

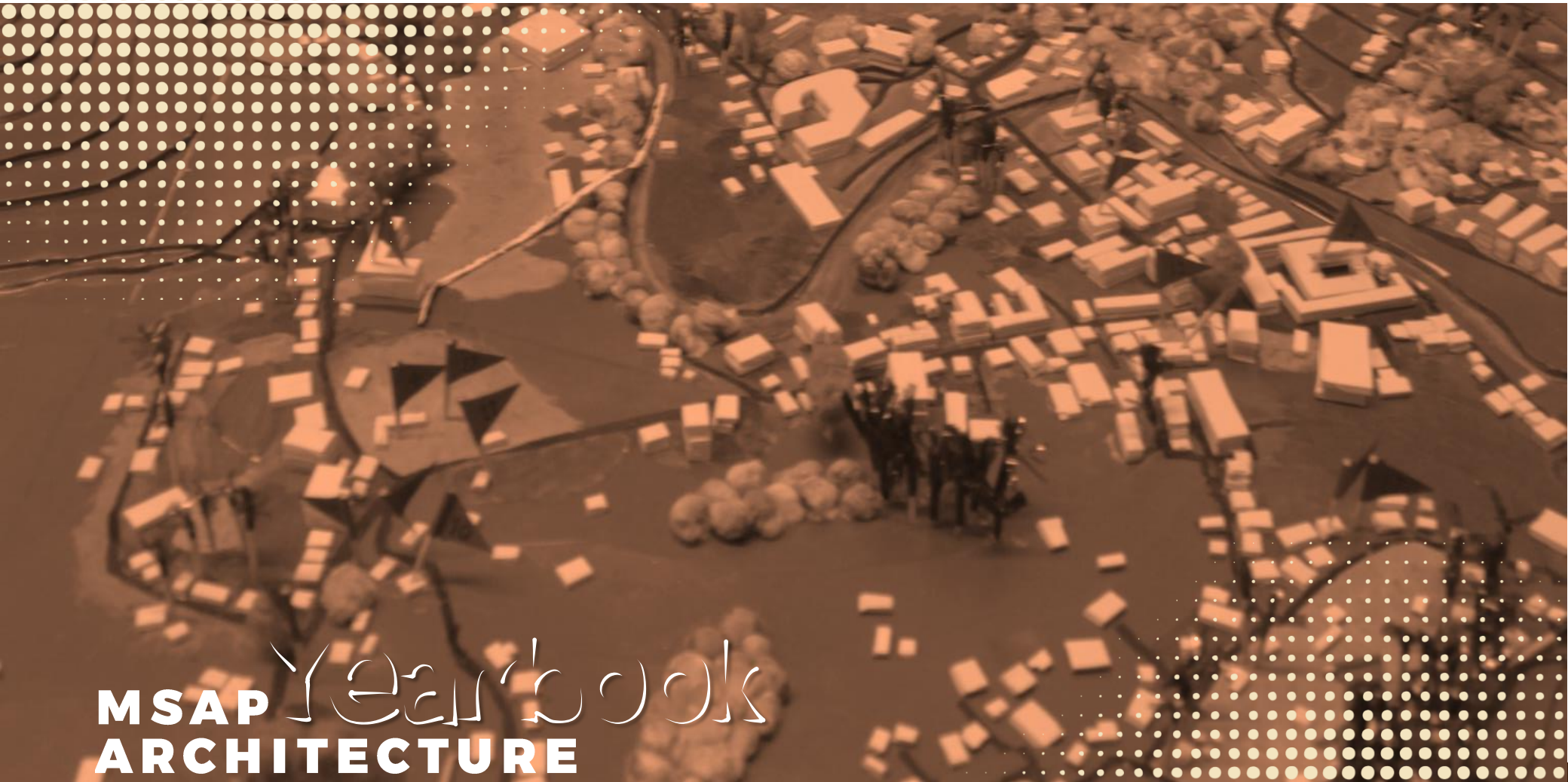


MANIPAL SCHOOL  
OF ARCHITECTURE AND PLANNING  
MANIPAL  
*(A constituent unit of MAHE, Manipal)*

Glimpses of studio works

# KALEIDOSCOPE

**2024-25**



**MSAP** Yearbooks  
**ARCHITECTURE**



MANIPAL SCHOOL  
OF ARCHITECTURE AND PLANNING  
MANIPAL  
*(A constituent unit of MAHE, Manipal)*

## Our Vision

- Excellence in design education, enabling sustainable endeavors for societal well-being.

## Our Mission

- Develop core competencies of design and professionalism to address societal and environmental concerns.
- Enable experiential learning and community engagement to encourage inclusive and sustainable design.
- Provide an international platform for interdisciplinary learning and collaborative research.

## Recognitions

- Council of Architecture (CoA), New Delhi

## Certifications

- ISO 9001:2008 ISO 4001:2004 certified.

## Membership

- Institutional Member, Indian National Trust for Art and Cultural Heritage (INTACH), New Delhi.
- CII-IGBC Student chapter

## Accreditations

- National Assessment and Accreditation Council (NAAC), MAHE Grade A++

Glimpses of studio works

# KALEIDOSCOPE

**2024-25**

**MSAP**

Architecture and Department of Design

"Kaleidoscope" is a curated overview of select studio projects from the students of various programs offered at the Manipal School of Architecture and Planning. This compilation, meticulously assembled by the Repository team, encompasses several works from both the Odd and Even Semesters of the 2024-25 academic year showcases the different hues from Architecture and Design.



**MANIPAL SCHOOL  
OF ARCHITECTURE AND PLANNING**  
MANIPAL  
*(A constituent unit of MAHE, Manipal)*

# Message



DIRECTOR

## **DR. KALYAN KUMAR MUKHERJEE**

The teaching pedagogy at MSAP, MAHE involves learning beyond classrooms as a principal mode of training the professional of the future. The architecture and design students are taken through a path of discovering the elements and principles of the curriculum through an array of activities that includes case studies, study tours, material exhibitions, model building and peer interactions besides the regular schedule of studio crits and examinations. Training in environmental and social sensitivity brings in the inclusive approach and raises awareness in issues of gender equity. With newly developed opportunities, the domain of design, construction and architecture would require specially abled professionals who would be working towards environment friendly solutions and an inclusive approach in planning exercises.



JOINT DIRECTOR

## **DR. PRADEEP KINI**

Architectural education plays a key role in shaping the future of our built environment and contribute towards sustainable development. With its unique blend of Aesthetic creativity, technical knowledge, social and economic considerations, MSAP equips aspiring architects and designers with the necessary skills towards academic and research excellence. A well-rounded faculty with diverse expertise along with the vision of the MAHE leadership facilitates this process by fostering critical thinking and innovation amongst its student community.



HEAD OF DEPARTMENT, DOD

## **DR. VEENA RAO**

At the Department of Design, Manipal Academy of Higher Education, we aim for the holistic development of designers who can think, feel, and act towards designing a sustainable future. Design education has become increasingly vital in today's global economy, which relies on creativity like never before contributing to national economic output and job creation. At the Department of Design, we foster design experiences through innovative methods such as Outcome Based Learning, Integrated and Applied Knowledge Systems, Professional Response, and Participatory Education. The graduates are well-equipped to seize the numerous opportunities in this timeless field and leave a legacy of significant achievements.

**K A L E I D O S C O P E**  
**2 0 2 4 - 2 5**



# BACHELOR OF ARCHITECTURE

## YEAR 1

### Semester 1

Architectural Design & Detailing - I  
Architectural Graphics  
Building Materials and Construction Systems - I  
Visual Arts & Model Making Studio

### Semester 2

Building Materials and Construction Systems - II  
Climate Responsive Design  
Site Planning & Landscape Design Studio

## YEAR 4

### Semester 7

Architectural Design & Detailing - VII  
Settlement Studies  
Research Techniques  
History Theory & Criticism - V

## YEAR 2

### Semester 3

Architectural Design & Detailing - III  
Architectural Representation - III  
Building Construction & Materials - III  
Building Services - I  
Landscape and Lab

### Semester 4

Architectural Design & Detailing - IV  
History Theory & Criticism - III

## YEAR 5

Thesis

## YEAR 3

### Semester 5

Architectural Design & Detailing - V  
Measured Drawing

### Semester 6

Working Drawing  
Construction & Materials - VI  
History Theory & Criticism - IV



# MASTERS IN ARCHITECTURE (URBAN DESIGN AND DEVELOPMENT)

## YEAR 1

### Semester 1

Urban Design Development Lab - I

### Semester 2

Urban Design Development Lab - I  
Fundamentals of Transport Planning

## YEAR 2

### Semester 3

Urban Design Studio

### Semester 4

Thesis



# BACHELOR OF ARCHITECTURE

Undergraduate Program

# Bachelor of Architecture Undergraduate Program

Year

---

# 1

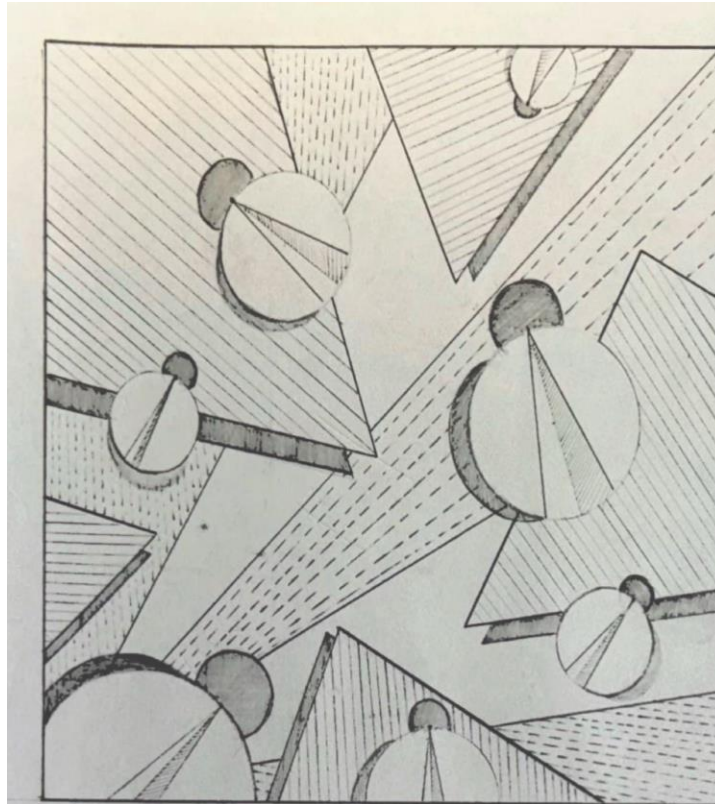
Architecture

## COURSE OBJECTIVES:

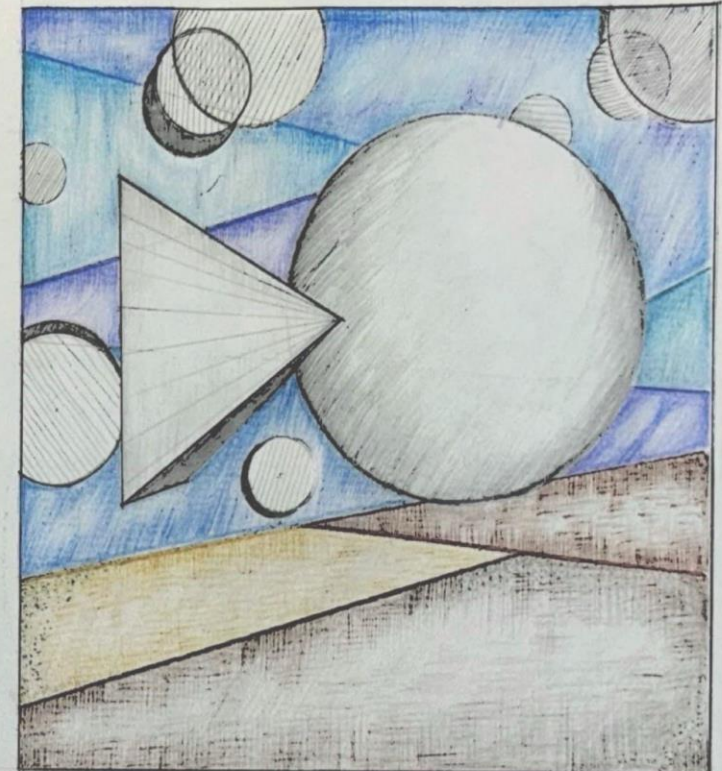
- To **demonstrate** the use of freehand drawing and lettering for design communication.
- To **apply** the elements of design in a composition.
- To **analyze** the principles of design in a composition.
- To **appraise** an object/product/space from a design perspective.
- To **design** a space based on the understanding of the design study process.

## PROJECT BRIEF:

To design a Kiosk on one of the sites identified, addressing principles of design, form development, principles of special composition, anthropometrics and universal design, context, functionality, aesthetics, circulation and materiality.



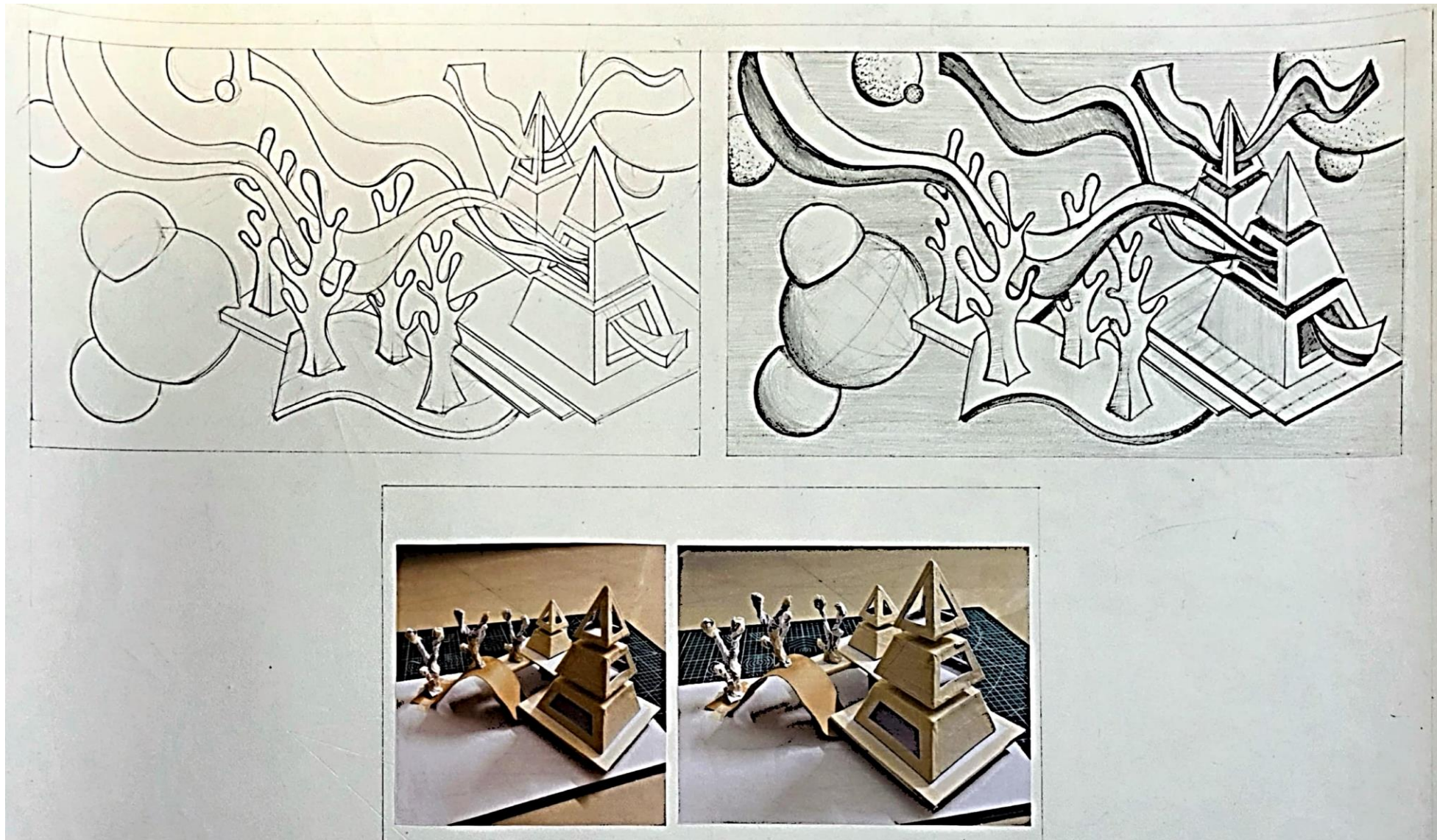
LADYBUGS ARE CONSIDERED TALISMANS OF LUCK. THE CIRCLES VARYING IN SIZE AIMS TO CREATE A DYNAMIC AND "AND ABSTRACT" REPRESENTATION OF LADYBUGS IN MOTION AMONGST "DASHED" BLADES OF GRASS IN THE BACKGROUND AND THE TRIANGULAR LEAVES.



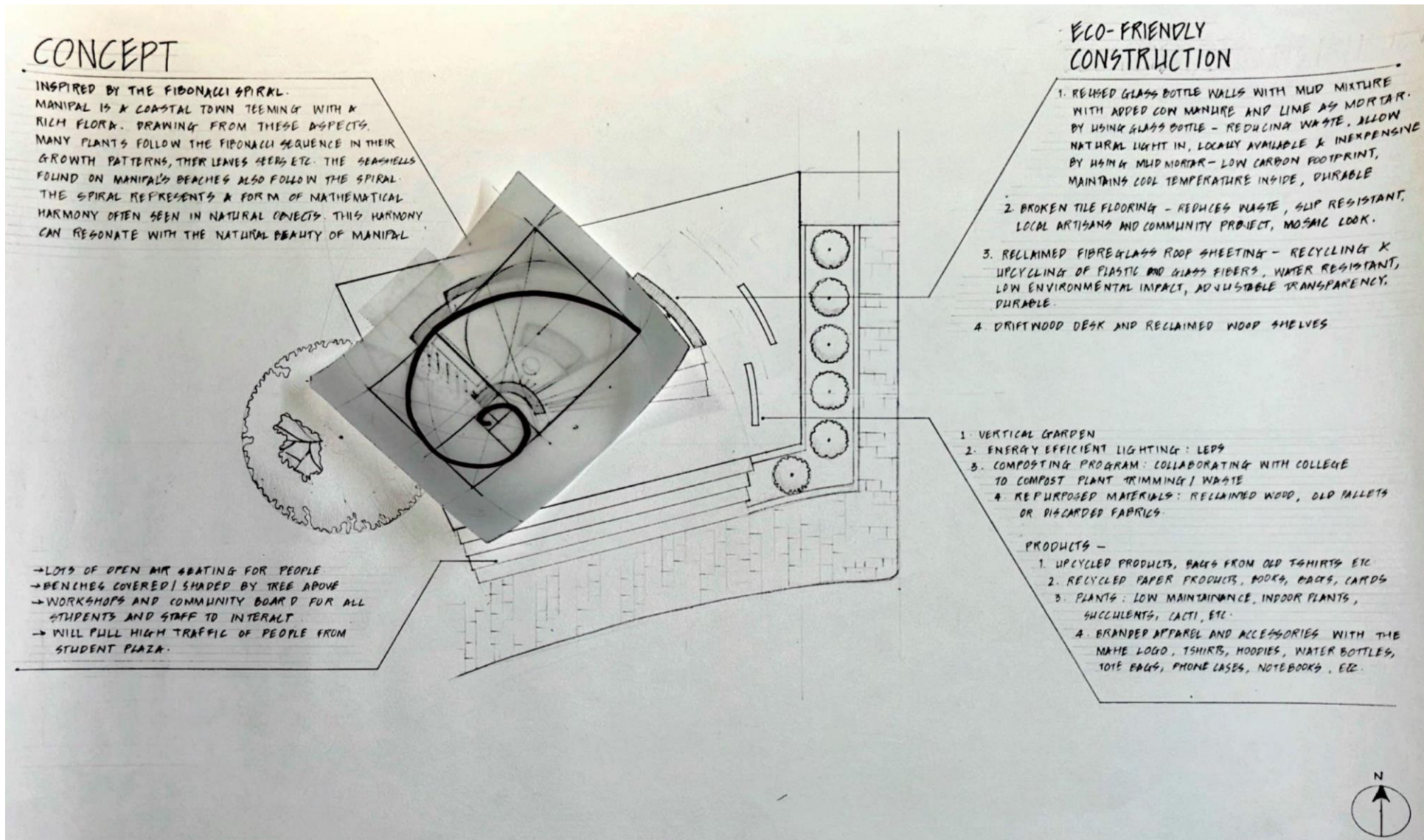
"FISH UNDER WATER. THE SPHERE AND PYRAMID INTERACT TO FORM AN ABSTRACT FISH-LIKE FIGURE MOVING, THE BLUE WAVES AND BUBBLES DEPICT FLOWING WATER AND THE BROWN PATCHES AT THE BOTTOM DEPICT THE UNDULATIONS OF A SEABED.

