Large scale details of furniture items, Scheme Detailing of Flooring and Ceiling. Working Drawings of Toilets, Sanitary Details etc. PREPARE as Computer Drafting or Hand Drafting. Final Presentation drawings using different views.

PRACTICAL 3–PROFESSIONALTRAINING

- Develop Resumes & Portfolios. Apply for internships at Interior Design Firms, Architectural Firms, Civil Contractor Office or under any professional interior designer or architect.
- At the end of the training period, the student will have to produce a certificate of experience and satisfactory performance from the concerned office in the prescribed format as proof of them having finished the required minimum 45 days full time or 90 days part time internship.
- The practical marks shall be awarded based on the following work strobe submitted by the student and presented during

the practical exam –

- TrainingReport:Thisshallcontaincopiesofvarious drawingsdonebythestudent either draftedor designed.Itshallalso containother works likephotographsofsitesvisited, models done,computer output produced etc.
- Building Study – This shall be a detailed critical study of a building designed by the architect with whomthestudenthasworked. Itshallincludethestudy offunction, aesthetics, context, structure, etc. This shall be presented

B.DESIGN INTERIOR DESIGN – YEAR IV PRACTICAL

- through drawings, photographs, write ups, etc.
- Building Material Study – This shall bea detailed study of a new or relatively newbuilding material availableinthemarked.Astudyofitsproperties, uses,cost,maintenance, etc.isexpectedtobedone. Samples of materials shall also be obtained and presented.
- Detailingstudy– This shallbea studyofanyinterestingdetail doneinthefirmwherethestudent has undertaken training. This shall include sketches and photographs of the detail.

PRACTICAL4–FINAL DESIGN PROJECT

- Final Design projects can beof any scaleand size(in terms of built areas)as long as the required rigor and depth is demonstrated by the student to merit consideration as a final project. Very large campus projects canbeavoidedas theworktends toberepetitiveand moreoften ends witha large number of structures but with minimal variations and content. It is expected that all genre of projects (study or design) would end witha designsolution; infact allprojectsshouldbegroundedinsome kind of critical enquiry. Thedepthof enquiry can be extended and the time spent on design can be reduced in a specific case, but such a project should demonstrate clarity in terms of research design. The following stages have been identified as a generic model of the studio. The stages can be fine-tuned depending on the resources. It is expected that this project will be run as a studio with individual guidance under a project coordinator.
- Pre-Project – This stage should ideally be accomplished in the previous semester. The work involves students to discuss with the faculty to identify an area of interest or specific types of buildings. The pre project stageshouldend witha project proposalgiving routineinformationonsite, location, need, broad requirementsandscale. Inaddition, proposalshouldclearlyindicatethe“project question” or anarea (or areas) of interest.
- ProjectSeminar–Student shall present aseminar ontheprojecttopic whichwouldincludethefollowing-
- Precedentsofsimilarprojects,eitheractualvisittosuchprojectsorthroughliteraturereviews.
- Cultural,contextual,historical,technological,programmaticconcernsoftheproject.
- Prevalentor historicalmodelsofarchitecturalapproachtosuchprojectsanda critiqueofsuch models and
- Arhetoricaloraspeculativestatementthatwouldbethebasisoffurther investigation.(For example: Architecture in the information age: Design of libraries in the new virtual reality regime).
- Documentationwhichisapartofthispresentationshallbetakenascompletionof“casestudy” part
- ofthefinalrequirement.
- MidReview – There shallbeareviewtoclarifytheconceptualstatements and assumptions ofthestudents. Students shall present a clearly articulated response to context, program and users. Conceptual framework and preliminary architectural scheme shall be the end products of this stage.
- Final Review–Final review should consist of all the works which would be presented at the viva. Mode of presentation shall be tentative. Number of sheets shall be limited to maximum of 15 plus two case study sheets. Study Models are expected to be presented
- The final output shall include a report, all drawings, study models and a presentation model. The report in typed or computer printed form shall discuss the program, site-analysis, literature view, case studies, design criteria, concept and detailed design. Three copies of the reports shall be submitted along with drawing and models.

- Note –The requirements pertaining to the handicapped and elderly people eandchildren are to be addressed in

design and detailing.

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