# ARC 4501 ARCHITECTURAL DESIGN AND DETAILING - I

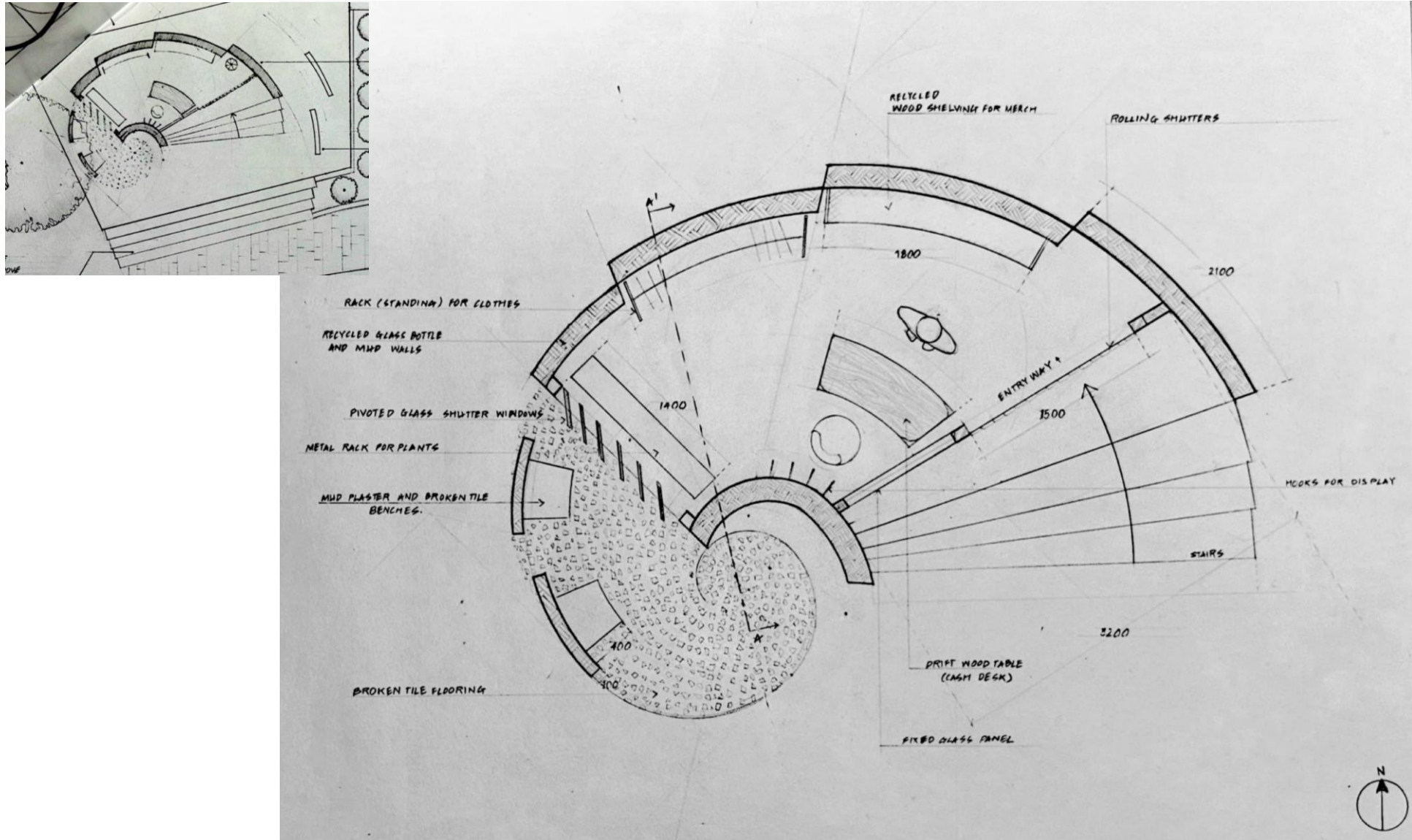
## ELEMENTS OF DESIGN



## KIOSK SITE PLAN AND CONCEPT

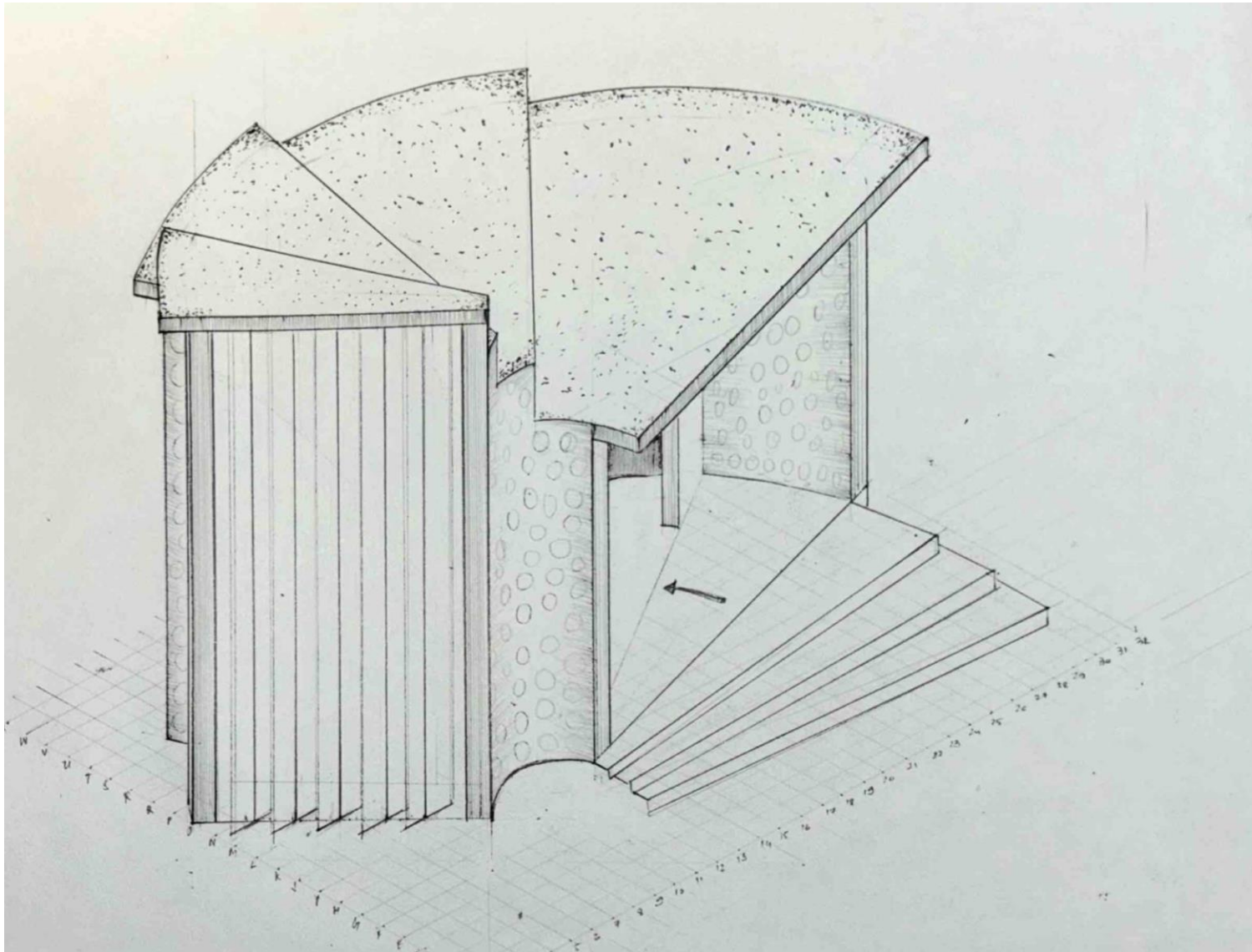


## KIOSK FLOOR PLAN



# ARC 4501 ARCHITECTURAL DESIGN AND DETAILING - I

## KIOSK ISOMETRIC VIEW AND WORKING MODEL





## ELEMENTS OF DESIGN

## COMMUNICATION IN DESIGN

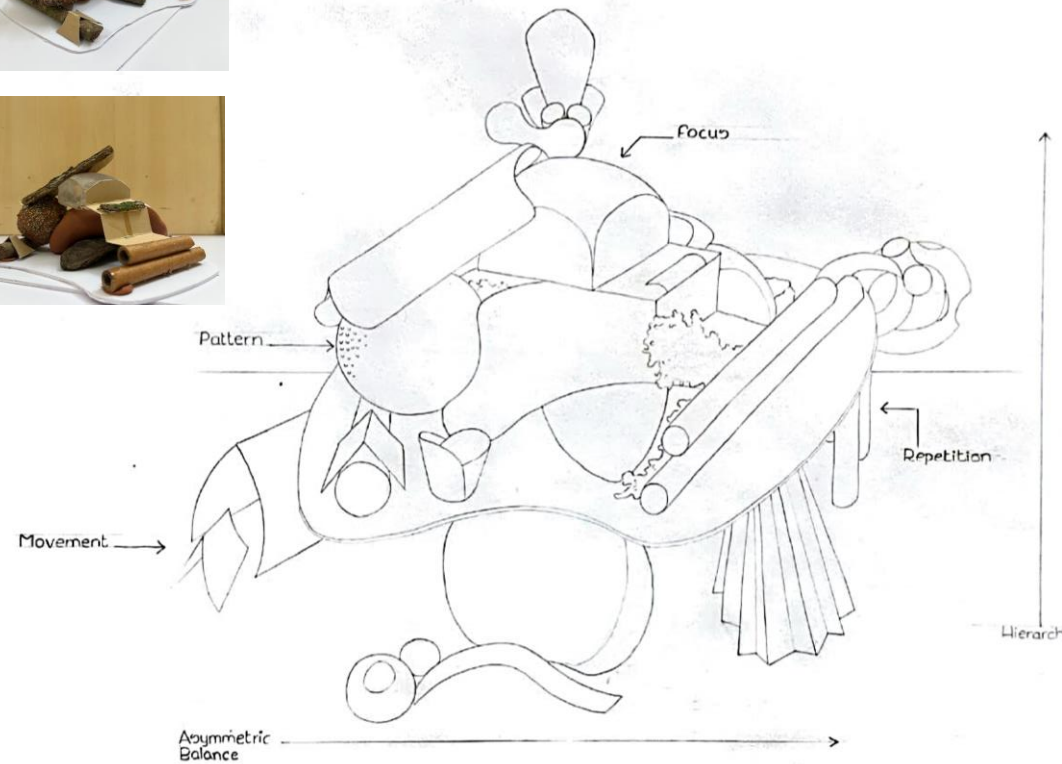
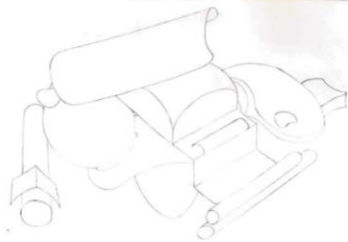


**COALESCENCE**  
SHAPES ACT AS FRAGMENTS COMING TOGETHER TOWARD THE SOURCE THAT DEFINED EDGES FACING UP.



**SHIFT**  
DIMENSIONS COLLAPSE, FORMS FLOAT AGAINST GRAVITY, FORMING NEW TEXTURES WHERE THEY OVERLAP.

## PRINCIPLES OF DESIGN



## TYPES OF LINES

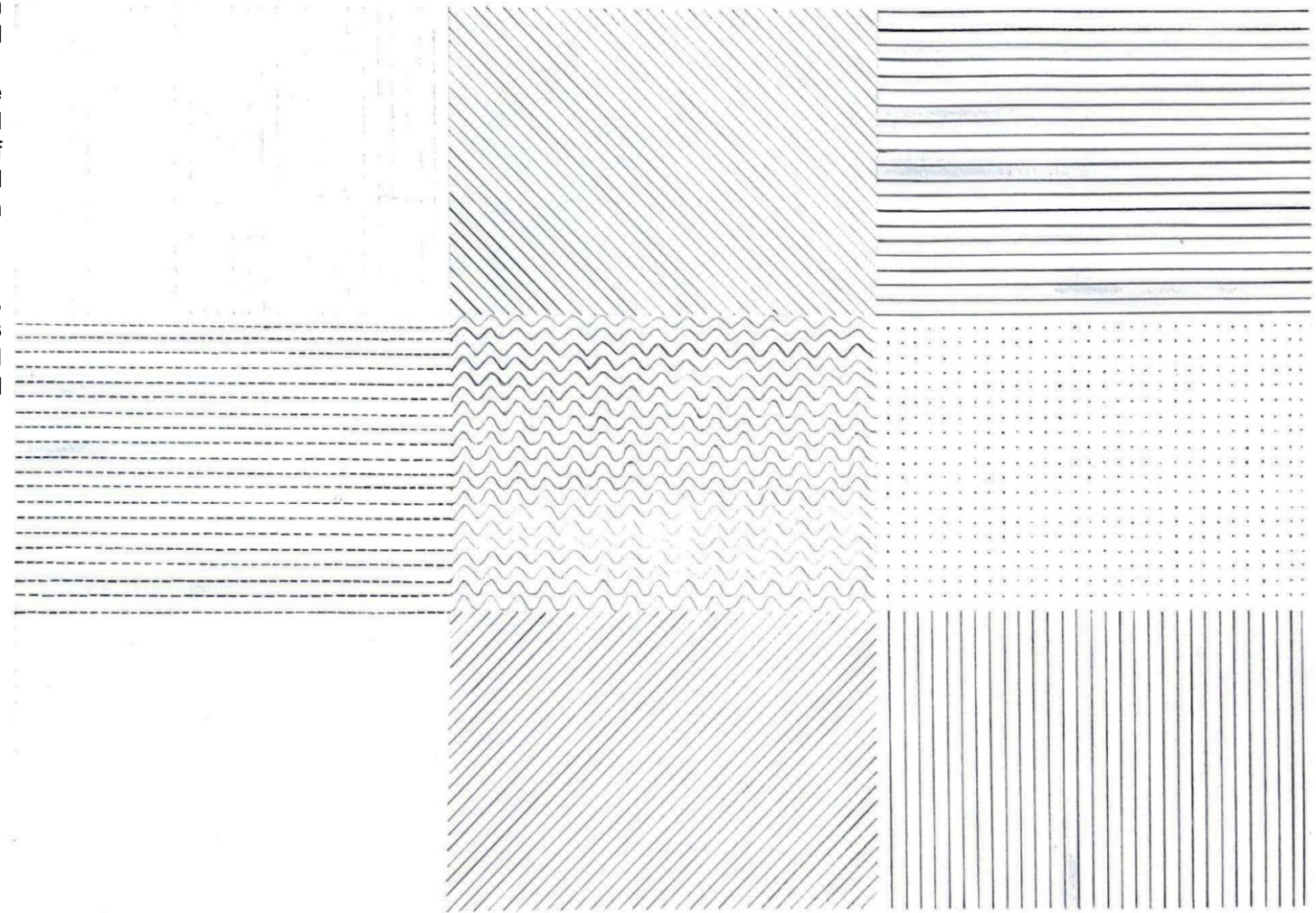
### COURSE OBJECTIVES:

The coursework intends to familiarize students with the essential techniques used in architectural drafting, covering from fundamental skills to advanced presentations. The students are expected to communicate through graphic language and geometrical construction, understand the basics of planes and their representation, and understand solid geometry through exercises of increasing complexity.

### PROJECT BRIEF:

Introducing various Drafting Techniques, Lettering, Annotations, and Scales, Basics of Orthographic Projections, Pictorial Projections, Presentation Drawings and Sciography.

DIFFERENT TYPES OF LINES



## LETTERING

YELLOW

LOOK AT STARS LOOK HOW THEY SHINE FOR YOU AND

Everything you do yeah they were all yellow I came along I wrote a song for you and all the things you do yeah it was called

YELLOW SO THEY TOOK THEIR TURN OH WHAT A THING TO

have done and it was all yellow your skin oh yeah your skin and bones turn into something beautiful and you know you know I love

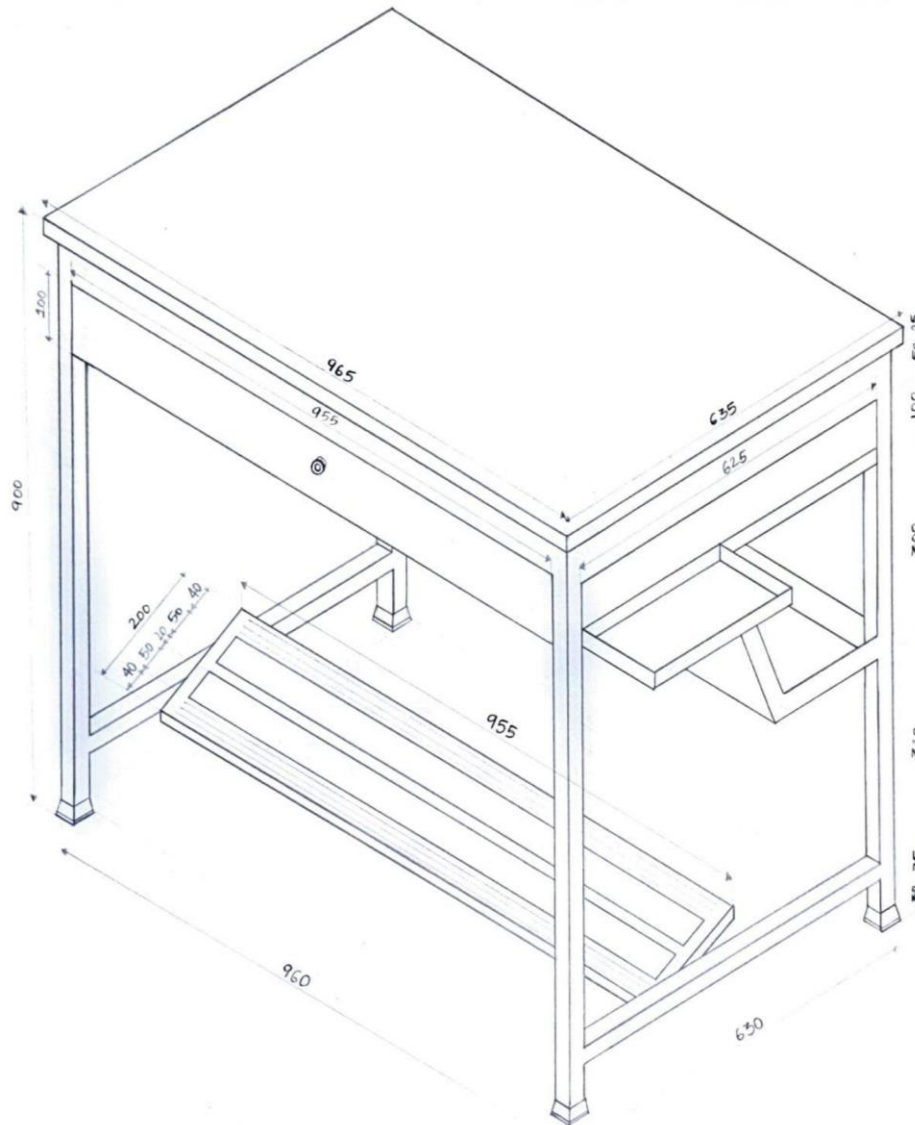
YOU SO YOU KNOW I LOVE YOU SO I SWAM ACROSS I

Jumped across for you oh a what a thing to do cause you were all yellow I drew a line I drew a line for you oh what a thing to do

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7

# ARC 4505 ARCHITECTURAL GRAPHICS

## ISOMETRIC VIEW



SCALE 1:5  
All dimensions are in mm

## BUILDING MATERIALS

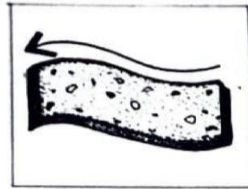
### COURSE OBJECTIVES:

The coursework familiarizes students with a comprehensive overview of building components, materials, and construction systems, specifically emphasizing mud, stone, clay, and brick. It covers each technique's characteristics, methods, and applications and emphasizes sustainability and structural considerations.

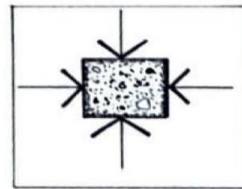
### PROJECT BRIEF:

The coursework intends to familiarize students with a comprehensive overview of building components, materials, and construction systems, specifically emphasizing mud, stone, clay, and brick. It covers each technique's characteristics, methods, and applications and emphasizes sustainability and structural considerations.

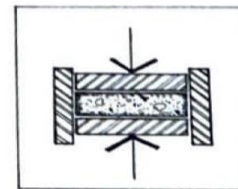
## PROPERTIES OF MUD



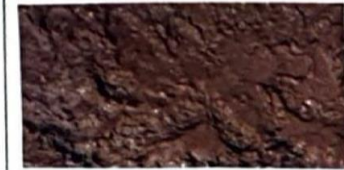
PLASTICITY



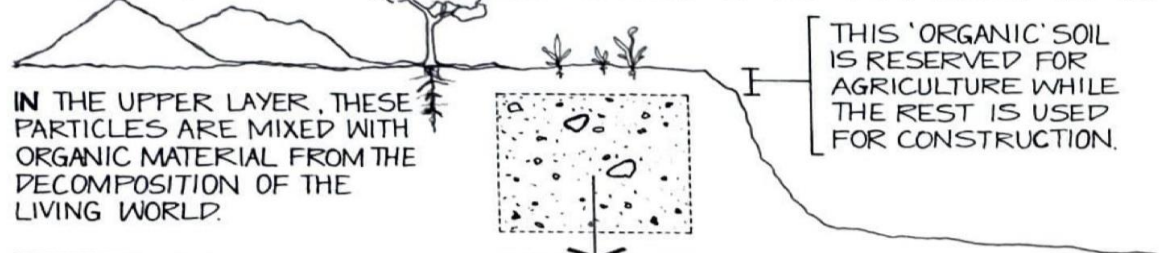
COHESIVENESS



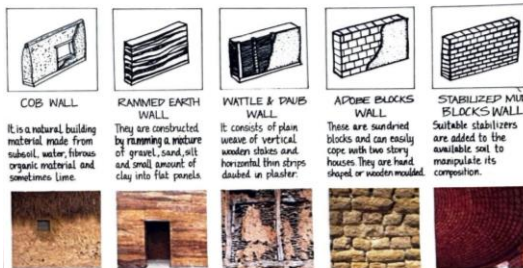
COMPRESSIBILITY



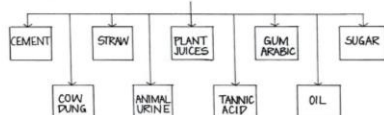
## MUD AS A BUILDING MATERIAL



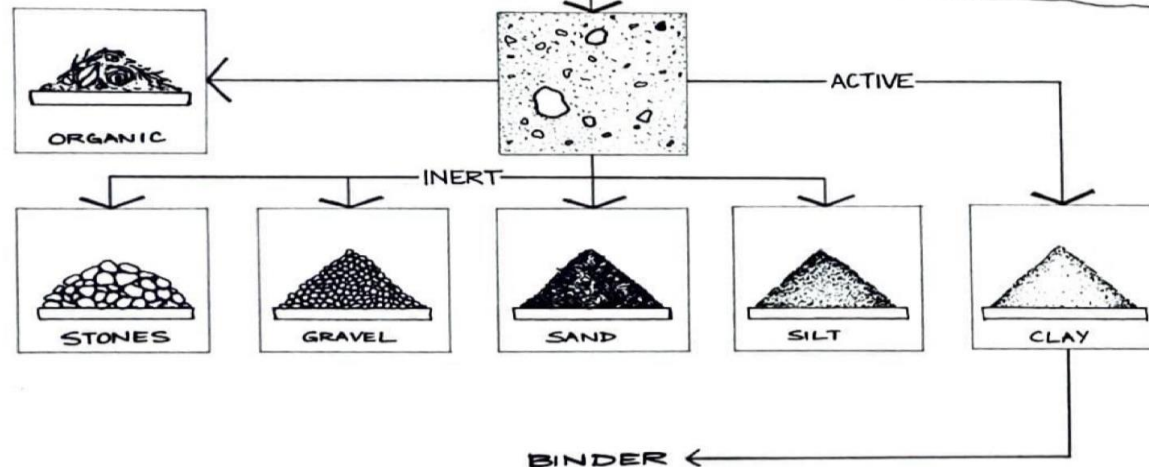
### TYPES OF WALLS



### STABILIZERS FOR MUD

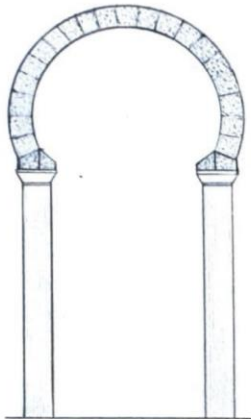


• Stabilizing enhances given property of the soil type.  
• Increases tensile and shear strength.  
• Reduces shrinkage.

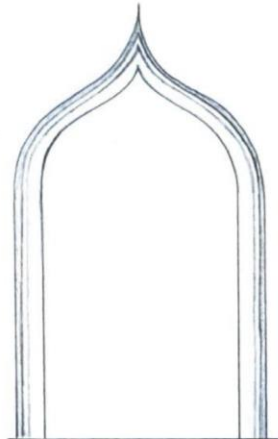


# ARC 4503 BUILDING MATERIALS AND CONSTRUCTION SYSTEMS - I 019

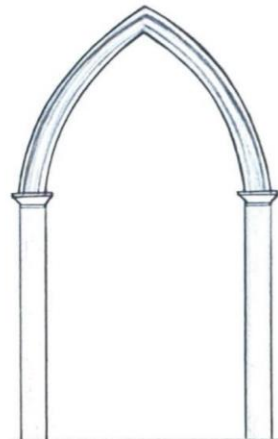
## OPENINGS



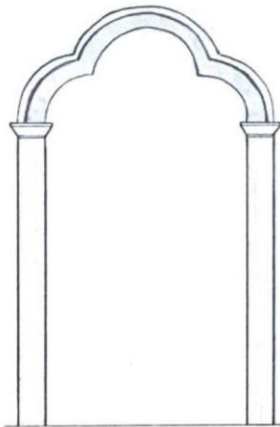
HORSESHOE ARCH



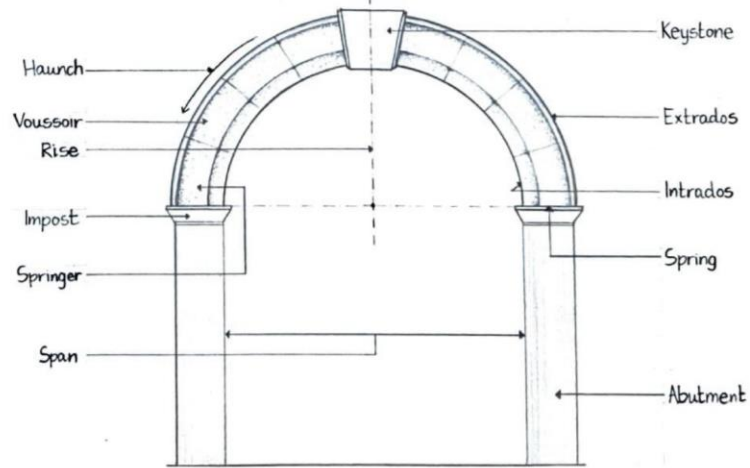
OGEE ARCH



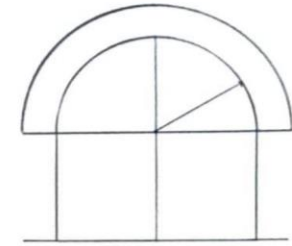
GOthic ARCH



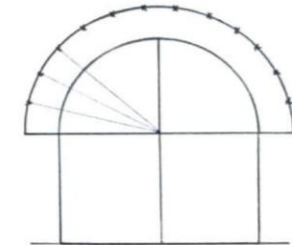
TREFOIL ARCH



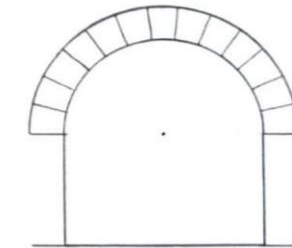
SEMI CIRCULAR ARCH



Step 1: Bisect the span, take radius =  $\frac{1}{2}$  span



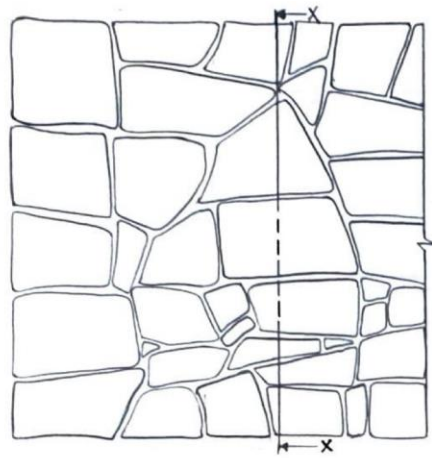
Step 2: Divide extrados arc at intervals of 10cm



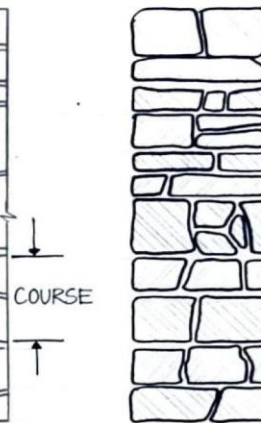
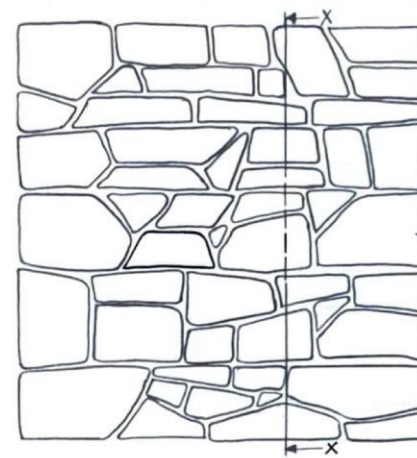
Step 3: Join points radially to centre

DEVELOPMENT of Semi-circular Arch

## STONE MASONRY



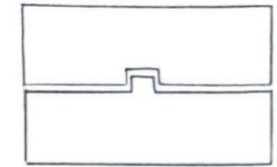
SECTION XX



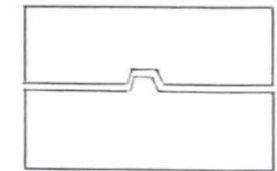
SECTION XX

RANDOM RUBBLE UNCOURSED MASONRY

RANDOM RUBBLE COURSED MASONRY

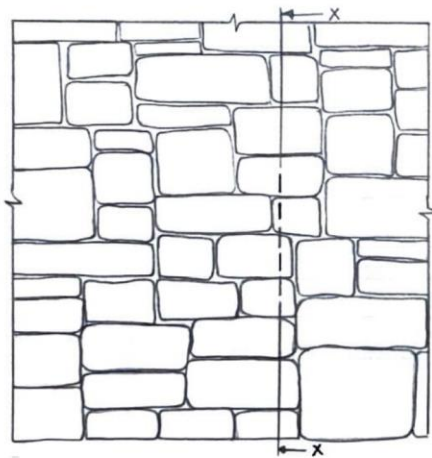


(a)

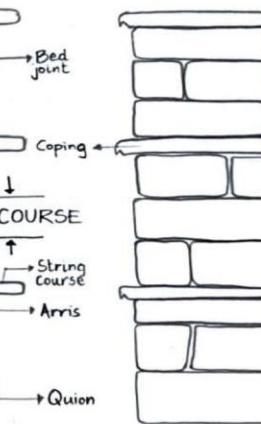
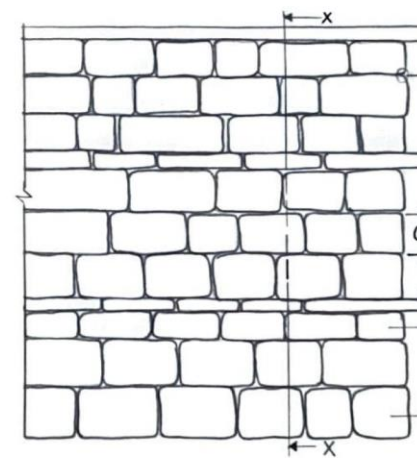


(b)

BED JOINTS



SECTION XX



SECTION XX

SQUARED RUBBLE UNCOURSED MASONRY

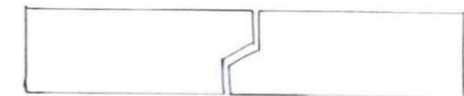
SQUARED RUBBLE COURSED MASONRY



BUTT JOINT



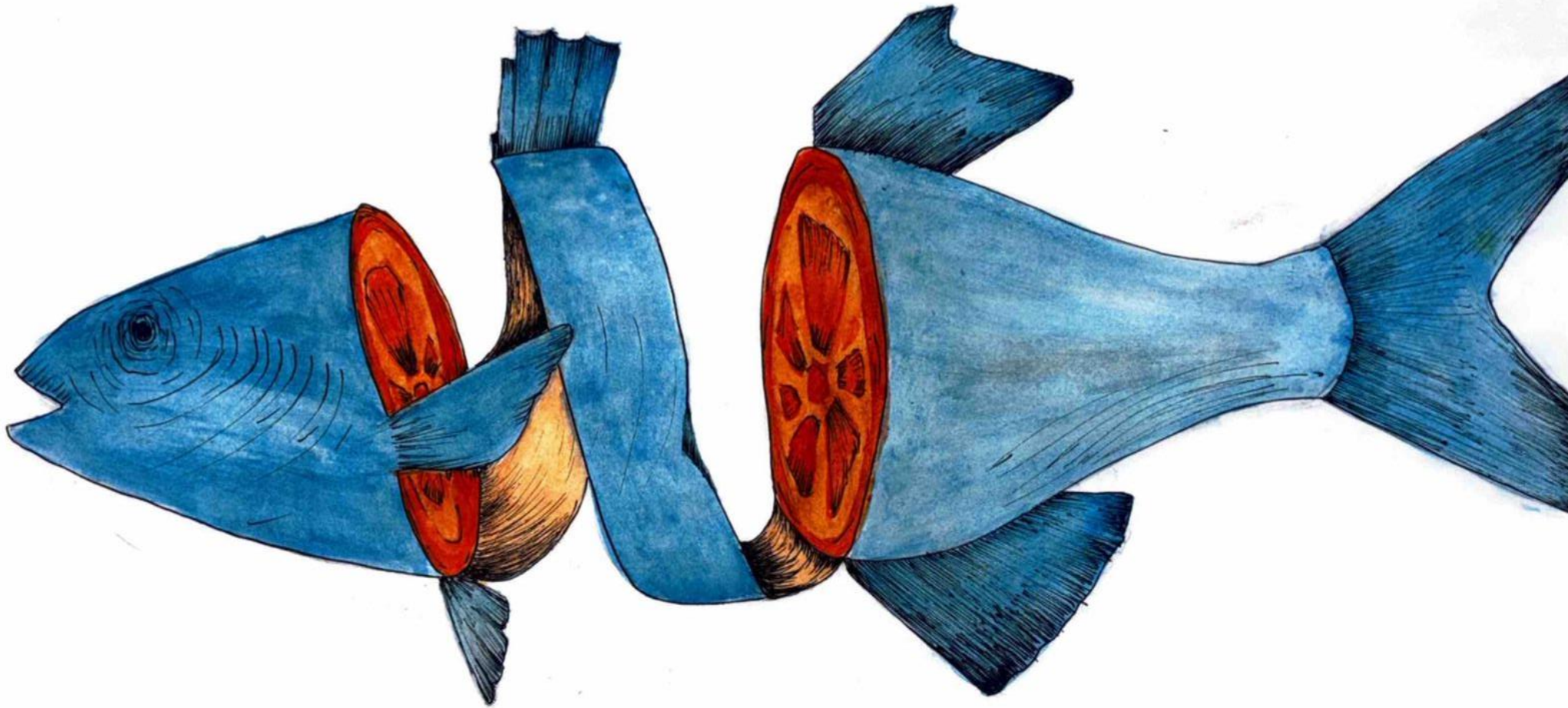
(c)



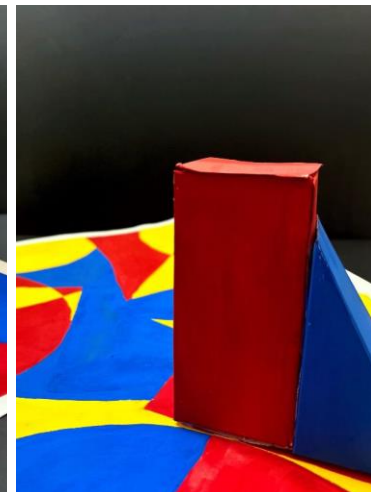
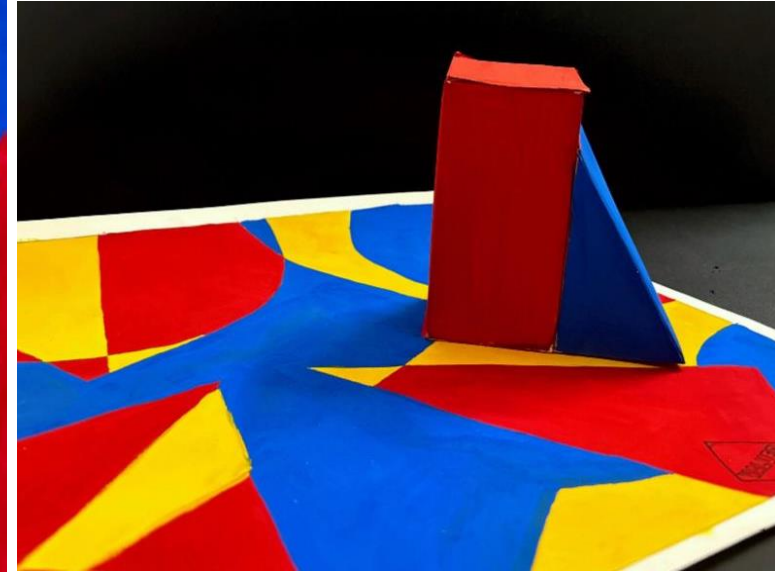
(d)

REBATED JOINTS

## COMPOSITION



## COMPOSITION

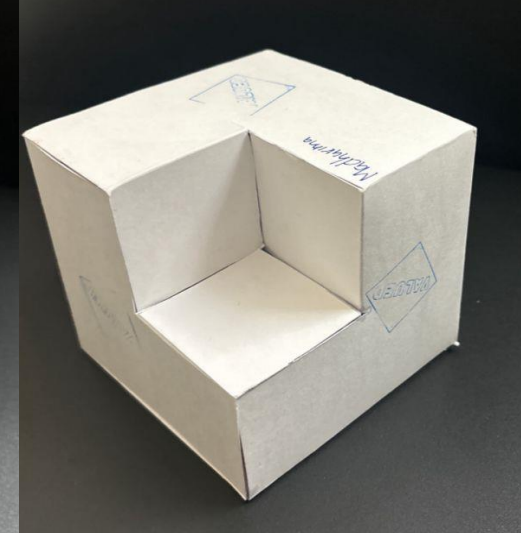
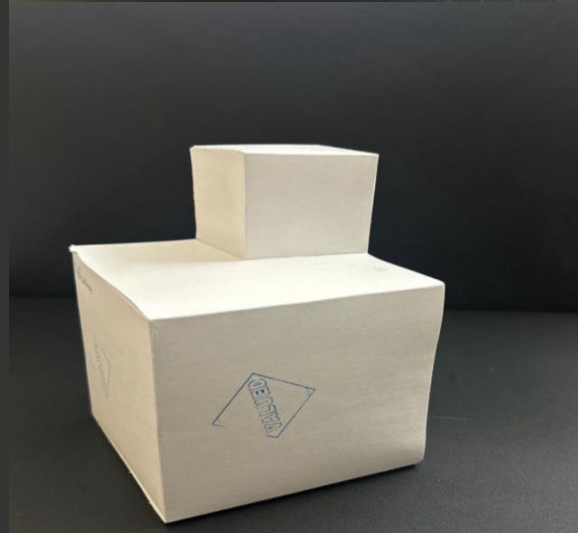
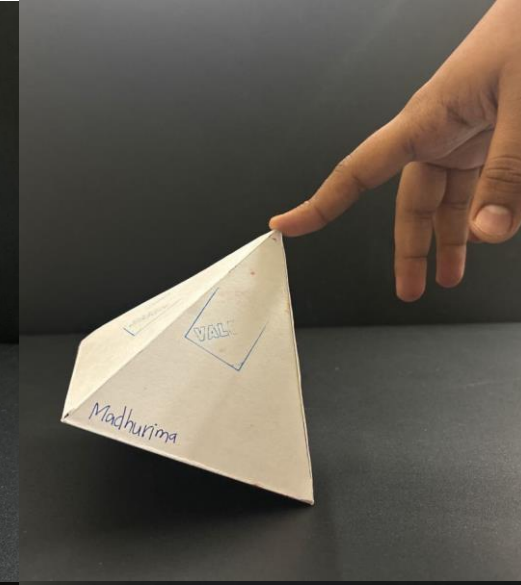
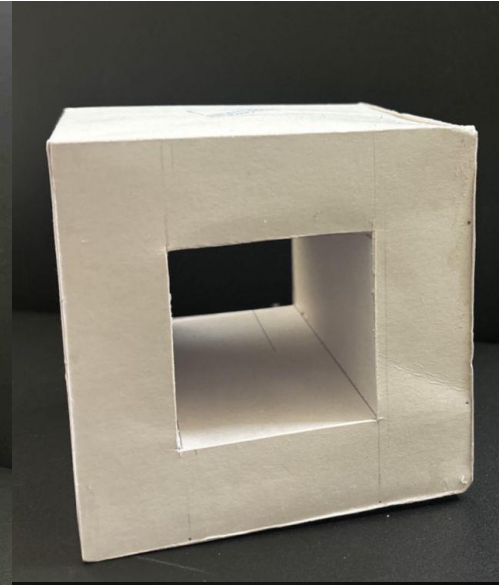
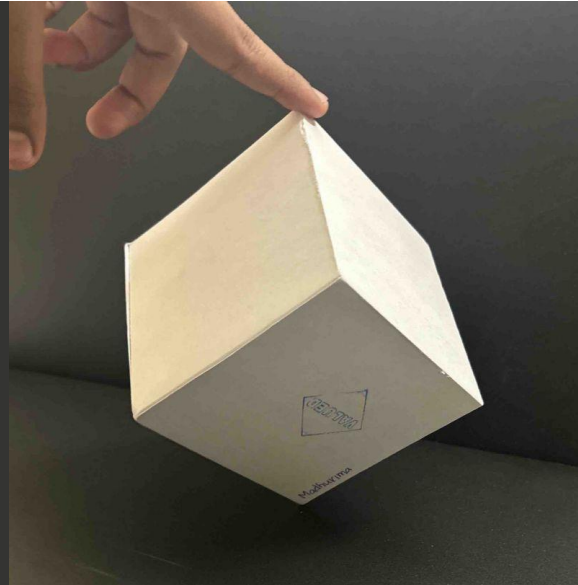


COMPOSITION



STUDENT: V MADHURIMA (243701058)  
FACULTY: SRIDHARA

## MODEL MAKING



COMPOSITION

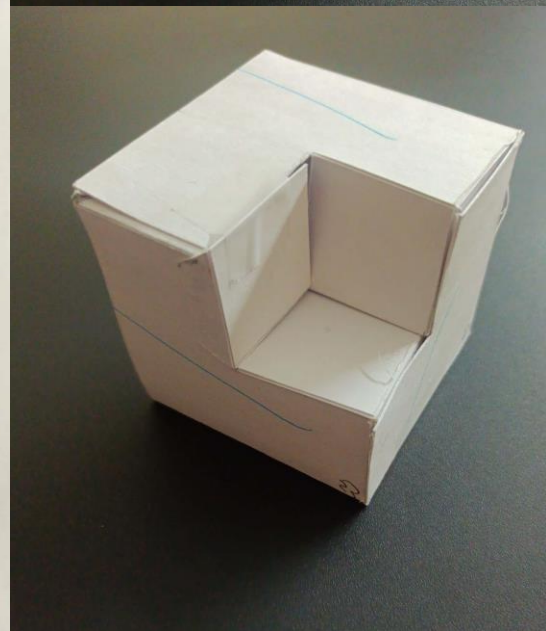


## COMPOSITION



1810002 SWASTIKA  
RS

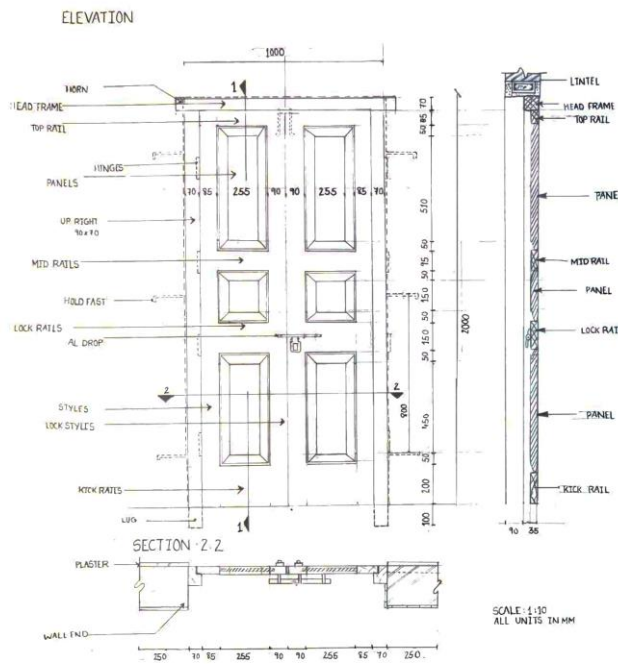
MONOCHROME



# ARC 4504 BUILDING MATERIALS AND CONSTRUCTION SYSTEMS-II

## COURSE OBJECTIVES:

The course work intends to develop a comprehensive understanding of building components, architectural details and methods of construction of timber and bamboo as building material. It also dwells into the understanding of the material properties and their application in the building construction.



PANELLED DOOR

## MAHOAGANY

A TYPE OF WOOD THAT COMES FROM TROPICAL HARD-WOOD TREES IN THE GENUS SWietenia THE THREE MAIN SPECIES ARE:  
 1. SWietenia MAHOAGANI - KNOWN AS WEST INDIAN OR CUBAN MAHOAGANY. NATIVE TO WEST INDIES.  
 2. SWietenia MACROPHYLLA - KNOWN AS HONDURAN OR BIG LEAF MAHOAGANY. NATIVE TO CENTRAL AMERICA AND SOUTH AMERICA.  
 3. SWietenia HUMILLIS - NATIVE TO DRY REGIONS OF CENTRAL AMERICA.

PROPERTIES	
DENSITY	550 - 650 kg/m <sup>3</sup>
FIRE RESISTANCE	HIGH
DURABILITY	LONG
FLEXIBILITY	FLEXIBLE
DIMENSIONS	4.4 - 10.4 m x 10 - 15.24
WORKABILITY	EXCELLENT
COST	₹ 550 - 2500/ft <sup>3</sup>

•USES- IT'S STRONG, DENSE AND DURABLE WOOD WITH REDDISH BROWN COLOUR.



•MANUFACTURING PROCESS

1. HEAD RIG - TREE TO SAWN PIECES
2. EDGING - IRREGULAR EDGES AND DEFECTS ARE REMOVED
3. TRIMMING - ENDS OF LUMBER ARE SQUARED OFF
4. ROUGH LUMBER SORTING SEPARATION BY DIMENSION
5. STICKERING & DRYING
6. PLANING
7. GRADING

## PINE

IT'S A SOFTWOOD THAT COMES FROM PINE TREES. THEY ARE EVERGREEN TREES AND PRODUCE SEED BEARING CONES. DIFFERENT TYPES ARE - 1. RED PINE 2. WHITE PINE 3. YELLOW PINE

PROPERTIES	
DENSITY	400 - 500 kg/m <sup>3</sup>
FIRE RESISTANCE	NO WATER RESISTANCE
DURABILITY	DURABLE
FLEXIBILITY	FLEXIBILITY
DIMENSIONS	L: 3.4 - 9.12 m W: 3m - 5m
WORKABILITY	EASY
COST	₹ 250 - 500/ft <sup>3</sup>

•USES



•MANUFACTURING PROCESS

1. BARK REMOVAL
2. CUTTING
3. SANDING

PROPERTIES	
DENSITY	600 - 800 kg/m <sup>3</sup>
WATER RESISTANCE	NO WATER RESISTANCE
DURABILITY	DURABLE
DIMENSIONS	80 x 60 x 50 x 40 x 6 x 4 ft
FLEXIBILITY	FLEXIBLE ONES EXIST
WORKABILITY	EASY
COST	₹ 250 - 500/ft <sup>3</sup>

## MEDIUM DENSITY FIBERBOARD

## CEDAR

TALL, EVERGREEN CONIFER TREE WITH FRAGRANT, DURABLE WOOD. TYPES OF CEDAR INCLUDE - 1. ATLAS CEDAR 2. CYPRESS CEDAR 3. DODDAR CEDAR NATIVE TO WESTERN HIMALAYA 4. CEDAR OF LEBANON - MEDITERRANEAN REGION 4. EASTERN RED CEDAR - CHRISTMAS TREE IN SOUTH US

PROPERTIES	
DENSITY	368 - 511 kg/m <sup>3</sup>
WATER RESISTANCE	HIGH
DURABILITY	DURABLE
FLEXIBILITY	FLEXIBLE
DIMENSION	2m, 2x4, 3x6, 4x4 ft
WORKABILITY	EASY
COST	₹ 500 /ft <sup>3</sup>

•USES



•MANUFACTURING PROCESS

1. ROUNDWOOD IS HARVESTED
2. SENT TO SAWMILLS AND PLANING MILLS - WASHED DEBARRED SAWED LOGS, WETHEIM DREG
3. TRIMMING
4. EDGING
5. STICKERING & DRYING
6. PLANING
7. GRADING

NATURAL WOOD THAT HAS BEEN PROCESSED INTO USEFUL SIZES INCLUDING BEAMS, PLANKS, AND FINISHING TIMBER

## HIGH-DENSITY FIBER BOARD (HDF)

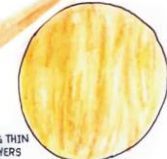
A TYPE OF ENGINEERED WOOD PRODUCT THAT IS MADE FROM WOOD FIBER EXTRACTED FROM CHIPS AND PULPED WOOD WASTE. THROUGH A HIGHLY PRESSURED MANUFACTURING PROCESS INCLUDING COMBINING WOOD FIBRES WITH RESIN AND THEN COMPRESSING THEM UNDER HIGH PRESSURE AND TEMPERATURES.



•MANUFACTURING PROCESS (MDF AND HDF)

1. LOGS
2. CHIPPING
3. PULPING
4. DRYING
5. BLENDING
6. PRESSING
7. PACKAGING

PROPERTIES	
DENSITY	800 - 900 kg/m <sup>3</sup>
WATER RESISTANCE	GOOD
DURABILITY	MORE THAN MDF
FLEXIBILITY	FLEXIBLE
DIMENSION	4x8 ft, 6x4 ft, 10x4 ft, 8x4 ft
WORKABILITY	EASY
COST	₹ 200 - 400/ft <sup>3</sup>



## PLYWOOD

A FLAT SHEET OF WOOD MADE BY GLUING THIN VENEER TOGETHER. THE LAYERS OR PILES ARE ARRANGED SO THAT GRAIN OF EACH LAYER RUNS AT AN ANGLE TO LAYER BELOW IT.

•USES

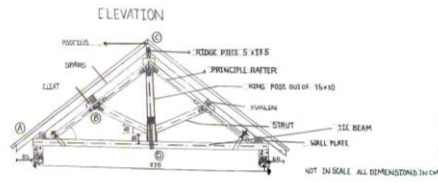


•MANUFACTURING PROCESS

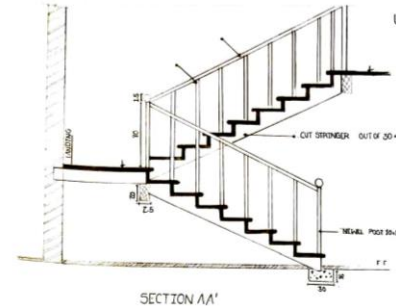
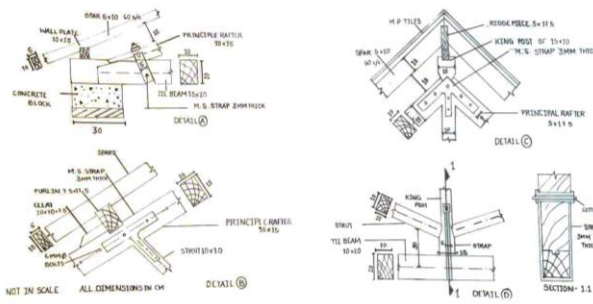
1. CONDITIONING
2. PEELING
3. SORTING VENEERS
4. DRYING
5. GRADING
6. QUALITY INSPECTION
7. PAINTING

PROPERTIES	
DENSITY	400 - 700 kg/m <sup>3</sup>
WATER RESISTANCE	GOOD
DURABILITY	EXTREME
FLEXIBILITY	LIMITED
DIMENSION	4x8 ft
WORKABILITY	EASY
COST	₹ 180 - 300/ft <sup>3</sup>

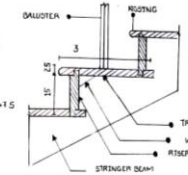
## KING POST TRUSS



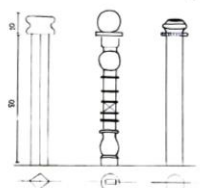
## JOINERY DETAILS



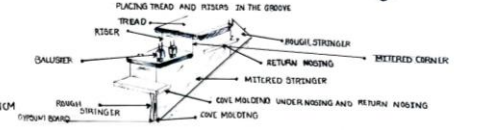
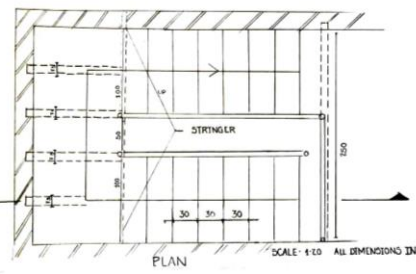
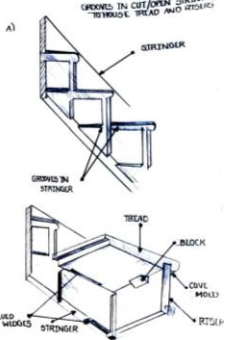
## U-SHAPED STAIRCASE



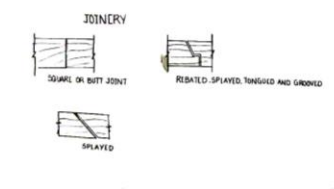
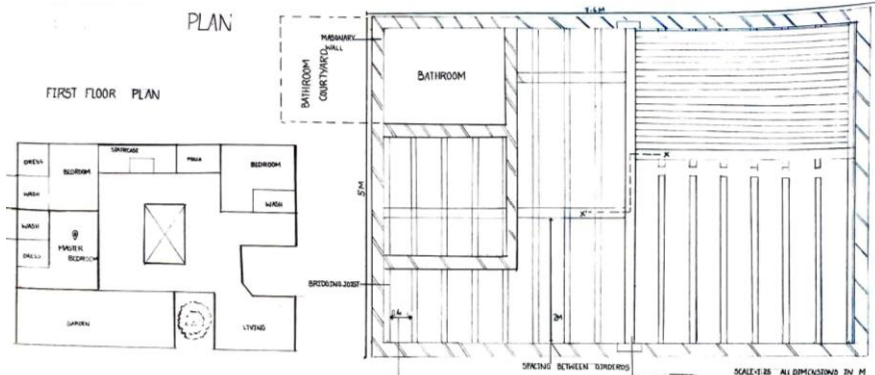
## TYPES OF BALUSTERS



## JOINERY DETAILS

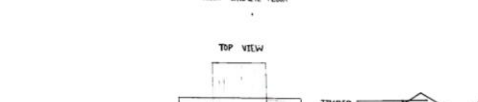
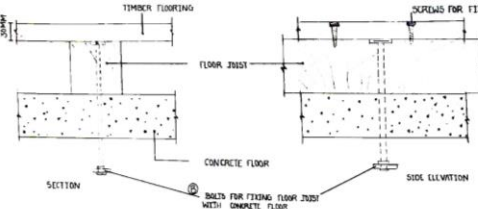


## TIME TEST

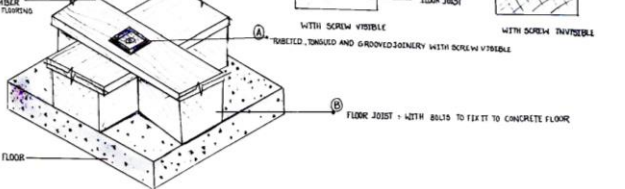
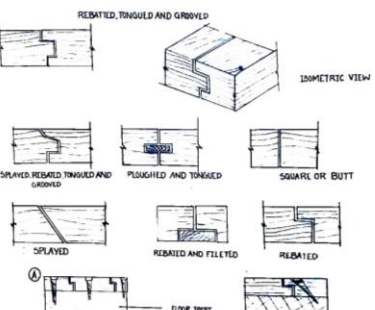


## FLOORING JOINERY DETAILS

### TYPICAL DETAILS OF FIXING FLOOR JOIST AND TIMBER FLOORING



### OTHER JOINERY DETAILS



## NATURAL TIMBER

### TEAK

APPLICATIONS, USES OF TEAK WOOD

TROPICAL HARDWOOD TREE  
KITCHEN LINE - SINGLE  
BEST IN WARM AND HUMID  
MINIMAL MAINTENANCE OR PAINTING  
RESIST ROT, INSECT, WEATHERING  
SHAPES EASILY

OUTDOOR AND INTERIOR FURNITURE

FOR ROOF AND TRUSS

### PINE

APPLICATIONS, USES OF PINE WOOD

SOFTWOOD  
SUSCEPTIBLE TO BURSTS AND INSECT DAMAGE  
NOT DURABLE AS SOME HARDWOOD  
EASY TO WORK WITH  
LOW-COST OPTION  
VERSATILE FOR VARIOUS APPLICATION

ROOF DOCKING

CORRECTORS

IRON-REINFORCED ROOFING

### ELM

APPLICATIONS, USES OF ELM WOOD

SOFTWOOD  
INTERLOCKED GROWTH CHARACTERISTICS TO LOCK STRONG AND DURABLE DESIGN  
ATTRACTIVE GRAINS  
LIGHT BROWN - DARK BROWN

VENEER TRIMMINGS AND FURNITURE

DOOR FRAMES

### COMPARISON BETWEEN NATURAL TIMBERS

PROPERTY	TEAK	PINE	ELM
PRICE	LOW-M	500-1500	1500-4000
DURABILITY	HIGH	MODERATE	MODERATE
COLOR	BROWN	PALE BROWN	BROWN
WEIGHT	HEAVY	LIGHT	MEDIUM
DENSITY	HIGH	LOW	MEDIUM

### HARDNESS GRAPH

## ENGINEERED TIMBER

### PLYWOOD

APPLICATIONS, USES OF PLYWOOD

THREE OR MORE LAYERS  
IN ODD NO., ONE AROUND OTHER  
DIRECTION OF GRAINS OF SUCCESSIVE LAYERS AT THE 90° ANGLE TO EACH OTHER

FRAMING WORK OF CONCRETE

FURNITURE

ROOFING

VENEERS

### FIBREBOARD

APPLICATIONS, USES OF FIBREBOARD

ALSO KNOWN AS PRESSWOOD OR REINFORCED LAMINATE  
STRENGTH: 10MPa TO 120MPa  
LENGTH: 2m TO 4.5m  
WIDTH: 1.2m TO 1.5m

FRUIT BOXES, TYPE OF TRAIL

### COMPARISON BETWEEN ENGINEERED TIMBER

PROPERTY	PLYWOOD	LAMINATES OR LAMINATIONS	FIBRE BOARD
PRICE	MODERATE	LOW-HIGH	LOW
DURABILITY	MODERATE	HIGH	LOW
COLOR	BROWN	WIDE-RANGE	LIGHT BROWN
WEIGHT	MEDIUM	LIGHT-MEDIUM	LIGHT
DENSITY	MEDIUM	VARIES	LOW

### HARDNESS GRAPH

### VENEERS

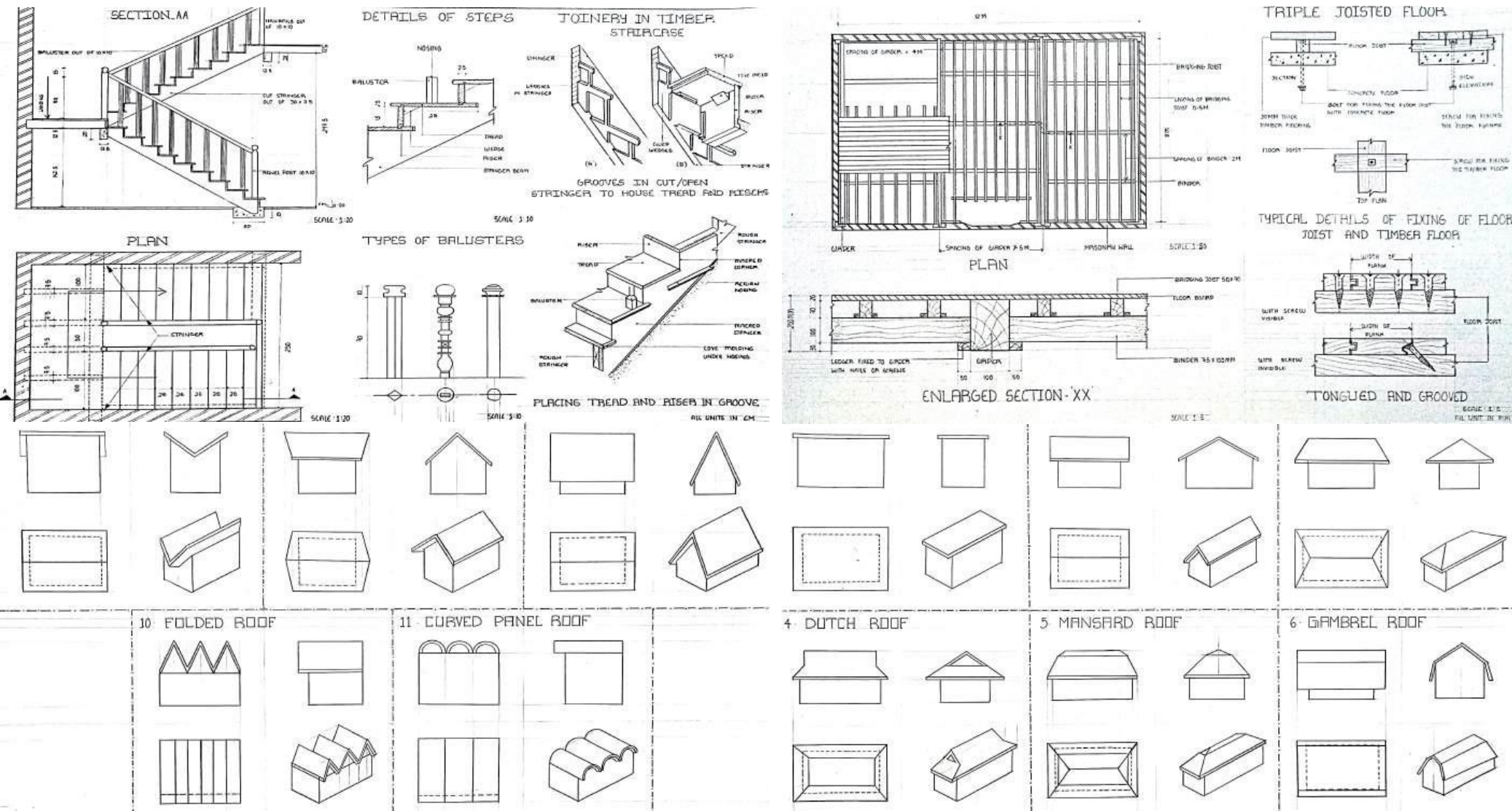
APPLICATIONS, USES OF VENEERS AND LAMINATIONS

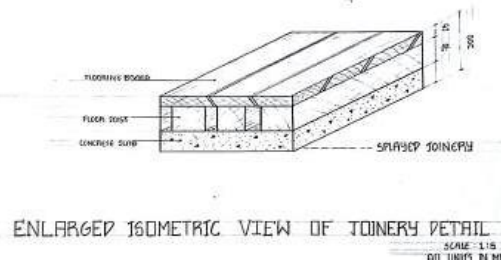
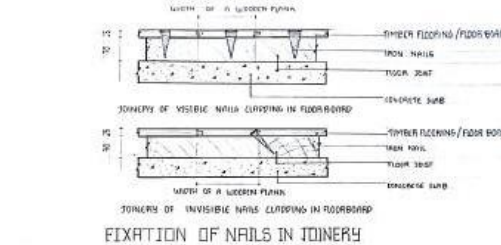
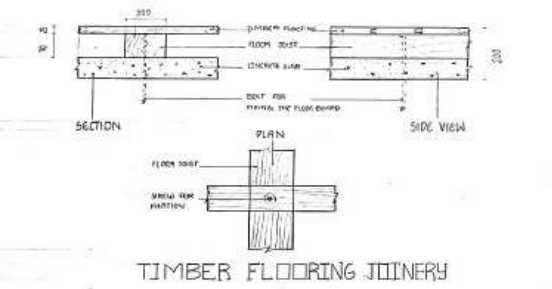
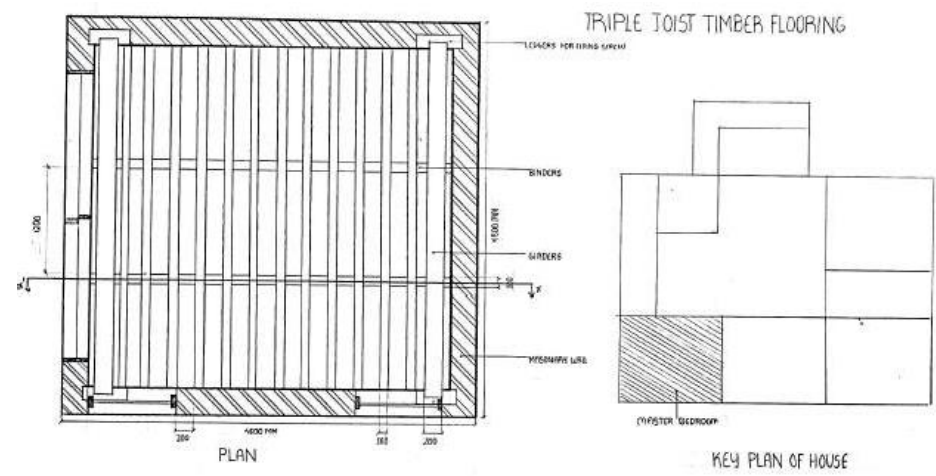
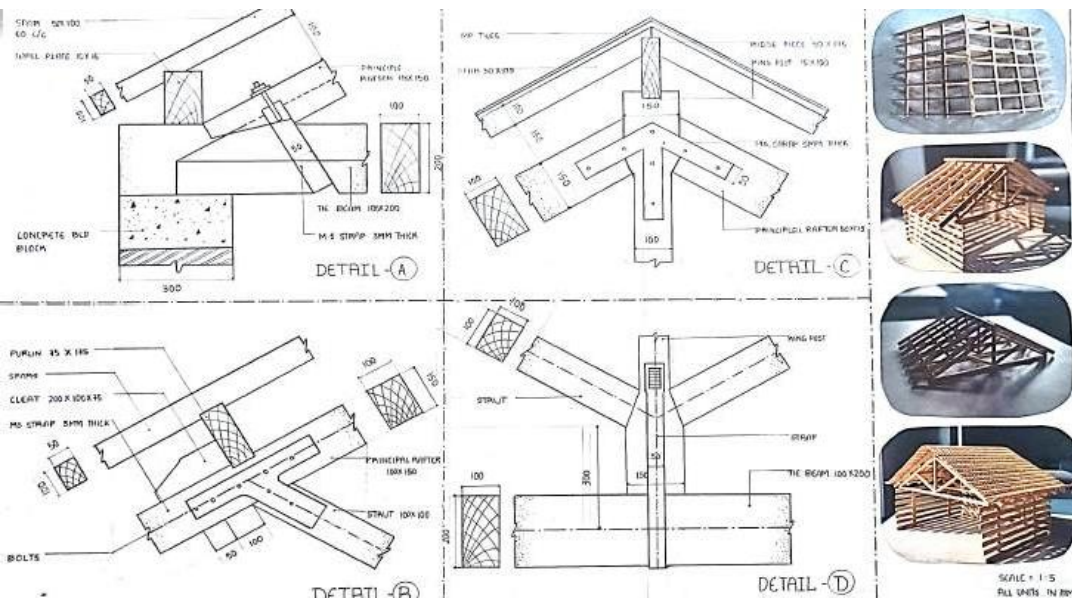
THIS CONSIST OF SLICES OF WOOD OF SUPERIOR QUALITY  
THICKNESS: 0.4mm TO 2mm  
OBTAINED BY APPLYING A LOW-OR-HIGH-PRESSURE & TEMPERATURE

FLOORING

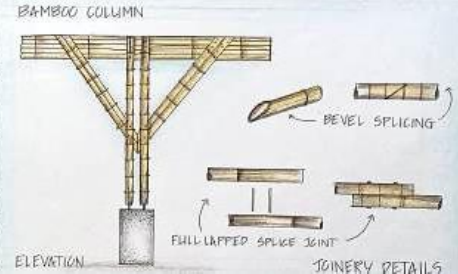
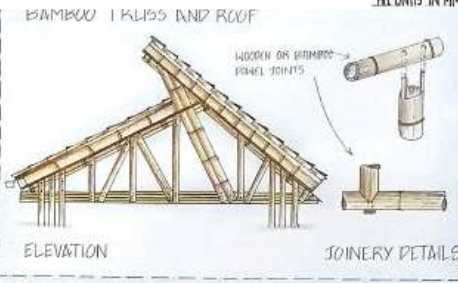
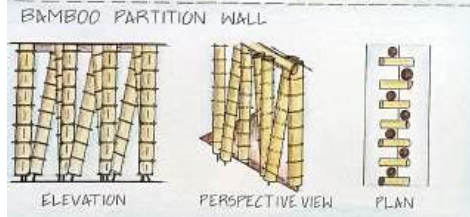
USED IN KITCHEN AND TOILETS, LAMINATES

FOR FURNITURE

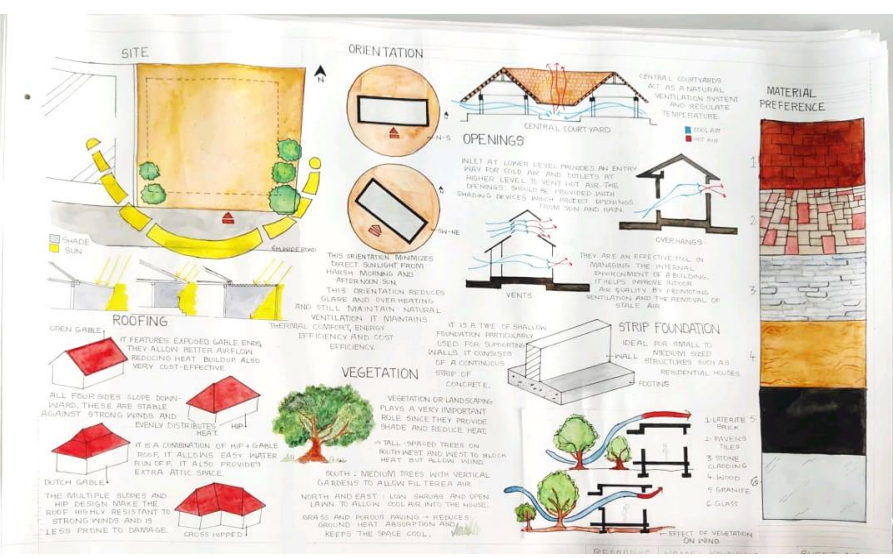
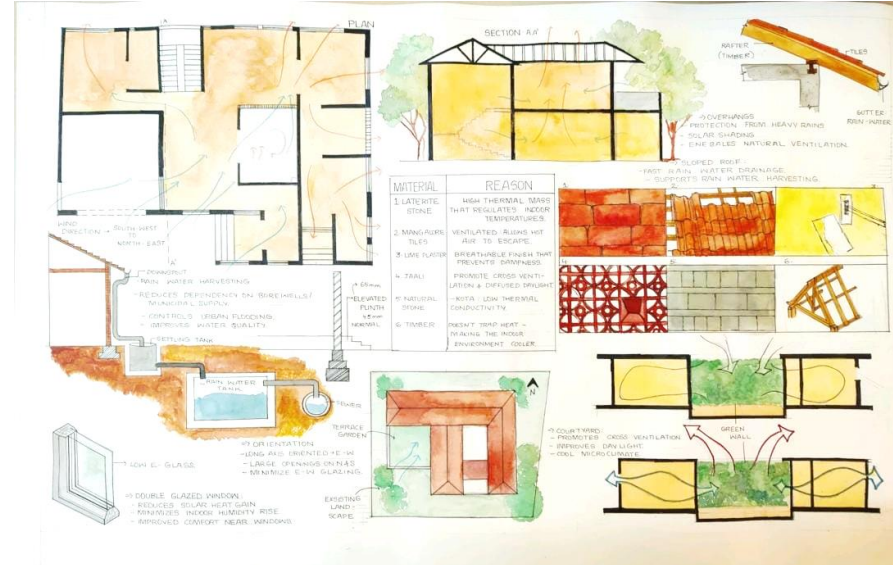
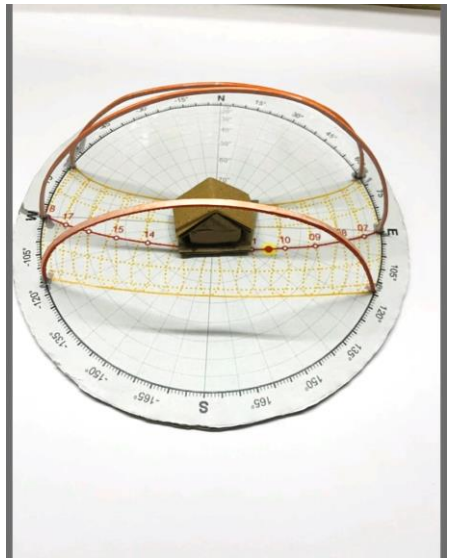
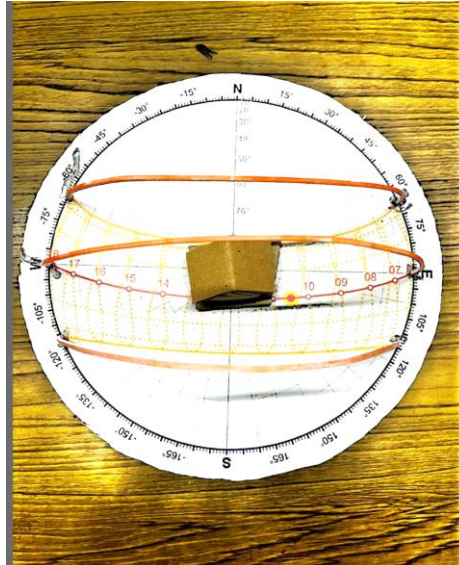
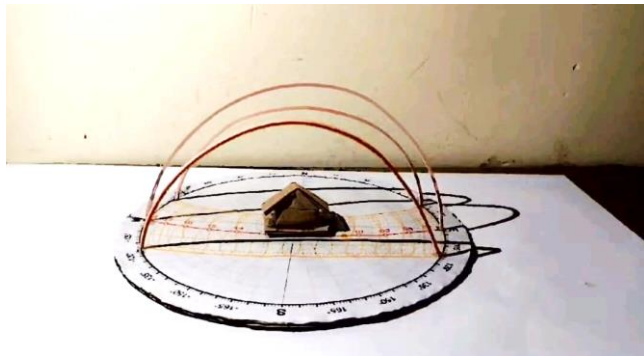
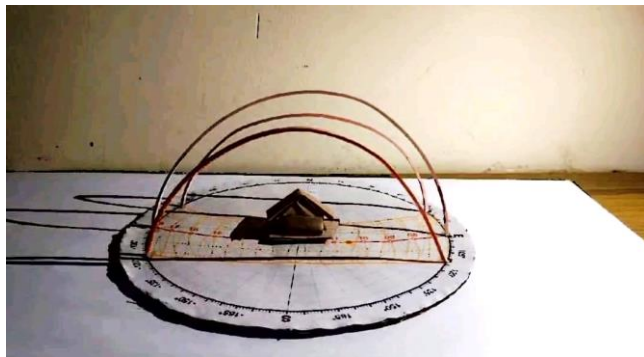
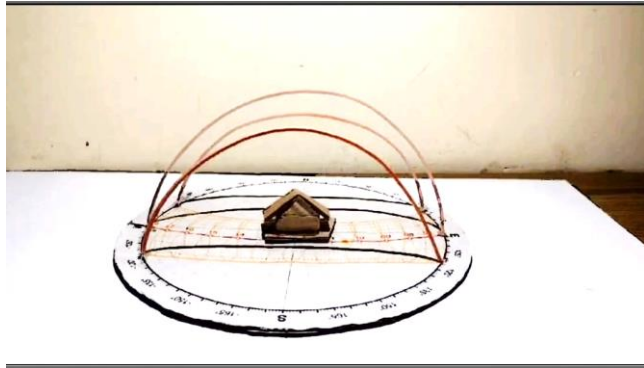




**MILGHADHAS HOUSE**  
 LOCATION: PEREIRA, COLOMBIA  
 ARCHITECT: RITMO ARQUITECTOS  
 MATERIAL: GUADUA BAMBOO







# ARC 4512 CLIMATE RESPONSIVE DESIGN

## PASSIVE DESIGN STRATEGIES

### LOCATION

LAXMINAGARA ROAD,  
PUTTUR ROAD,  
NITTUR, UDUPI, KARNATAKA  
576102, INDIA

13°22'01.6"N  
74°44'33.3"E

### ORIENTATION

ORIENTED THE BUILDING ALONG EAST-WEST AXIS TO MINIMIZE EXPOSURE TO HARSH SUNLIGHT FROM SOUTH AND WEST DIRECTIONS.

THE FRONT FACADE DIRECT TOWARDS EAST DIRECTION

### PASSIVE COOLING STRATEGIES

- COOLING BY EVAPORATION
- COOL SURFACE
- WATER BODY
- USE OF VENTILATED ROOFS OR VENT HOLES / CAVITY WALLS
- EVAPORATIVE COOLING, LATERITE INSULATED WALLS

### CROSS / NATURAL VENTILATION

SKYLIGHT

GLASS

JALI WALL

TREE

STAIRS

### CLIMATE AND AREA

- WARM AND HUMID CLIMATIC REGION
- FALLS UNDER "A" CLIMATE TYPE - "AW" SUBTYPE
- TOTAL AREA OF THE = 500 M<sup>2</sup>
- TOTAL BUILTUP AREA = 300 M<sup>2</sup>
- SETBACKS = 3.25 M [EAST] - FRONT FACADE
- 3.00 M [NORTH]
- 2.50 M [WEST]
- 2.00 M [SOUTH]

### DESIGN GUIDELINES

CLIMATE TYPE	PROTECTION AGAINST	CONTROL REQUIRED
WARM - HUMID	RAIN HEAT HUMIDITY INSOLATION	VENTILATION COOLING SHADING

### SHADING DEVICES

- OVERHANGS - HORIZONTALLY INSTALLED TO BLOCK DIRECT SUN LIGHT WHILE ALLOWING NATURAL SHADING
- VEGETATION: USED TREES OR CREEPERS NEAR WINDOW TO PROVIDE NATURAL SHADING

### SITING-DESIGN FOR PREVALENT WIND PATTERNS

LANDSCAPE TO CHANNEL COOLING BREEZERS

FILTERED PLANTING FOR STORMS

IN WARM AND HUMID CLIMATE, BUILDINGS ARE PLACED ON SITE TO CATCH MAXIMUM WIND. THE PLANTATIONS HELP CHANNELIZE THE FILTER WIND

### MATERIAL USED FOR SLOPED ROOF

MANGROVE TILE (TERACOTTA) AND WOODEN TRUSS WORK FOR SUPPORT

### GROUND FLOOR PLAN

### MATERIAL USAGE

- BAMBOO PARTITION WALL
- TERACOTTA FOR JALI AND ROOF TILE
- LATERITE WALLS
- WOOD FOR DOOR, WINDOW ETC
- LIME PLASTER FOR WALL

### USAGE OF SLOPED ROOFS

IT HELPS WITH HEAT REDUCTION AND RAINWATER MANAGEMENT.

OVERHANGS PROVIDES SHADES, AND REDUCES HEAT ABSORPTION BY WALLS

SLOPED ROOF ALLOWS HOT AIR TO RISE AND ESCAPE, PROMOTING NATURAL VENTILATION AND COOLING.

PROVIDE HEAT INSULATION SLOW DOWN HEAT TRANSFER

### TYPICAL CHARACTERISTICS

SHADED VERANDAH TYPE, LENGTH E-W, N AND S WALLS: LOUVERS FOR CROSS-VENT, HIGH ROOMS, VENTILATED ROOF SPACE

# PASSIVE DESIGN STRATEGIES *Good!*

REMARKS	NAME: MIDHUNA V	SHEET NO.
	REG NO: 243701022	
	SEM AND SEC: 2C DATE:	
	SUB: CAD	
	INSTITUTE: MSAP, MAHE	

### LAND AND BUILDING

**ROOF AT TOP - SLOPE UP**  
**ROOF AT BASE - SLOPE UP**  
**ROOF LAND TO BE PROTECT**  
**ROOFING PROFILE - HILL PROFILE**  
**RELATE BUILDING PROFILE TO LAND**  
**PROVIDE AIRCIRCULATION THROUGH**  
**SCULPT CONTOUR THROUGH**  
**CONTOUR PROFILE LAY LAND**  
**LIGHT ACCESS FOR SHADE BUILDING**  
**SHADE ACCESS FOR SHADE BUILDING**

### WATERBODY ON SITE

**DOWN AND FILL TALL SH**  
**LOW NATURE SHIPS**  
**ADD POSSIBLY & VISIBILITY**  
**ADD POSSIBLY RELATE VISUALLY**  
**USE WATER CANAL FOR ENTRY FRONT**  
**MAKE ACTIVE AREA BETWEEN BUILDING & WATER**  
**DESIGN AS A USE AREA**  
**USE AS A PROXIMITY SITE FEATURE**  
**ROOF EXTERIOR USE OVER WATER**  
**SPIN WATER WITH BUILDING**

### VEGETATION

VEGETATION REFERS TO THE PLANTS TREES SHRUBS GRASSES AND OTHER FORMS PRESENT IN A SITE. IT PLAYS A CRUCIAL ROLE IN ENVIRONMENTAL SUSTAINABILITY, EROSION CONTROL AND IMPROVING THE AESTHETICS OF LANDSCAPES. COMPONENTS ON SITE IN VEGETATION INCLUDE TREES, SHRUBS, GRASSES, CROPPERS & HERBS.

**IMPROVEMENTS:** IMPROVES AIR AND WATER QUALITY, PREVENTS EROSION AND INCREASES SOIL CAPACITY, PROVIDES SHADE, REDUCES HEAT ISLANDS AND ENHANCES COLOUR SCENES, LANDSCAPE BEAUTY AND PROPERTY VALUE, IMPROVES BIODIVERSITY BY PROVIDING FOOD AND SHELTER, IMPROVES SOIL QUALITY, PREVENTS EROSION IN SLOPED AREAS.

### HARDSCAPES

**WATER FEATURE:** THE WATER BODY IN THE HALLWAY ADDS BOTH AESTHETICS, ENHANCEMENT & COOLING EFFECT.

**PAVEMENT:** STRUCTURAL STABILITY - PREVENTS SOIL EROSION, VISUAL CONTRAST, LOW MAINTENANCE, WEATHER RESISTANCE.

**PERGOLA:** SERIES AND SHADERS OUTDOOR SPACE, ENHANCE FUNCTIONALITY, IT ACTS AS A TRANSITION ZONE.

### PRINCIPLES OF DESIGN

**BALANCE:** A MIX OF SYMMETRICAL & ASYMMETRICAL BALANCE IS USED.

**EMPHASIS:** JACARANDA TREE ACTS AS VISUAL FOCAL POINT & PERGOLA ALSO SERVES AS INTEREST POINTS.

**UNITY & HARMONY:** THE REPEITION OF TREES, SHRUBS & PAVEMENTS CREATES A COHESIVE LOOK.

**RYTHM & REPETITION:** THE REPEITION OF PALM TREES ESTABLISHES A RHYTHM.

**CONTRAST:** GREEN & RED TREE (JACARANDA & BOUTANAVILLA) PROVIDES THE MONOTONY, CREATING FOCAL POINT.

### SOFTSCAPES

**JACARANDA TREE:** ENHANCES VISUAL APPEAL, PROVIDES LIGHT SHADE, IMPROVES BIODIVERSITY & ADDS MOVEMENTS.

**BOUTANAVILLA:** ADDS INTENSE VISUAL IMPRESSION, REQUIRES LITTLE WATER ONCE ESTABLISHED.

**NEEM TREE:** PROVIDES DENSE SHADE, IMPROVES AIR QUALITY, SUPPORTS BIODIVERSITY, & SUSTAINABILITY.

**BAMBOO:** CREATES NATURAL PRIVACY SCREENS OR WINDBREAKERS, IS LOW-MAINTENANCE, ENHANCES ZEN.

### HARDSCAPING

IT'S AN ASPECT OF LANDSCAPING THAT INVOLVES STRUCTURAL AND FUNCTIONALITY TO OUTDOOR AREA.

**RETAINING WALLS:** A SOIL RETAINING WALL IS A DURABLE AND AESTHETICALLY PLEASING STRUCTURE. BUILDING USES NATURAL OR CUT STONES TO HOLD BACK SOIL AND PREVENTING EROSION. ITS COMMONLY USED IN LANDSCAPING AND SLOPED TERRAINS.

**GARDENS AND PERGOLAS:** PERFORMING STRUCTURES IN YOUR GARDENS. GARDENS USE GRASS AND PERGOLAS WHICH ARE PORTABILITY-SHEDDABLE AND THEY'RE OF WOODEN/STEEL. THEY COME IN A VARIETY OF SHAPES, SIZES, MATERIALS AND THEMES.

**FOUNTAINS:** A FOUNTAIN IS A DECORATIVE WATER FEATURE, COMMONLY USED IN GARDENS, PARKS, PLAZAS AND COURTS. IT ENHANCES THE AESTHETIC APPEAL OF A SPACE, PROVIDES A SENSING EXPERIENCE.

### TOPOGRAPHY

TOPOGRAPHY REFERS TO THE NATURAL AND ARTIFICIAL FEATURES OF THE LAND INCLUDING ELEVATION, SLOPE, GRADIENTS AND SHADINGS. CHARACTERISTICS IS A CRUCIAL ROLE IN SITE PLANNING, DRAINAGE DESIGN AND LANDSCAPING. KEY COMPONENTS INCLUDES: ELEVATION SURF, SLOPE, VALLEYS, DRAINAGE PATTERNS, LANDSCAPES, SOIL & VEGETATION.

### SITE BOUNDARIES

**SPRUE AS BUFFER:** BETWEEN BUILDING AND SITE GEMETRY.

**EXTERIOR USE AREA GEMETRY:** BETWEEN BUILDING AND BOUNDARIES.

**SPRUE AS BUFFER:** BETWEEN BUILDING AND SITE GEMETRY.

**EXTERIOR USE AREA GEMETRY:** BETWEEN BUILDING AND BOUNDARIES.

### HARDSCAPE PATTERNS

**SOFT:** LOW MAINTENANCE AND DIFFERENT COLOURS.

**SOUND:** WATER, GRASS, & SAND.

**SMELL:** FRESHNESS LIKE FLOWERS & HERBS.

**TEXTURE:** GRASS, STONE, WOOD, & PLANT TEXTURE.

**LOCAL MATERIALS:** STONE, WOOD, BRICK, CLAY, AND OTHERS.

**FUNCTIONALITY & SCALE:** THE SCALE OF MATERIALS SHOULD BE APPROPRIATE TO THE SITE'S FUNCTIONALITY.

**PERGOLA:** THE PERGOLA CAN BE USED AS A TRANSITION ZONE AND PROVIDES SHADE.

### SOFTSCAPES

**SOFTSCAPES:** THEY COME IN VARIOUS TYPES, INCLUDING TREES, SHRUBS, GRASSES, AND HERBS.

**FUNCTIONALITY & SCALE:** THE SCALE OF MATERIALS SHOULD BE APPROPRIATE TO THE SITE'S FUNCTIONALITY.

**PERGOLA:** THE PERGOLA CAN BE USED AS A TRANSITION ZONE AND PROVIDES SHADE.

### BALANCE & SYMMETRY

**BALANCE & SYMMETRY:** THE USE OF SYMMETRICAL AND ASYMMETRICAL BALANCE IS USED TO CREATE A HARMONIOUS AND VISUALLY PLEASING DESIGN.

**EMPHASIS:** THE USE OF EMPHASIS IS TO HIGHLIGHT SPECIFIC ELEMENTS IN THE DESIGN.

**UNITY & HARMONY:** THE REPEITION OF ELEMENTS CREATES A COHESIVE LOOK.

**RYTHM & REPETITION:** THE REPEITION OF ELEMENTS CREATES A RHYTHM.

**CONTRAST:** THE USE OF CONTRAST IS TO CREATE VISUAL INTEREST.

### SOFTSCAPES

**SOFTSCAPES:** THEY COME IN VARIOUS TYPES, INCLUDING TREES, SHRUBS, GRASSES, AND HERBS.

**FUNCTIONALITY & SCALE:** THE SCALE OF MATERIALS SHOULD BE APPROPRIATE TO THE SITE'S FUNCTIONALITY.

**PERGOLA:** THE PERGOLA CAN BE USED AS A TRANSITION ZONE AND PROVIDES SHADE.



# BACHELOR OF ARCHITECTURE

Undergraduate Program

# Bachelor of Architecture Undergraduate Program

Year

# 2

Architecture

## ARCHITECTURAL DESIGN & DETAILING PORTFOLIO

### COURSE OBJECTIVES:

This course would provide the basic knowledge of developing a detailed design program for Campus Building Design while incorporating the building norms and regulators as well as with a focus on Timber structures and Masonry. The design will undergo a thorough appraisal of the site and its context, identifying environmental, cultural, and other attributes that add value to the project. The design program will be formulated through the study and analysis of various user types and their activities within a small-scale institutional facility.

### PROJECT BRIEF:

This course intends to introduce and understands:

- Literature study
- Area programming
- Site analysis
- Concept and Form development
- Site and building level zoning
- Master plan
- Floor plan
- Elevations and Sections
- Views
- Landscape elements

**LITERATURE STUDY**

**LIBRARY**  
Example Layout (in square feet):  
- Reading and Study Area: 2,500  
- Shelving Area: 500  
- Circulation/Service Desks: 250  
- Computer Stations: 350  
- Meeting Rooms: 500  
- Restrooms: 500  
- Staff and Storage Areas: 350  
- Entrance and Lobby: 250  
Light & ventilation: Maximize the use of natural light through large windows and skylights. Use translucent shades to reduce glare.

**CAFETERIA**  
Example Layout (in square feet):  
Ground Floor:  
- Entrance and Waiting Area: 250 sq ft  
- Dining Area: 1,200 sq ft  
- Serving Area: 400 sq ft  
- Kitchen and Food Preparation Area: 400 sq ft  
- Restrooms: 400 sq ft (200 sq ft each)  
- Storage and Staff Room: 250 sq ft  
- Circulation Pathways: 600 sq ft  
Ventilation: Place vents strategically to avoid drafts in seating areas. Consider using operable windows for natural ventilation.

**MULTI-PURPOSE HALL**  
Example Layout (in square feet):  
Ground Floor:  
- Entrance and Lobby Area: 250 sq ft  
- Main Hall: 3,300 sq ft  
- Stage or Presentation Area: 250 sq ft  
- Storage Area: 200 sq ft  
- Restrooms: 400 sq ft (200 sq ft each)  
- Circulation Pathways: 300 sq ft  
Circulation  
- Pathways: Clear, wide pathways (minimum 48 inches) for easy movement.

**INDOOR GAMES FACILITY**  
Example Layout (in square feet):  
Ground Floor:  
- Entrance and Waiting Area: 250 sq ft  
- Dining Area: 1,200 sq ft  
- Serving Area: 400 sq ft  
- Kitchen and Food Preparation Area: 400 sq ft  
- Restrooms: 400 sq ft (200 sq ft each)  
- Storage and Staff Room: 250 sq ft  
- Circulation Pathways: 600 sq ft

**SPORTS FACILITY**  
Example Layout (in square feet):  
Ground Floor:  
- Entrance and Lobby Area: 300 sq ft  
- Main Sports Area: 3,500 sq ft  
- Fitness and Exercise Area: 600 sq ft  
- Locker Rooms and Restrooms: 1,000 sq ft  
- Storage Area: 300 sq ft  
- Circulation Pathways: 400 sq ft  
Artificial Lighting: Flexible lighting system with LED lights. Include spotlights for the stage or presentation area.

**GYMNASIUM**  
Example Layout (in square feet):  
Ground Floor:  
- Entrance and Waiting Area: 250 sq ft  
- Dining Area: 1,200 sq ft  
- Serving Area: 400 sq ft  
- Kitchen and Food Preparation Area: 400 sq ft  
- Restrooms: 400 sq ft (200 sq ft each)  
- Storage and Staff Room: 250 sq ft  
- Circulation Pathways: 600 sq ft  
Main Pathway: From entrance through the lobby to the main workout area.

**VIRTUAL REALITY ROOM**  
Example Layout (in square feet):  
Ground Floor:  
- Waiting and Preparation Area: 500 sq ft  
- Instruction and Briefing Area: 250 sq ft  
- Main VR Experience Area: 2,800 sq ft  
- Equipment Storage Area: 250 sq ft  
- Control Room: 150 sq ft  
- Circulation Pathways: 500 sq ft  
Natural Light: Minimize natural light to prevent glare on screens.  
Use blackout curtains or blinds if windows are present.

**Centre For Habitat Studies**  
Architect: Laurie Baker  
Location: Thiruvananthapuram, Kerala, India is a premier Social Science research institute. Through his practice, Baker became well known for designing and building low cost, high quality homes. This building has jali walls and masonry construction and a perforated brick screen which utilises natural air movement to cool the home's interior and create intricate patterns of light and shadow.  
Windows:  
The load bearing building have no footing and are built on a random rubble masonry. The doors shutters are made up timber. These are either of brick or rubble masonry raised above floor level & sun dried bricks used. The main feature of building is timber staircase.

**Auroville Visitor's Centre:**  
Architect: Suhansi Iyer  
Location: Auroville, India is institutional building for visitors to auroville. This building is a raw earth building with the modern technologies of stabilised earth. Compressed Stabilised earth blocks (CSEB) is used mainly in this building. Landscaping with Tropical Deciduous Evergreen Forest with the building. Proper use of building materials like ferro cement and CSEB and timber roofing.

**REMARKS:** NAME: ATTULURI YOGA SHRIYA  
REG. NO: 233701070  
SEM&SEC-3-B  
SUB-I-ADD DATE: 04-08-2024  
INSTITUTE-MSAP MAHE

**SHEET NO. 1**

## ARCHITECTURAL DESIGN & DETAILING PORTFOLIO

NAME	NO OF USERS	MAX AREA	FUNCTION	PLAN/LAYOUT	CASE / STUDIES
ACADEMIC CLASS ROOM WITH LAB	25H	25M <sup>2</sup>	LEARNING SPACES		5M X 5M = 25M <sup>2</sup> (7M X 6M)
CARPENTRY	25+1	235M <sup>2</sup>	CARPENTRY TEACHING		
ELECTRICAL	25+1	90M <sup>2</sup>	ELECTRICAL SKILLS		
WELDING	25+1	165M <sup>2</sup>	WELDING TECHNIQUES		
DIGITAL LITERACY	25+1	90M <sup>2</sup>	COMPUTER LABS		
APPAREL	25+1	90M <sup>2</sup>	CLOTHING WORKSHOPS		
JUTE / COCONUT FIBER PRODUCTS	25+1	90M <sup>2</sup>	JUTE STICHING		
STAFF ROOM	12	90M <sup>2</sup>	WORK AREA FOR STAFFS		
DIRECTOR'S ROOM	1	25M <sup>2</sup>	PRIVATE WORKSPACE		
NAME	NO OF USERS	MAX AREA	FUNCTION	PLAN/LAYOUT	CASE STUDIES
CONFERENCE HALL	20-25	40M <sup>2</sup>	MEETING PLACES		
STORAGE	2	15M <sup>2</sup>	STORE		
MANAGEMENT AREA	3	25M <sup>2</sup>	WORKSPACES		
INDOOR	15	60M <sup>2</sup>	SPORTS ACTIVITIES		25M <sup>2</sup> HALL & STUDENT
OUTDOOR			SPORTS ACTIVITIES		15M BEYOND STUDENT
MULTI-PURPOSE HALL	80	200M <sup>2</sup>	EVENTS		80M X 25M NEED
EXHIBITION SPACE	15	60M <sup>2</sup>	DISPLAY SPACE		
LIBRARY	60	150M <sup>2</sup>	STUDY ROOM		12.00 10.00 10.00 10.00 10.00
CAFETERIA - KITCHEN - DINING	50	50M <sup>2</sup> - 50M <sup>2</sup> - 180M <sup>2</sup>	SELF-SERVICE RESTAURANT		
NAME	NO OF USERS	MAX AREA	FUNCTION	PLAN/LAYOUT	CASE STUDIES
GUEST ACCOMMODATION	3	60M <sup>2</sup>	PLACE TO STAY		
DORMITORY MALE & FEMALE	10+10	120M <sup>2</sup>	STUDENTS PLACE		
DAYCARE	10	40M <sup>2</sup>	CARE FOR CHILDREN		
WASHROOM	3	40M <sup>2</sup>	FOR PERSONAL HYGIENE		
ADMIN OFFICE	3	25M <sup>2</sup> - 50M <sup>2</sup>	WORKSPACE		

TOTAL AREA = 2000M<sup>2</sup>  
 12% WALL = 240M<sup>2</sup>  
 19% CIRCULATION = 380M<sup>2</sup>  
 TOTAL AREA (INCL WALL & CIRCULATION) = 2540M<sup>2</sup>

# ARC 2101 ARCHITECTURAL DESIGN & DETAILING- III

## ARCHITECTURAL DESIGN & DETAILING PORTFOLIO

**LOCATION**  
GATE-14, TEMPLE, SITE

**SUN PATH**  
SUN PATH OF SITE FROM EAST TO WEST  
TO MAXIMIZE NATURAL LIGHT & REDUCE HEAT GAIN, CAN BE ORIENTED IN NORTH & SOUTH

**WIND DIRECTION**  
WIND DIRECTION DURING THE MONSOON SEASON (JUNE TO SEPTEMBER), WINDS PREDOMINANTLY COME FROM THE SOUTHWEST  
USE OF SHADING DEVICES ON EAST & WEST FACADE

**ORIENTATION**  
AS THE SOUTH-WEST DIRECTION IS VERY HARSH  
BETTER TO AVOID THE OPENINGS ON SW

**CLIMATE**  
TROPICAL MONSOON  
HIGHEST - 34-40°C LOWEST - 23-29°C  
HARSH SUN DURING 12 TO 3-4PM  
SOLAR PANELS  
THIS CAN BE INCORPORATED BY PASSIVE COOLING STRATEGIES TO HANDLE HIGH TEMP & HUMIDITY

**PRECIPITATION**  
SLOPING ROOF, GUTTER, CONDUIT, FILTER, MAINLINE  
RAIN WATER HARVESTING CAN BE INCLUDED AVG RAINFALL - 3500

**NOISE**  
MOST OF THE NOISE IS FROM CAMPUS, ROAD, TEMPLE

**VEGETATION**  
WHERE THERE IS HARSH SUNLIGHT IN SITE THE SHADE OF TREES CAN BE USED  
CANOPY OF TREES IS VERY HIGH THEY BLOCK THE AIR FLOW, CAN BE REPLANTED  
THE SITE IS 25M ABOVE SHARANA RIVER

**TOPOGRAPHY**  
RIVER, ROAD, SITE, SLOPE, RIVER

**HUMIDITY**  
OVER HANGS, SLOPING ROOFS, NORTH-WALL, SOIL, GREEN ROOFS  
HIGH HUMIDITY LEVELS - 80%  
ENSURE GOOD VENTILATION TO REDUCE INDOOR HUMIDITY LEVEL

**SOIL FOUNDATION TYPE**  
LATERITE SOIL, SHALLOW

**LEGEND**

	TAMARIND TREE
	JACKFRUIT TREE
	ASHOKA TREE
	ACACIA TREE
	VALM TREE
	PATHWAY
	DRAIN CHANNEL
	BORE WELL
	DRAINAGE
	SITE BOUNDARY

**AREA STATEMENT**  
MAXIMUM PLOT COVERAGE  
DEVELOPED AREA (50%) = 3884 M<sup>2</sup>  
MINIMUM ROAD WIDTH = 12 METERS  
HEIGHT LIMITATION = G+2 FLOORS  
PLOT AREA = 7768 M<sup>2</sup>  
FLOOR AREA RATIO = 2.5

**ENTRY & EXIT**  
AS THERE ARE ACCESS FROM THE MAIN ROAD WE CAN PROVIDE ALTERNATING ENTRY POINTS FOR BETTER CIRCULATION AND VEHICULAR MOVEMENT

**WATER/ DRAINAGE**  
RAINWATER HARVESTING CAN BE INCLUDED IN THE SITE FOR POTABLE WATER  
THERE ARE DRAINAGES AROUND THE NORTH SIDE OF THE SITE

**POWER/ ELECTRICITY**  
AS THE ELECTRICITY LINE PASSES THROUGH THE SITE THERE IS NO USE OF EXTERNAL LINE  
THERE IS A TRANSFORMER JUST OUTSIDE THE WEST SIDE

**PLAN**  
SCALE 1:1500  
TOTAL AREA = 7768 SQM = 1.91 ACRES

**SECTION XX'**  
SECTION YY'

**CIRCULATION**  
VEHICULAR PUBLIC  
AS WE HAVE 6M DRIVEWAY THE VEHICULAR MOVEMENT IS EASY

**STRENGTHS**  
EASY VEHICULAR ACCESS FOR CENTRE  
EASY UTILITY ACCESS  
NO HIGHRISE BUILDING

**WEAKNESS**  
HEAVY RAINFALL  
MANY ELECTRIC POLES - EVEN - 5124  
ONLY ONE ACCESS ROAD

**OPPORTUNITIES**  
ABUNDANT VEGETATION  
SOLAR PANELS

**THREATS**  
VEGETATION CAN AFFECT FOUNDATION  
SUNPATH EFFECT ORIENTATION

**SETBACKS**  
FRONT - 10M  
REAR - 5M  
LEFT - 5M  
RIGHT - 5M  
DEVELOPED AREA

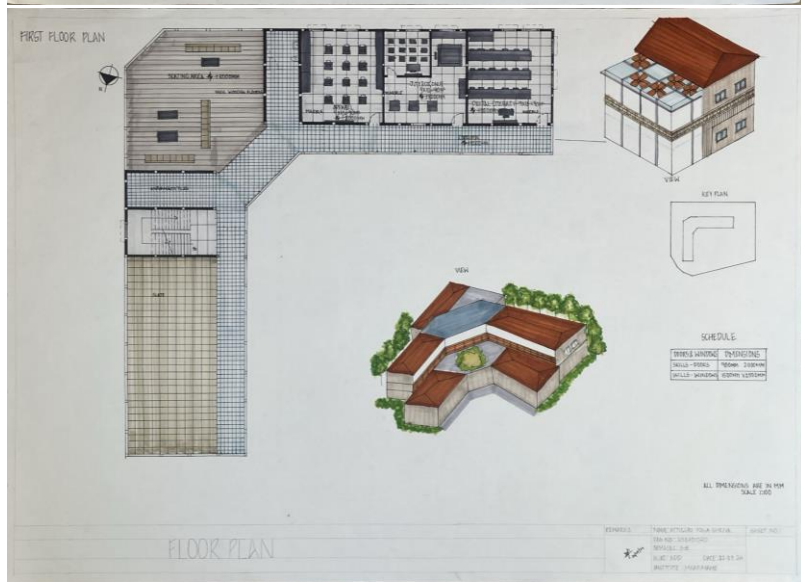
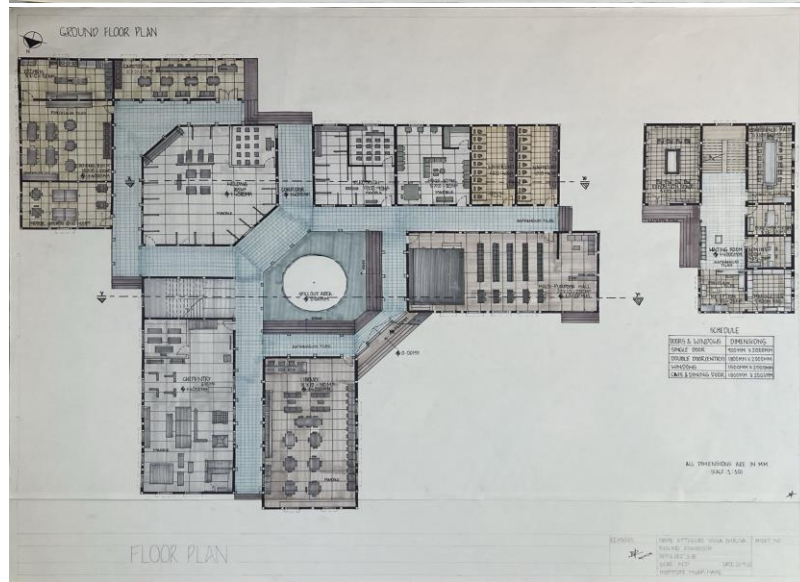
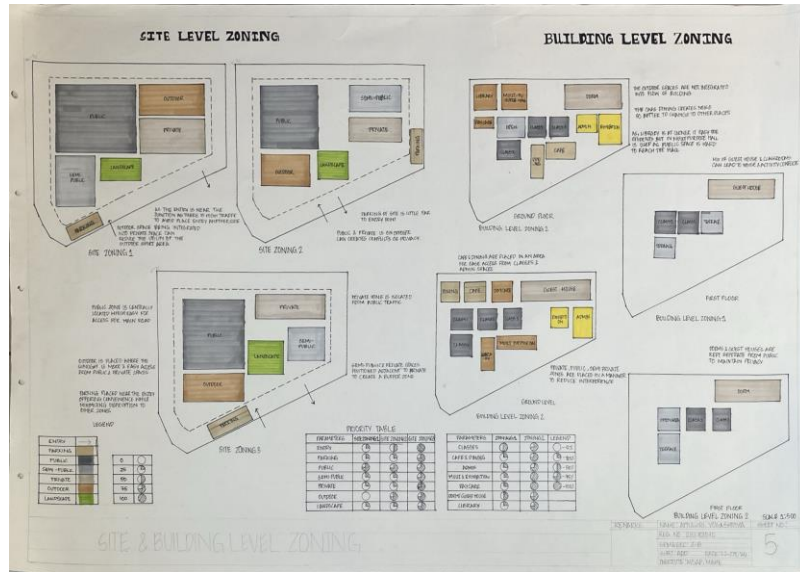
**IMMEDIATE SURROUNDINGS**  
MPUC, RESIDENCES, MUSEUM, VENU GOPAL TEMPLE, MIT STADIUM, MANSAL LAKE, CHURCH, RESIDENCES

**VEWS & VISTAS**  
TO MAINTAIN PRIVACY & VIEW PROVIDE WINDOWS ON WEST & EAST



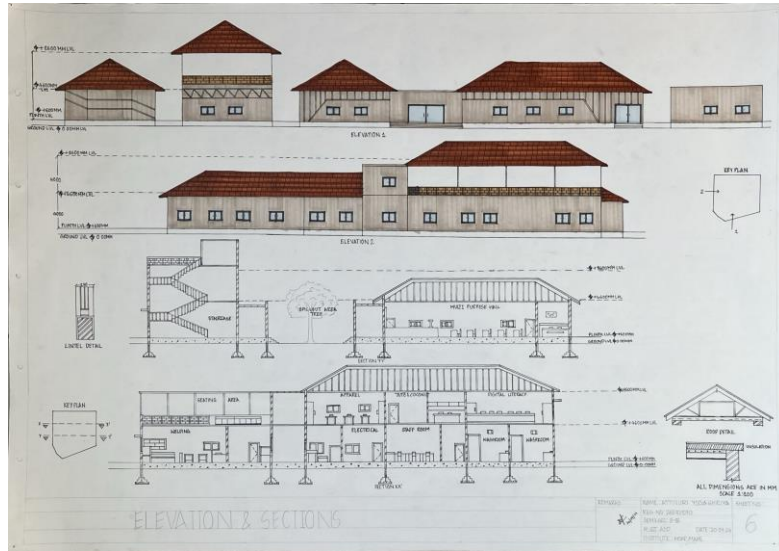
# ARC 2101 ARCHITECTURAL DESIGN & DETAILING- III

## ARCHITECTURAL DESIGN & DETAILING PORTFOLIO



# ARC 2101 ARCHITECTURAL DESIGN & DETAILING- III

## ARCHITECTURAL DESIGN & DETAILING PORTFOLIO

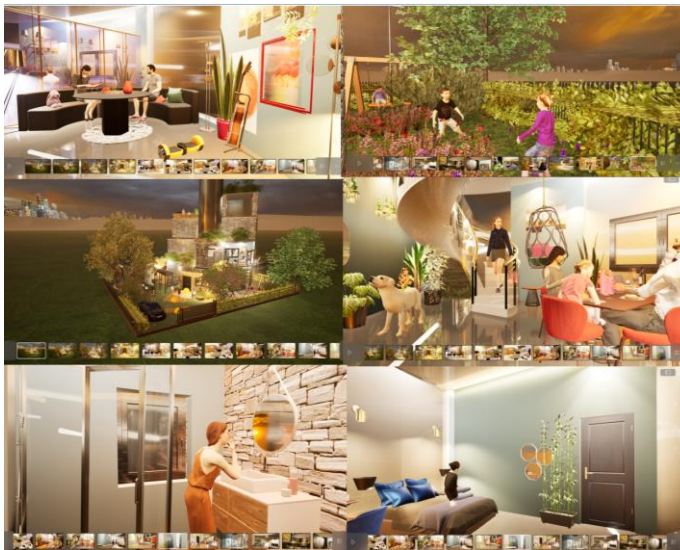


## COURSE OBJECTIVES:

This course enables to build digital 3D models and produce rendered images by utilizing various commands and tools. Create Building Information Modeling (BIM) models, develop basic animations, and design foundational parametric Revit families for BIM applications. Create virtual walkthroughs and experience architectural designs in VR, enhancing their ability to visualize and present architectural concepts interactively.

## PROJECT BRIEF:

This course aims to introduce and teach techniques for creating and presenting digital 3D models using a variety of software tools.



1 CURTAIN WALL ( BEDROOM )



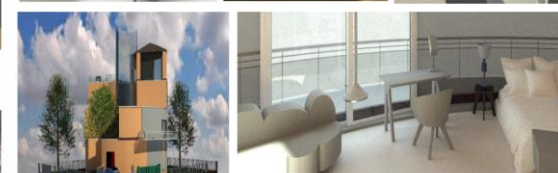
2 CURTAIN WALL ( LIVING / DINING )

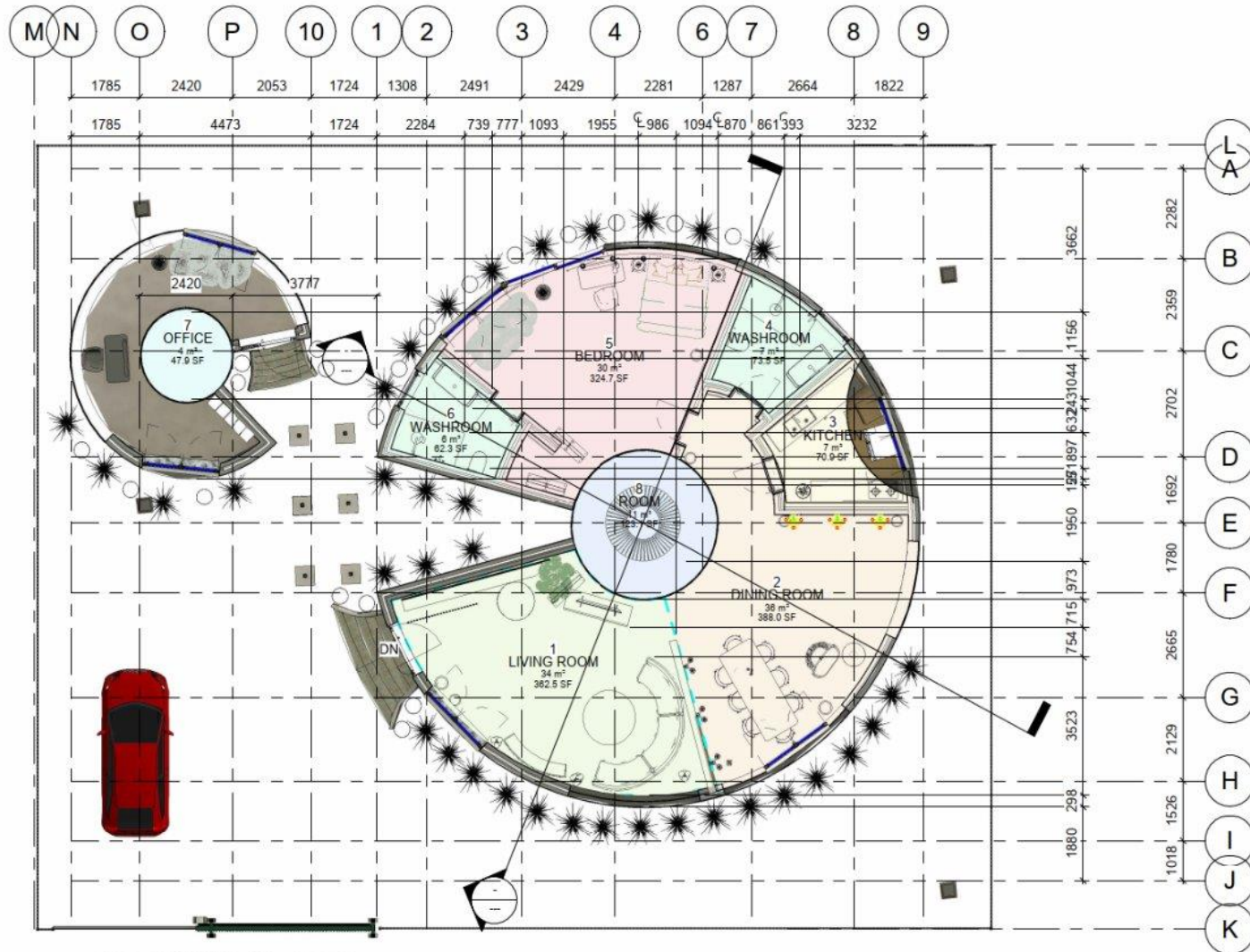


3 MAIN WALL

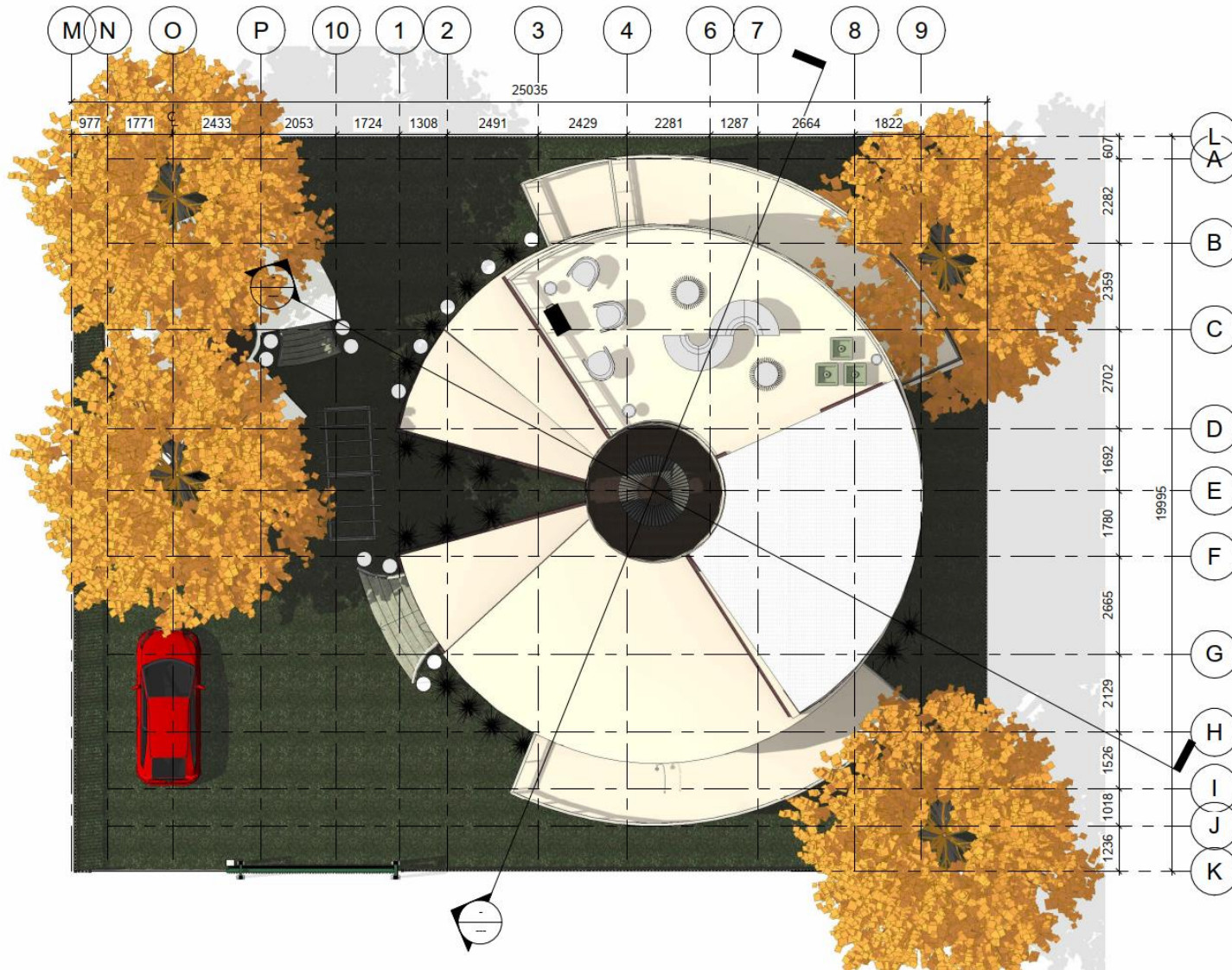


4 CURTAIN WALL EXTERIOR STAIRS





**1** GROUND FLOOR  
1 : 100





1 South  
1 : 100



**1 Section 2**  
1 : 100

# ARC 2103 ARCHITECTURAL REPRESENTATION- III

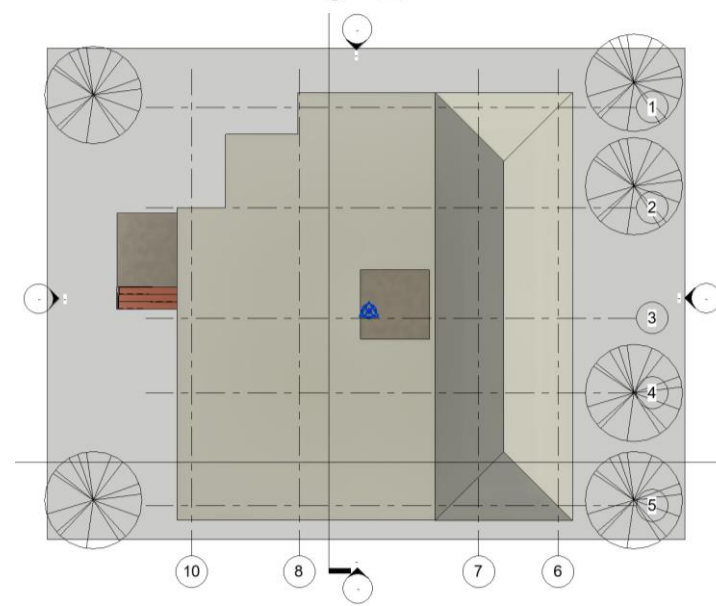
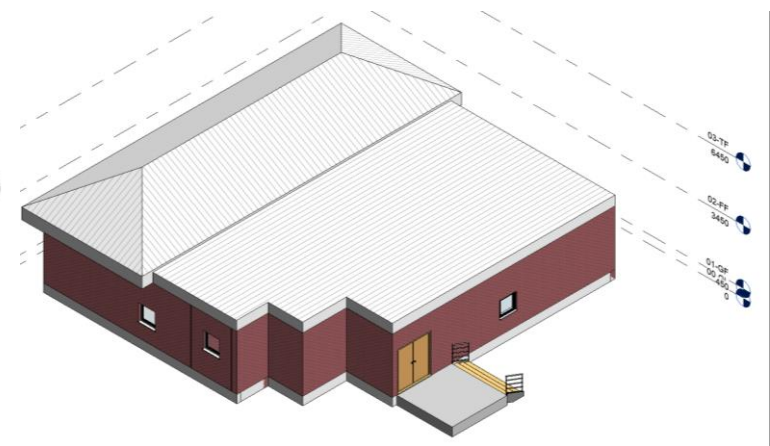
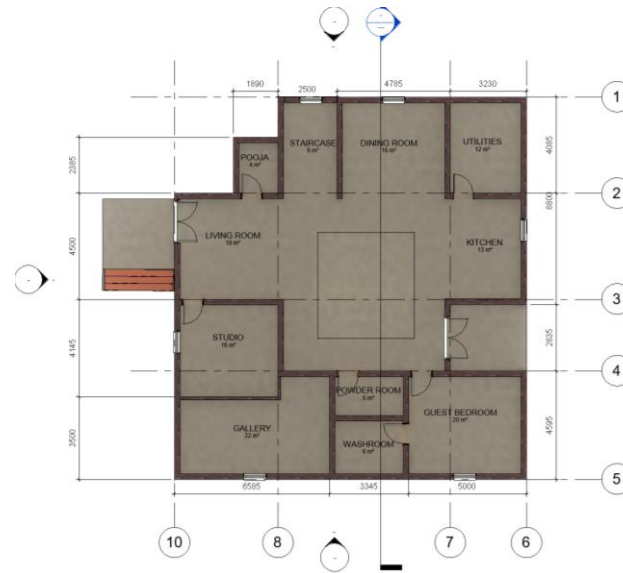
## PORTFOLIO

### COURSE OBJECTIVES:

The content primarily focuses on architectural representation using Building Information Modeling (BIM). It includes plans, elevations, sections, and views for various assignments related to interior design and along with rendered images and walkthroughs created in software like Twin motion and Revit.

### PROJECT BRIEF:

- Developing site plans, floor plans, elevations, and sections for various architectural projects.
- Producing rendered images and walkthroughs using BIM tools.
- Creating structural details, such as beam, column, and footing plans.
- Implementing parametric designs for furniture, such as chairs and tables.



## PORTFOLIO



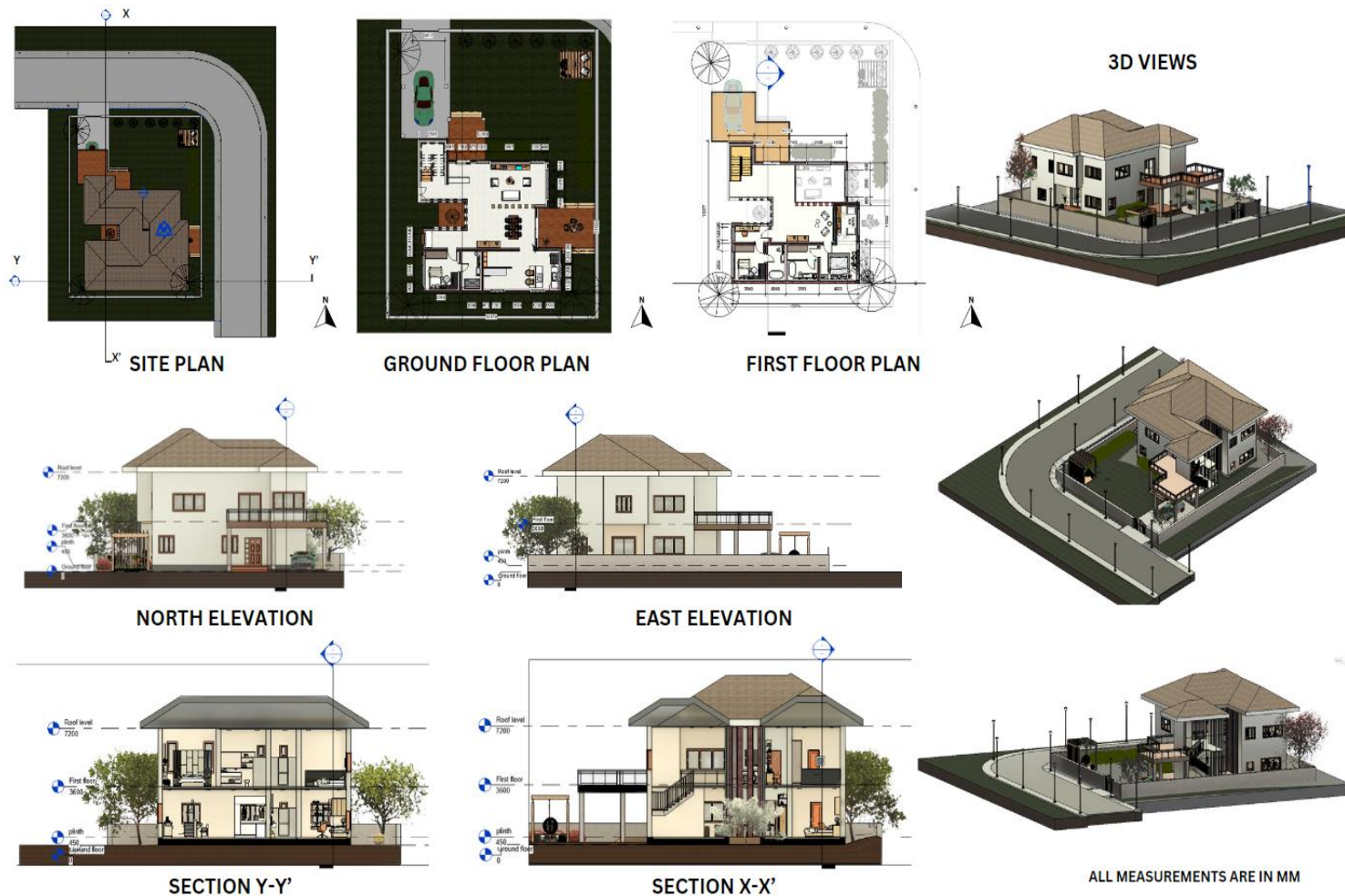
## BIM

### COURSE OBJECTIVES:

Students will learn the fundamentals of 3D Modelling, Animation, and BIM (Building Information Modelling), along with an introduction to Virtual Reality.

### PROJECT BRIEF:

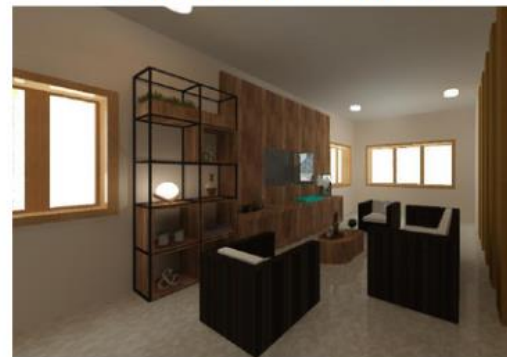
This course intends to introduce and understand how to Build digital 3d models and develop rendered images , Make use of different commands and features to build a BIM model, Develop simple animations , Build basic parametric Revit Families for BIM Model ,Build virtual walkthrough and experience architectural designs in Virtual Reality.



BIM



**EXTERIOR RENDERED VIEWS**



**INTERIOR RENDERED VIEWS**

BIM



TWINMOTION PRESENTATION MODE SNAPSHOTS

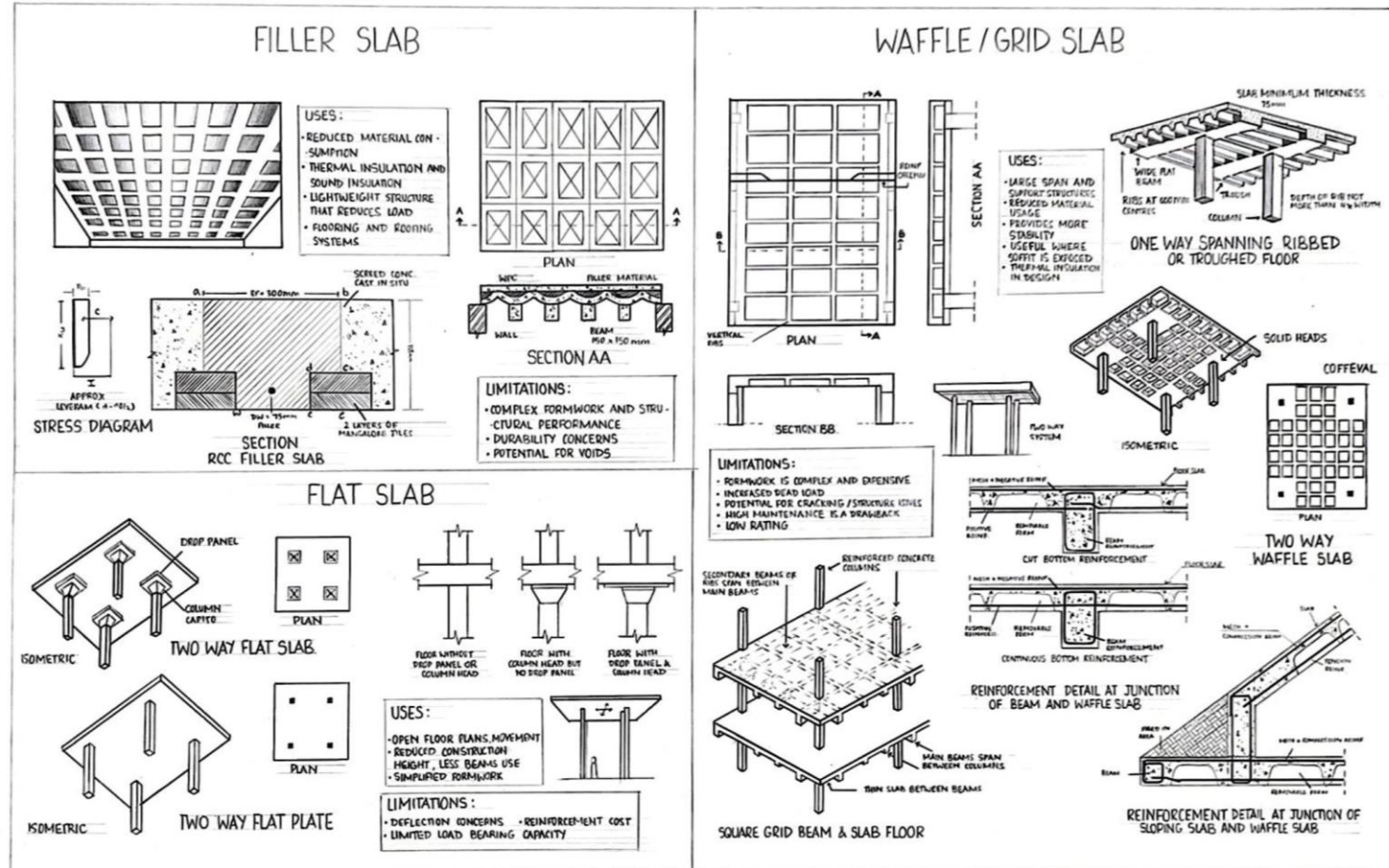
## REINFORCED CEMENT CONCRETE

### COURSE OBJECTIVES:

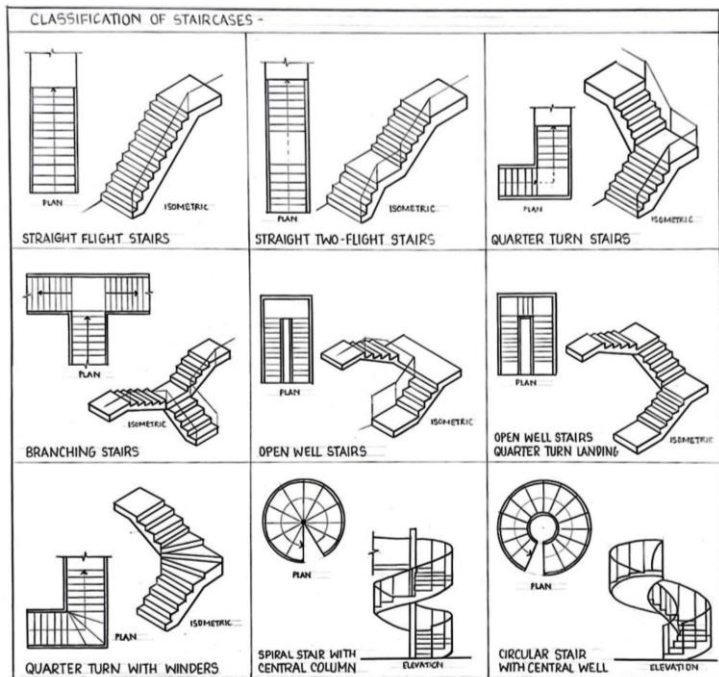
To demonstrate the understanding of the basics of RCC, its types, compositions & properties. To identify the use of RCC as a building material. To demonstrate the understanding of methods of different RCC construction, their uses, & limitations. To choose several building components practicable to be built with RCC. To utilize the knowledge of RCC as a building material in architectural design.

### PROJECT BRIEF:

This course would provide knowledge & essential skills required for representing RCC structural elements. This course will equip students to develop the ability to understand concept of RCC. The course will also prepare students with requisite knowledge related to RCC as building material which will be helpful in selecting and understanding application of this material in architectural design.



## REINFORCED CEMENT CONCRETE



## EVOLUTION OF RCC

**SALGINATOFFEL BRIDGE - 1930**  
THE SLENDER DESIGN POSITIVELY LEANS ACROSS THE SPAN USING NATURAL TOPOGRAPHY AS SUPPORT. RCC MINIMIZES THE NEED OF SUB-STRUCTURES WHICH PROVIDES SEAMLESS DESIGN.

**THE SHANGHAI TOWERS - 2015 (CHINA)**  
THIS 125 STOREY SILHOUETTE USES RCC AS ITS FRAME. IT ALLOWS INNOVATIVE SPINNING DESIGN THAT Merges WIND LOADS AND THE TWISTING FORM. MOST SKYSCRAPERS FOLLOW THIS USE.

**LINCOLN'S INN FIELDS - 1886**  
TOSATI MONIER FOUND THAT TENSILE WEAKNESS OF CONCRETE COULD BE SOLVED BY EMBEDDING STEEL RODS IN IT. THIS WAS THE 1st EXPERIMENTATION.

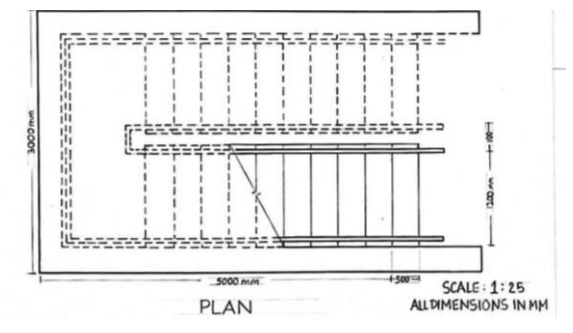
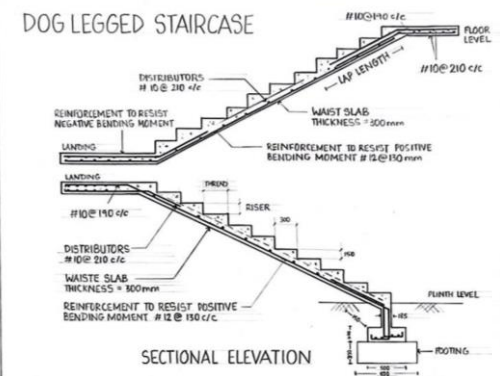
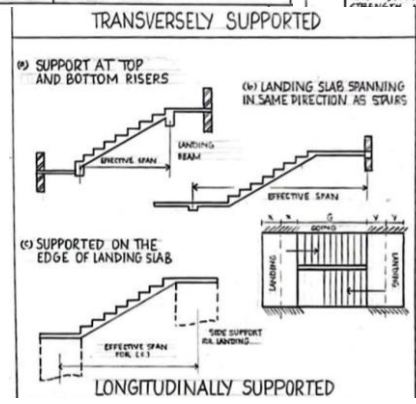
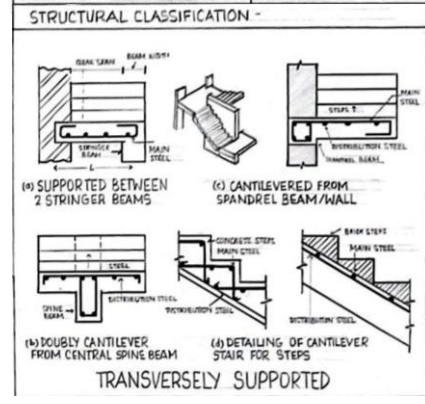
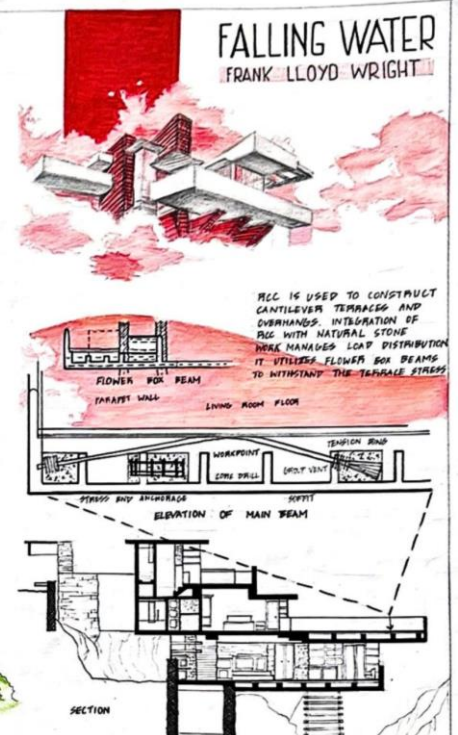
**THE POMPIDOU CENTRE - 1977**  
THE RCC STRUCTURE ALLOWS OPEN INTERIOR FREE OF SUPPORTS. THE ELEVATED LEVELS AND EXTERNAL PIPES SHOWS THE INDUSTRIAL LOOK.

**UNESCO HEADQUARTERS - 1958**  
CLEANLINES AND OPEN SPACES WERE ACHIEVED BY RCC'S DURABILITY AND LONGEVITY THAT WORKS AS STRONG STRUCTURE IN THIS DESIGN.

**SIDNEY OPERA HOUSE - 1973 (AUSTRALIA)**  
RCC WAS EXTENSIVELY USED IN THE COMPLEX CURVED SHELVES AND SUPPORTS BY PROVIDING FLEXIBILITY TO

**COMPARATIVE STUDY**

PROPERTIES	RCC	BRICK	WOOD	STONE
STRENGTH	●●●●	●●●●	●●●●	●●●●
DURABILITY	●●●●	●●●●	●●●●	●●●●
THERMAL INSULATION	●●●●	●●●●	●●●●	●●●●
WOST	●●●●	●●●●	●●●●	●●●●



# ARC 2109 BUILDING CONSTRUCTION & MATERIALS- III

## BUILDING CONSTRUCTION & MATERIALS PORTFOLIO

### COURSE OBJECTIVES:

This course aims to study with a comprehensive understanding the detailing and study the RCC components.

### PROJECT BRIEF:

This course intends to introduce and understand RCC components:

Evolution of RCC:

History: Development from ancient civilizations to modern RCC.

Foundation:

Types: Shallow (spread, mat) and deep (pile, caisson) foundations.

Columns:

1. Types: Reinforced, prestressed, and composite columns.

2. Design: Load calculation, column sizing, and reinforcement detailing.

Beams:

1. Types: Simply supported, cantilever, and continuous beams.

2. Design: Load calculation, beam sizing, and reinforcement detailing.

Slabs:

1. Types: One-way, two-way, and flat slabs.

2. Design: Load calculation, slab thickness, and reinforcement detailing.

Staircase:

1. Types: Straight, dog-legged, and spiral staircases.

2. Design: Rise, tread, landing, and handrail design.

Miscellaneous Structures:

1. Retaining walls  
2. Water tanks.

### EVOLUTION OF RCC

**3000 BC**: Start with agglomerated lime-based concrete.

**300-500 AD**: Roman concrete's durability came from volcanic ash and lime clasts.

**1830**: Portlands hydraulic lime and led to the development of modern concrete.

**1849**: Reinforced concrete was invented by Joseph Monier.

**1893**: High strength concrete used in the central tower of the Eiffel Tower.

**1936**: First tower concrete frame built, modern era.

**2004**: Tallest man-made structure, Taipei 101, built in Hong Kong and is a great work.

PROPERTIES	RCC	BRICK	TIMBER	STONE
STRENGTH	●	●	●	●
DURABILITY	●	●	●	●
THERMAL INSULATION	●	●	●	●
FIRE RESISTANCE	●	●	●	●
COST	●	●	●	●
MAINTENANCE	●	●	●	●

REMARKS: NAME: ABHIRAM, K. SANTHOSH. SHEET NO: 1  
REG. NO: ZSP02001282010  
SEM: II, SEC: SP  
SUBJ: BCCP - I DATE: INSTITUTE: MSRAP, MAHE

### SHALLOW & DEEP FOUNDATION

SHALLOW FOUNDATION: SPREAD BEAMS, MAT FOUNDATION, PILE FOUNDATION.

DEEP FOUNDATION: PILE, CAISSON.

DETAILS OF RCC COLUMN: SQUARE SECTION, RECTANGULAR SECTION, CIRCULAR SECTION, T-SECTION, Y-TYPE COLUMN, TWIN TUBES.

REMARKS: NAME: ATTULURI YOGA SHRIYA. SHEET NO: 2  
REG. NO: ZSP02001282010  
SEM: II, SEC: SP  
SUBJ: BCCP - I DATE: INSTITUTE: MSRAP, MAHE

### LAB REPORT

#### COMPONENTS OF CONCRETE

AGGREGATE (60-75%), AIR (1-3%), CEMENT (10-15%), WATER (18-22%).

#### TESTS

**SLUMP TEST**: OBJECTIVE: DETERMINING THE COMPRESSIVE STRENGTH AND RELATED MECHANICAL PROPERTIES OF CONCRETE BY APPLIED CONTROLLED COMPRESSIVE LOAD.

**COMPRESSION TESTING MACHINE**: OBJECTIVE: DETERMINING THE COMPRESSIVE STRENGTH AND RELATED MECHANICAL PROPERTIES OF CONCRETE BY APPLIED CONTROLLED COMPRESSIVE LOAD.

**VEE-BEE CONSISTOMETER**: OBJECTIVE: DETERMINING THE WORKABILITY OF FRESH CONCRETE BY MEASURING THE TIME REQUIRED TO SLUMP INTO A CYLINDRICAL SHAPE UNDER VIBRATION.

**GRIEVE SHAKER**: OBJECTIVE: DETERMINING THE WORKABILITY OF FRESH CONCRETE BY MEASURING THE TIME REQUIRED TO SLUMP INTO A CYLINDRICAL SHAPE UNDER VIBRATION.

**ACCELERATED CARBONATION CHAMBER**: OBJECTIVE: TO SIMULATE AND ACCELERATE THE CARBONATION IN CONCRETE, ALLOWING FOR ASSESSMENT OF THE CONCRETE'S DURABILITY AND RESISTANCE TO CARBONATION.

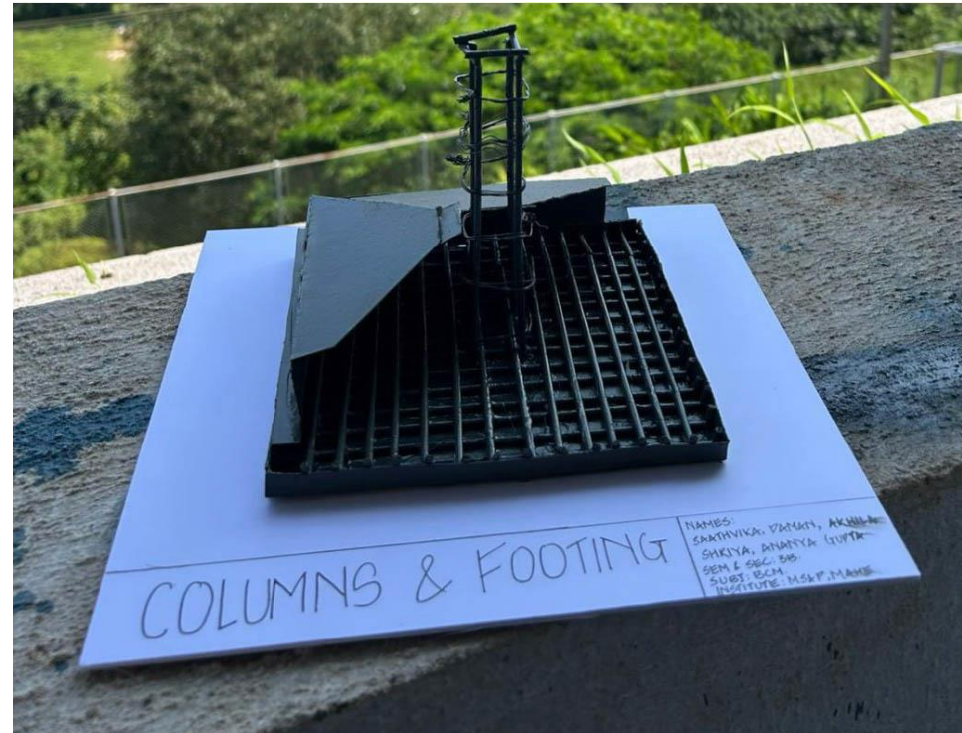
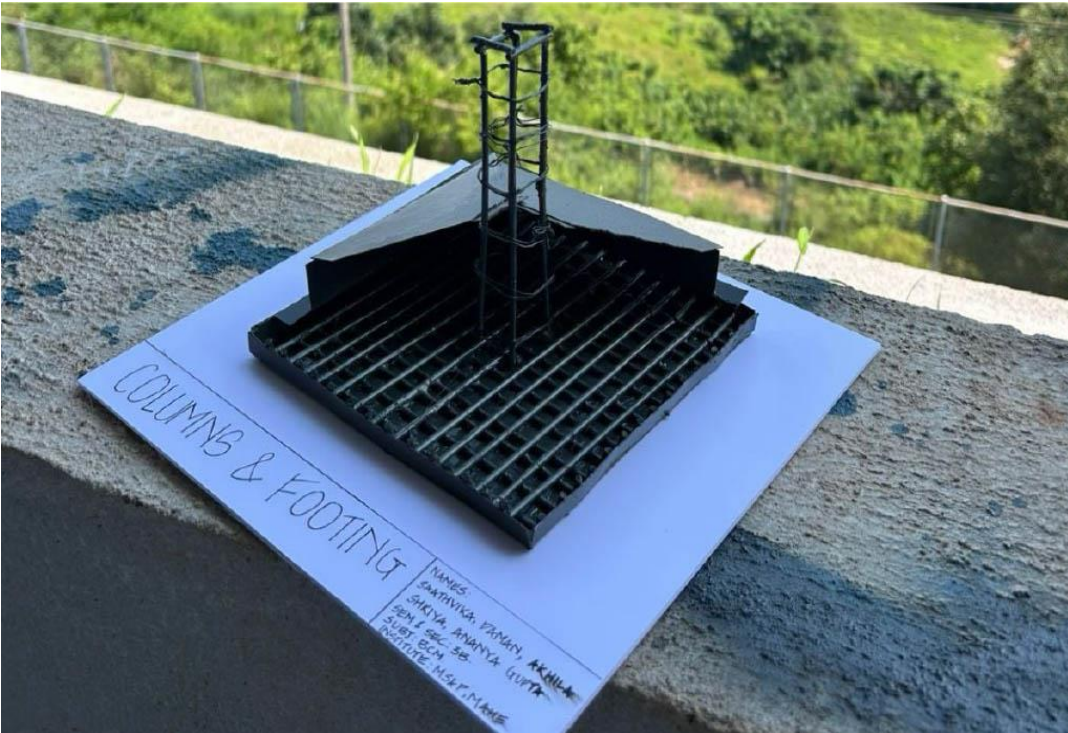
**LOADING FRAME**: OBJECTIVE: TO APPLY UNIFORM LOADS TO TEST MECHANICAL PROPERTIES OF CONCRETE UNDER VARIOUS LOADING CONDITIONS.

**CONCRETE PERMEABILITY TEST**: SPECIFICATION IS ADVISED BASED ON NATURE OF MATERIAL. ADVISORY: ADVISE A LAB COMPETITION-DEPT. SAMPLES OF 10 CM DIA. PERMEATION OF WATER.

REMARKS: NAME: SAATHI ANNA, SHRITHA A. SHEET NO: 3  
REG. NO: ZSP02001282010  
SEM: II, SEC: SP  
SUBJ: BCCP - I DATE: 22/11/24  
INSTITUTE: MSRAP, MAHE

### DETAILS OF RCC COLUMN

REMARKS: NAME: ATTULURI YOGA SHRIYA. SHEET NO: 3  
REG. NO: ZSP02001282010  
SEM: II, SEC: SP  
SUBJ: BCCP - I DATE: 22/11/24  
INSTITUTE: MSRAP, MAHE



# ARC 2109 BUILDING SERVICES - I

## BUILDING SERVICES PORTFOLIO

### COURSE OBJECTIVES:

This course aims to study with a comprehensive understanding of water distribution systems, covering both macro and micro levels of planning. It emphasizes the importance of proper drainage and sanitation facilities.

### PROJECT BRIEF:

This course intends to introduce and understand Water Supply:

1. Fundamentals: Water sources, treatment, storage, and distribution.
2. Components: Pipes, pumps, valves, meters, and fittings.
3. Networking: Pipe layouts, sizing, and materials.

Sanitation:

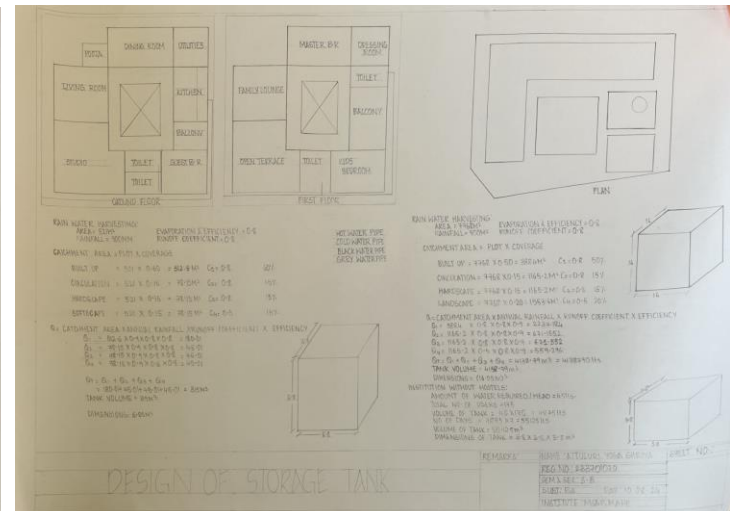
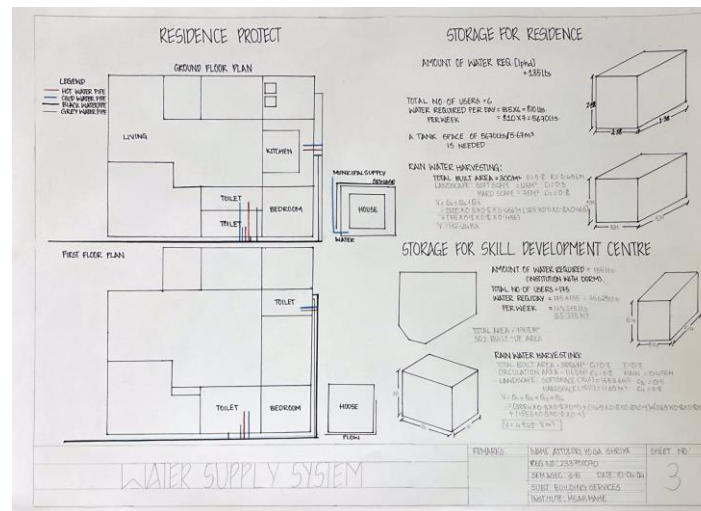
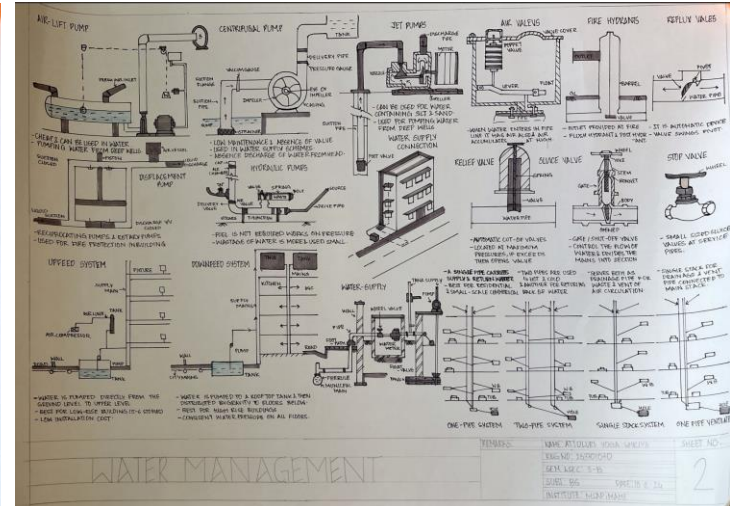
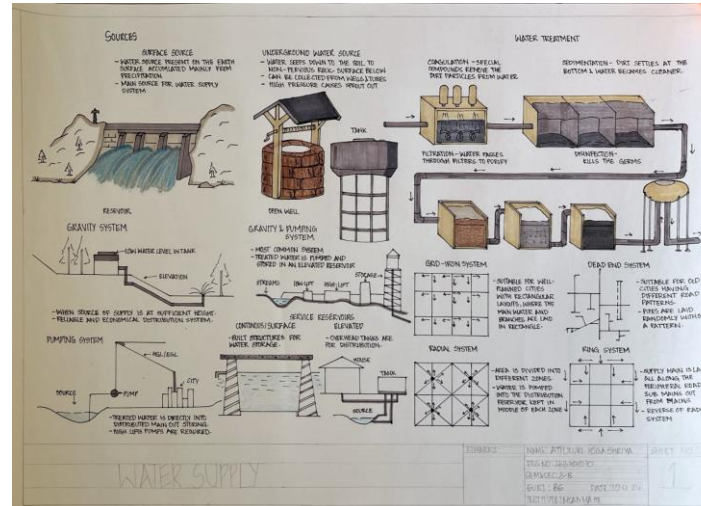
1. Principles: Hygiene, sewage collection, treatment, and disposal.
2. Systems: Sewerage networks, sewage treatment plants, and septic systems.

Water Drainage System:

1. Design: Gravity-driven, slope, and pipe sizing.
2. Components: Gutters, downspouts, drains, and manholes.
3. Types: Surface, subsurface, and combined drainage.

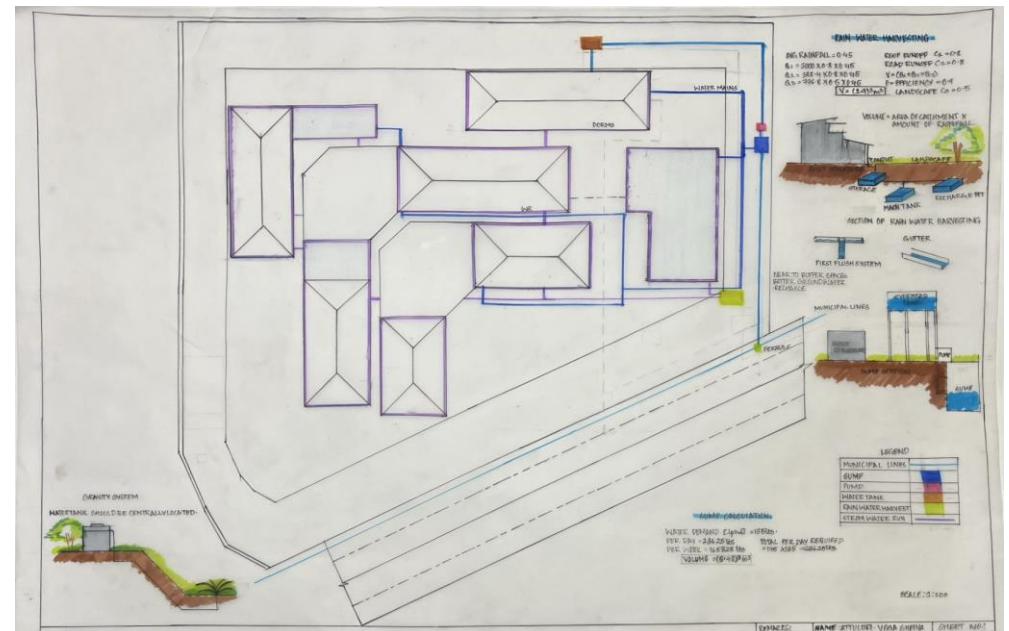
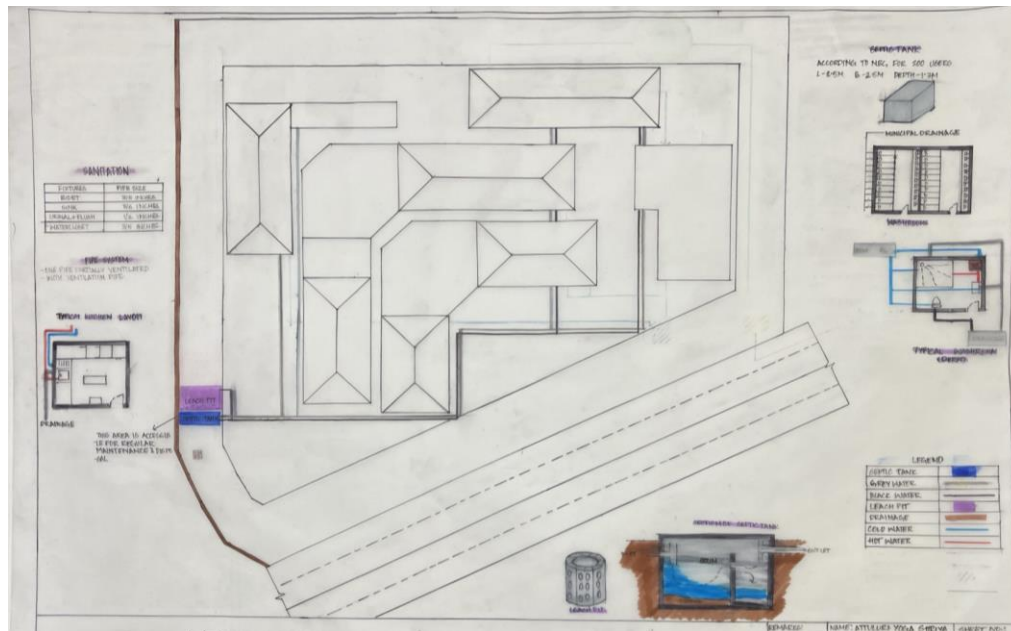
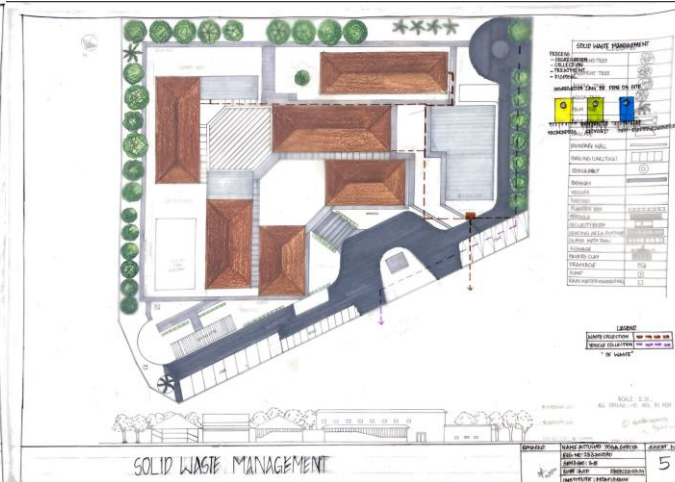
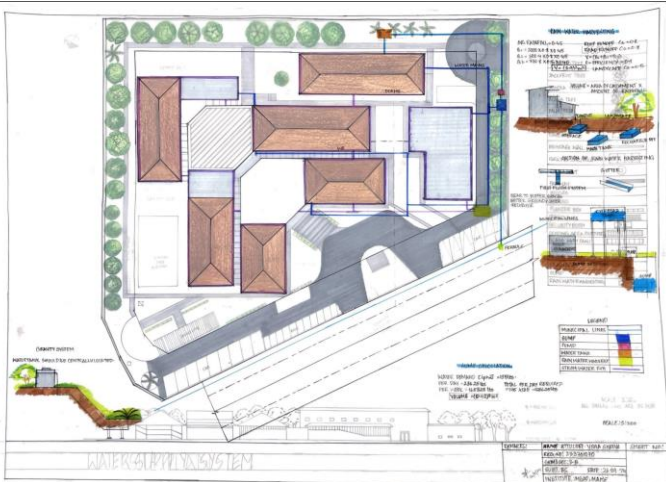
Solid Waste Management

1. Collection: Types (door-to-door, community bins), frequency, and vehicles.
2. Transportation: Routes, storage, and transfer stations.
3. Disposal: Landfills, incineration, recycling, and composting.



# ARC 2109 BUILDING SERVICES - I

## BUILDING SERVICES PORTFOLIO



## COURSE OBJECTIVES:

To study and analyse the evolution, general settlement pattern, geographic and climatic influence, socio-political background, construction technology, material influence and design principles of the cities and its built form.

## PROJECT BRIEF:

Objective: To understand and appreciate native plant/tree species; Site: In & around MSAP campus

- To select a minimum of five different native plant/tree species for study.
- To diversify the selection by including a variety of plant species, such as trees, shrubs, and floral plants.
- To provide a detailed description of the plant, such as a tree, shrub, or herb, and explain its growth patterns, size, shape, etc.
- To specify the plant's practical applications, including medicinal, culinary, cultural or historical significance, and landscaping purposes, and show where it can be used in an architectural project.

**Brahmi**  
Creeping herb with succulent herbs and white flowers. Used in ayurvedic medicine and stress reducing treatments. Used for green roofs & retaining walls as has high coverage.

**Arjuna**  
Large deciduous tree with conical crown. Arjuna tree has a mythological significance and is used for cardiovascular health. Planted in parks for shade. Its wood is used for furniture and as timber for construction.

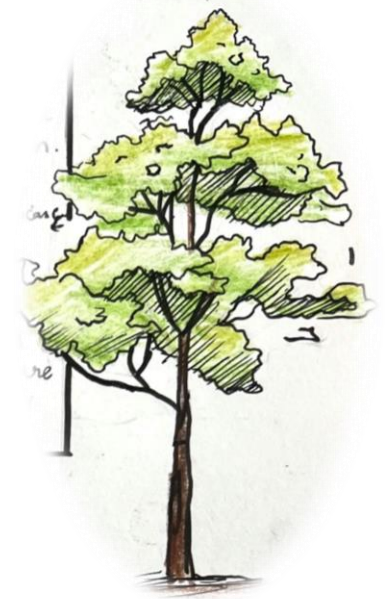
**Sandalwood**  
medium sized evergreen tree. Has skin healing properties and is also used in traditional cooking. Used for its aromatic and ornamental value good for high end furniture in gardens.

**Moringa**  
fast growing, drought resistant tree. moringa leaves used as medicine and its pods are used in cooking. Planted as multipurpose tree in the agroforestry systems and gardens for white flowers.

**Neela kurinji**  
This flowering plant native to Western ghats blooms once every 12 years covering a purple carpet. Used in decorative parks and flower gardens in public tourist areas.

Planted in parks for shade. Its wood is used for furniture and as timber for construction.

**Sandalwood**



## COURSE OBJECTIVES:

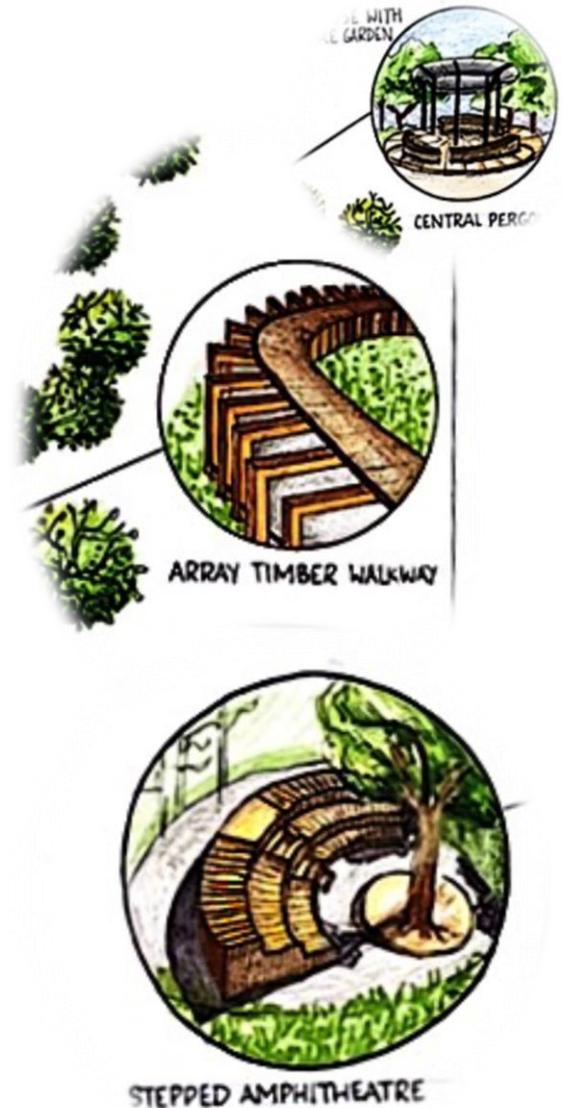
To study and analyse the evolution, general settlement pattern, geographic and climatic influence, socio-political background, construction technology, material influence and design principles of the cities and its built form.

## PROJECT BRIEF:

In this assignment, students will create a comprehensive site plan for ADD III, incorporating the principles and elements of landscape design. They will propose softscape and hardscape elements that enhance the site's functionality and aesthetics.

Additionally, students will consider relevant site services, such as irrigation and lighting systems, and integrate renewable energy systems to promote sustainability. The site plan should reflect an understanding of landscape design principles and demonstrate the ability to create a cohesive, environmentally conscious outdoor environment for ADD III. The final submission will include a detailed site plan, explanations for design choices, and a focus on sustainable development

practices.



# ARC 2111 LANDSCAPE & LAB (EXTERIOR)

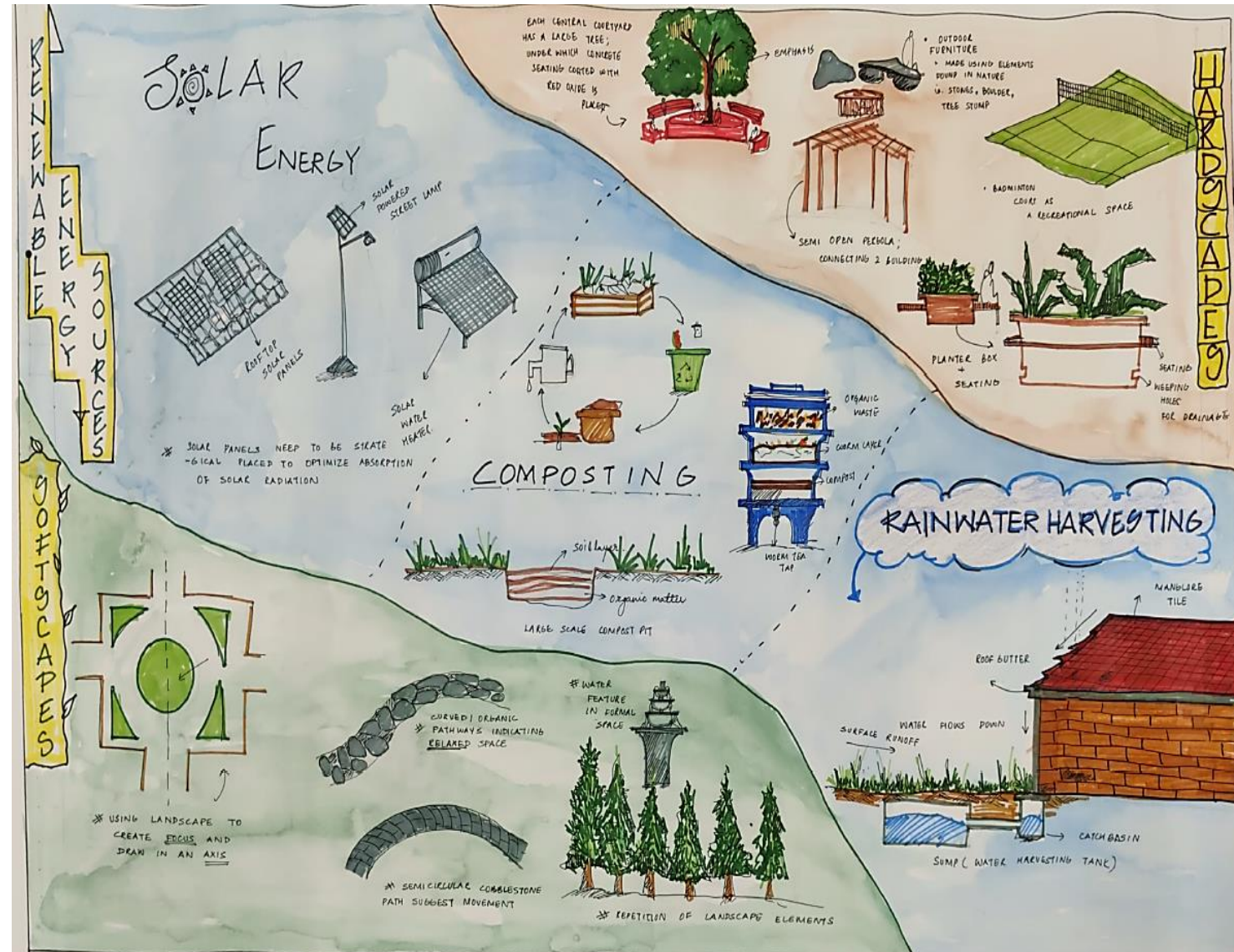
## ANCIENT CIVILIZATIONS

### COURSE OBJECTIVES:

The course aims to study and analyze the evolution, general settlement pattern, geographic and climatic influence, socio political background, construction technology, material influence, design principles of the city and its built form

### PROJECT BRIEF:

This course intends to introduce and understand concepts of landscape design and help the student apply them in their own design through proper representation techniques



# ARC 2111 LANDSCAPE AND LAB (EXTERIOR)

## COMPREHENSIVE LANDSCAPE DEVELOPMENT PLAN



# ARC 2101 ARCHITECTURAL DESIGN & DETAILING - IV

## RESORT DESIGN

### COURSE OBJECTIVES:

Demonstrating potential of alternative building construction techniques, identifying issues and concerns about context, developing design through analysis, formulate forms and structures of built forms and spaces through exploration of design strategies and materials, site and climate conditions while abiding by the rules, norms and regulations.

### PROJECT BRIEF:

The project at ELLORA, envisions a heritage-inspired resort near Ellora caves, a UNESCO world heritage site. The design integrates cultural, architectural and environmental considerations to enhance tourist experience while preserving the sanctity of historic surroundings



### GOONJ — echoes from the past

HERITAGE RESORT NEAR ELLORA CAVES, AURANGABAD

THE DESIGN INCORPORATES ARCHITECTURAL FEATURES FROM THE MAJOR HISTORIC TIMELINE OF AURANGABAD

#### SPATIAL PLANNING

SPACES ARRANGED AROUND A CENTRAL FOCAL POINT

POOL & WATER BODY ACT AS CENTRAL FOCAL POINT ALSO AIDS IN EVAPORATIVE COOLING

STAGGERED LAYOUT AIDS IN CROSS VENTILATION AND ENHANCES SHADE FROM SUN

PLANTERS ON SILL & BALCONY ENHANCE SHADING AND PROVIDE BETTER COMFORT

#### FORM DEVELOPMENT

STANDARD ROOM INSPIRED BY BUDDHIST ROCK CUT ARCHITECTURE

VILLA DESIGN INSPIRED BY INDO SARACENIC ARCHITECTURE

DELUXE & SUITE ROOM SYMBOLIZE HINDU ROCK CUT CAVE AT ELLORA

#### LANDSCAPE ELEMENTS

SEMI COVERED PATHWAYS

ARCHES SIMILAR TO THE HISTORIC LANDMARK IN CONTEXT USED ACROSS THE DESIGN

USE OF SCULPTURES IN LANDSCAPE TO SYMBOLIZE CONCEPT

#### MATERIALS

- BRICK JAALI
- BRICK JAALI
- BASALT STONE WALL
- ACC. BLOCK FOR WALLS
- BAMBOOD USED IN ROOFING

#### DESIGN ELEMENTS

USE OF BALUSTERS

REPRITION OF COLUMN COMMON ELEMENT IN ALL 3 TYPES OF ARCHITECTURE

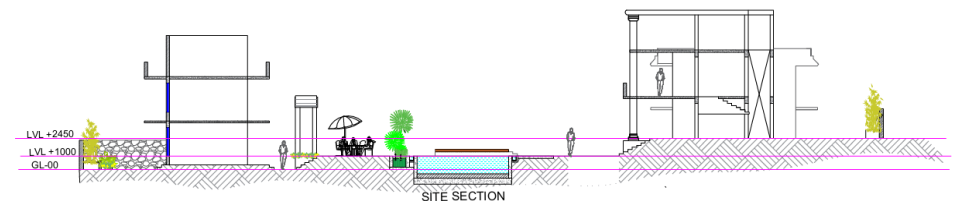
#### ZONING

- PRIVATE SPACE
- SEMI-PRIVATE SPACE
- PUBLIC SPACE



### MASTER PLAN

LEGEND	
1	RECEPTION
2	RESTAURANT
3	SOUVENIR STORE
4	AMENITIES
5	STANDARD ROOMS
6	DELUXE & SUITE ROOM
7	COTTAGES
8	SPA
9	PARKING
10	SWIMMING POOL
11	WATER TANK



**CLIMATE RESPONSIVE STRATEGIES**

- USE OF VEGETATION TO DIRECT PREVAILING WINDS ENHANCE VENTILATION
- CROSS VENTILATION BY PLACING OPENINGS ON OPPOSITE WALLS
- CLAY POT FILLER SLAB

**ELEVATION RESTAURANT**

**SECTION AT Y3-Y3**

**MATERIALS**

- CORTEN STEEL PANEL
- STONE CLADDING

**RECEPTION FRONT ELEVATION**

**SECTION AT Y4-Y4**

**MATERIALS**

- STONE TEXTURE
- STEEL PORCH ROOF
- STONE MARBLE WALL

**FRONT ELEVATION**

**MATERIALS**

- RECLAIMED WOOD
- BASALT STONE WALL
- BAMBOO ROOF

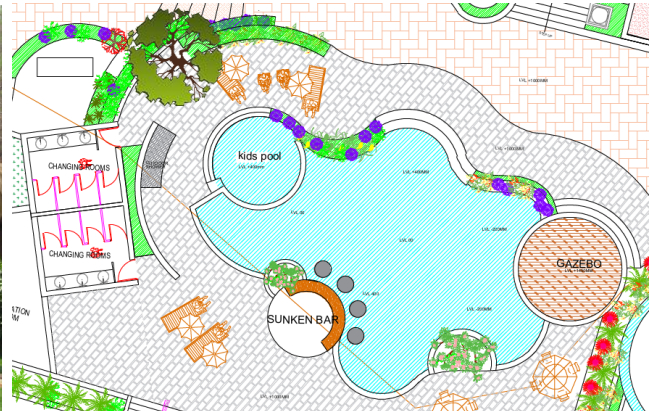
**SECTION**

**RESTAURANT & RECEPTION**

**SPA & WELLNESS**

**SCALE 1:1**  
ALL DIMENSION IN I

**SCALE 1:100**  
ALL DIMENSION IN MM



# ARC 2102 ARCHITECTURAL DESIGN & DETAILING - IV

## SHANTI VIHAR (STANDARD ROOMS)

**FRONT ELEVATION**

**UNIT LEVEL PLAN**

**FIRST FLOOR PLAN**

**GROUND FLOOR PLAN**

**SECTION AT Y2-Y2**

**CLIMATE RESPONSIVE STRATEGIES**

COOLING EFFECT OF COURTYARD

PROVIDE SHADE FROM SUN

VEGETATION TO DIRECT PREVAILING WIND

PLANTERS ON SILL

**DOOR SCHEDULE**

DOOR TYPE	WD.	HT.	QT.
D1 SINGLE FLUSH DOOR	750	2100	12
D2 SINGLE FLUSH DOOR	900	2100	12

**WINDOW SCHEDULE**

WINDOW TYPE	WD.	HT.	QT.
W1 FIXED GLASS	1800	800	2
W2 DOUBLE SLIDING WINDOW	2000	1600	8
W3 DOUBLE SLIDING WINDOW	2000	2400	6

SCALE 1:100  
ALL DIMENSION IN MM

## DASTOOR BAGH (COTTAGES)

**COTTAGE KEY PLAN** SCALE 1:250

**FIRST FLOOR PLAN**

**GROUND FLOOR PLAN**

**FRONT ELEVATION**

**SECTION AT Y1-Y1**

**CLIMATE RESPONSIVE STRATEGIES**

SHADING OF BUILDING SURFACE BY VEGETATION

SOLAR SHADING BY ROOF OVERHANG

DIRECTING WIND THROUGH VEGETATION

**WINDOW SCHEDULE**

WINDOW TYPE	WD.	HT.	QT.
W1 FIXED GLASS	1800	1500	8
W2 DOUBLE SLIDING WINDOW	1800	2100	8
W3 DOUBLE SLIDING WINDOW	2400	1900	8

**DOOR SCHEDULE**

DOOR TYPE	WD.	HT.	QT.
D1 SINGLE FLUSH DOOR	750	2100	8
D2 SINGLE FLUSH DOOR	900	2100	12

SCALE 1:100  
ALL DIMENSIONS ARE IN MM

## KAILASA (DELUXE & SUITE ROOMS)

**UNIT LEVEL PLANS**

**DELUXE ROOM**

**SUITE ROOM**

**FIRST FLOOR PLAN**

**GROUND FLOOR PLAN**

**ELEVATION**

**SECTION AT Y1-Y1**

**CLIMATE RESPONSIVE STRATEGIES**

SHADING BY PLANTATION AND HORIZONTAL SHADING DEVICES

SHADING WALLS BY PLACING TREES

USE OF BRICK JALI TO ENHANCE CROSS VENTILATION AND COOL PREVAILING WINDS BY VENTUR EFFECT

**DETAIL AT 'A'**

**DETAIL AT 'B'**

**DOOR SCHEDULE**

DOOR TYPE	WD.	HT.	QT.
D1 SINGLE FLUSH DOOR	750	2100	12
D2 SINGLE FLUSH DOOR	900	2100	12

**WINDOW SCHEDULE**

WINDOW TYPE	WD.	HT.	QT.
W1 FIXED GLASS	1800	2100	8
W2 DOUBLE SLIDING WINDOW	2000	2100	8

**MATERIALS**

BRICK JALI

ACC BLOCK WALL

STONE TEXTURE

GRC CORNER/LA COLUMN

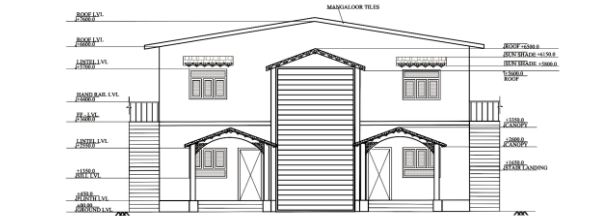
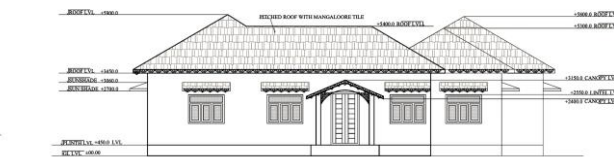
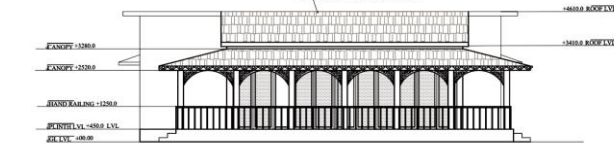
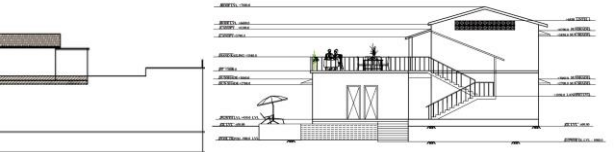
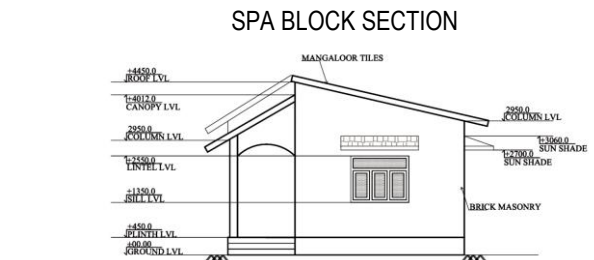
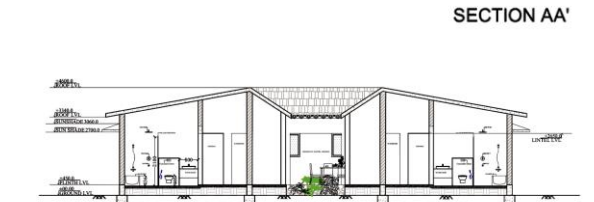
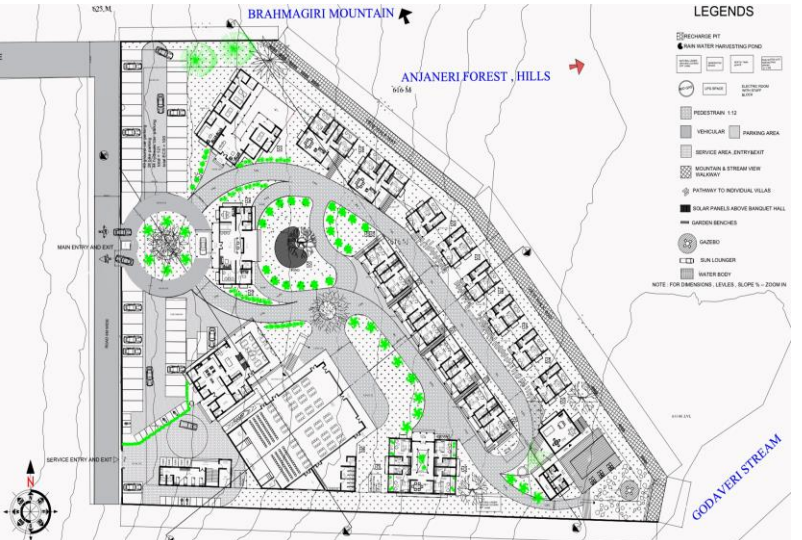
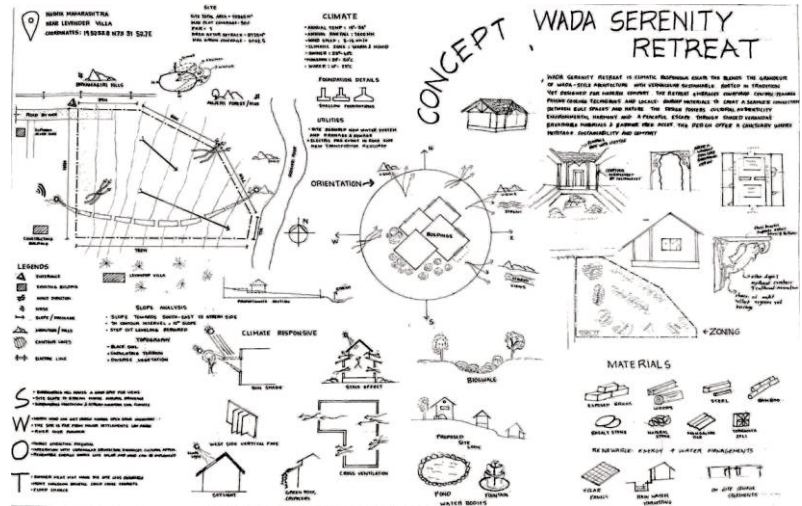
**DELUXE ROOM**

**SUITE BEDROOM**

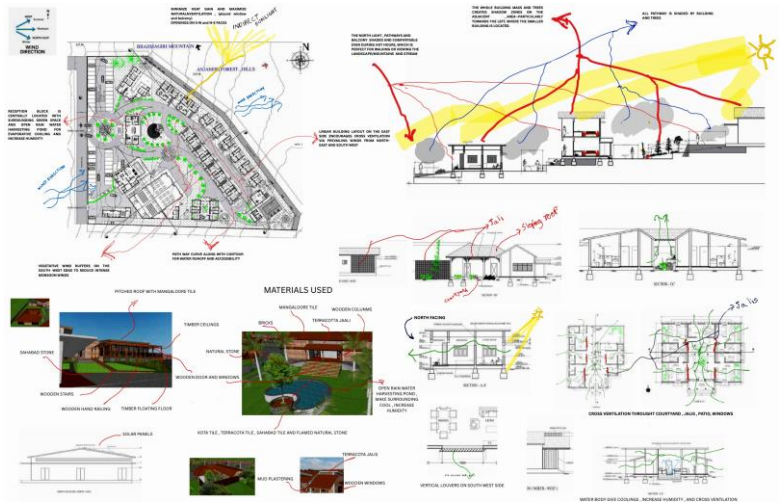
SCALE 1:100  
ALL DIMENSION IN MM

# ARC 2102 ARCHITECTURAL DESIGN AND DETAILING - IV

## CLIMATE RESPONSIVE RESORT DESIGN



## CLIMATE RESPONSIVE RESORT DESIGN



CLIMATE RESPONSIVE DESIGN DETAILS



MASTER PLAN



MAIN ENTRY AREA VIEW



MAIN ENTRY TOP VIEW



WELLNESS AREA VIEW



DELUXE BLOCK VIEW



RECEPTION BLOCK VIEW



RECEPTION REAR VIEW

# ARC 2106 BUILDING CONSTRUCTION AND MATERIALS - IV

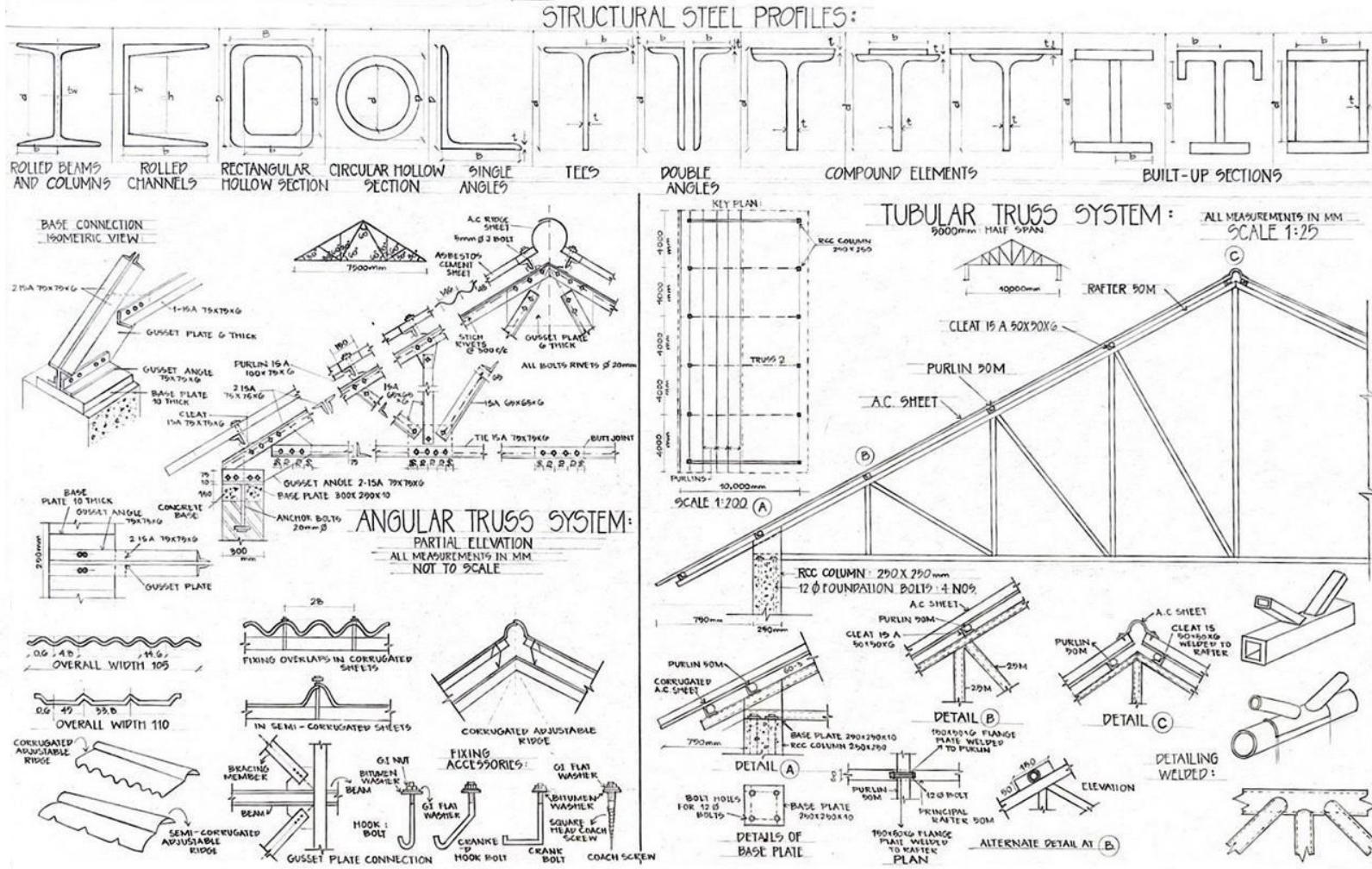
## STRUCTURAL STEEL

### COURSE OBJECTIVES:

To understand Steel as a building material and the involved construction techniques with respect to its chemical, physical properties, classification, composition, and its varied uses to enhance the structural strength, usability, and aesthetic qualities of the spaces inside/ outside the building.

### PROJECT BRIEF:

This course intends to introduce us and to create a better understanding of the students to the world of steel, where it teaches us: the several types of commercial steels, their market forms, and how they have been used in the building components as members.

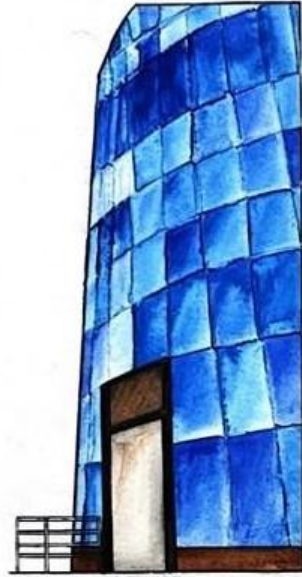


# ARC 2106 BUILDING CONSTRUCTION AND MATERIALS - IV

## STRUCTURAL STEEL

CASE STUDY:

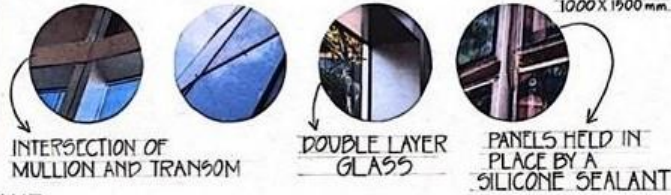
INNOVATION CENTER:



ISOMETRIC VIEW  
INNOVATION CENTRE @ MAHE  
WAS ESTABLISHED IN THE  
YEAR 2007.  
AREA : 16000 sq. ft



FRONT ELEVATIONS



INTERSECTION OF  
MULLION AND TRANSOM

DOUBLE LAYER  
GLASS

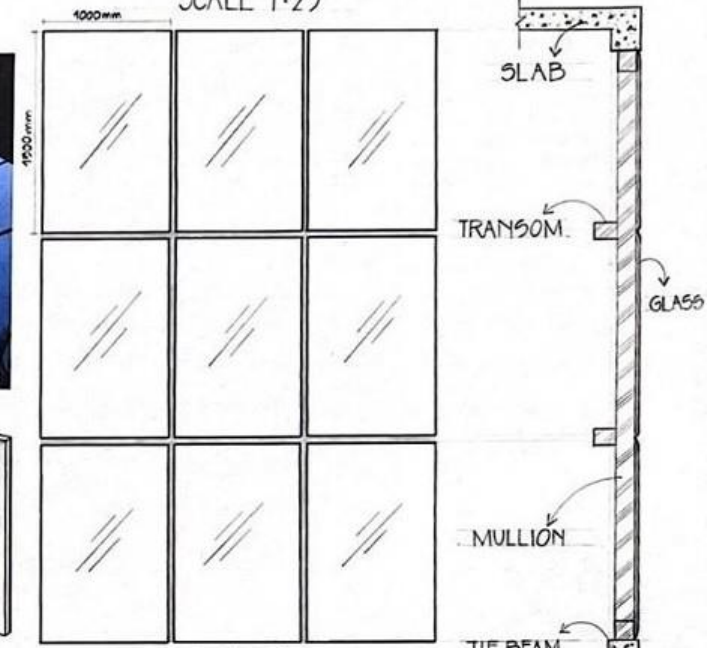
PANELS HELD IN  
PLACE BY A  
SILICONE SEALANT

ONE PANEL  
1000 X 1500 mm.



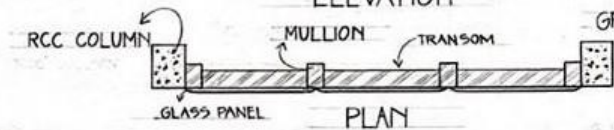
## STICK PANEL SYSTEM:

SCALE 1:25



ELEVATION

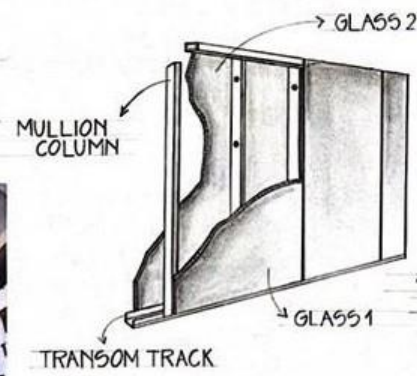
GROUND LEVEL  
SECTION



PLAN



CURVED BEAMS AND  
TUBULAR COLUMNS

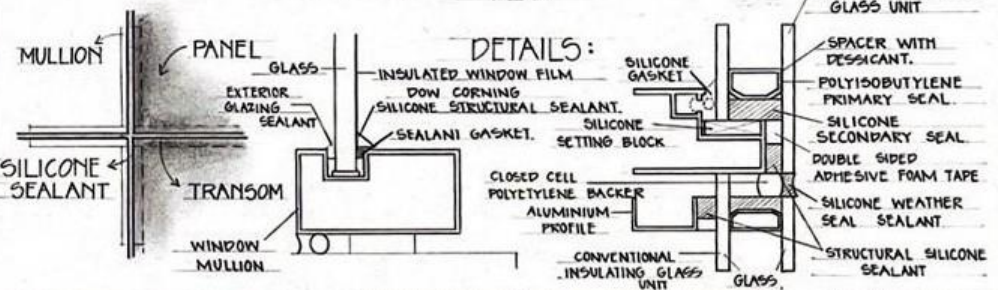


MULLION  
COLUMN

GLASS 2

GLASS 1

TRANSOM TRACK



DETAILS:

- STEPPED INSULATING GLASS UNIT.
- SPACER WITH DESICCANT.
- POLYISOBUTYLENE PRIMARY SEAL.
- SILICONE SECONDARY SEAL.
- DOUBLE SIDED ADHESIVE FOAM TAPE.
- SILICONE WEATHER SEAL SEALANT.
- STRUCTURAL SILICONE SEALANT.
- SILICONE GASKET.
- INSULATED WINDOW FILM.
- DOW CORNING SILICONE STRUCTURAL SEALANT.
- SILICONE SEALING GASKET.
- SILICONE SETTING BLOCK.
- CLOSED CELL POLYETHYLENE BACKER.
- ALUMINIUM PROFILE.
- CONVENTIONAL INSULATING GLASS UNIT.
- GLASS.

# ARC 2106 BUILDING CONSTRUCTION AND MATERIALS - IV

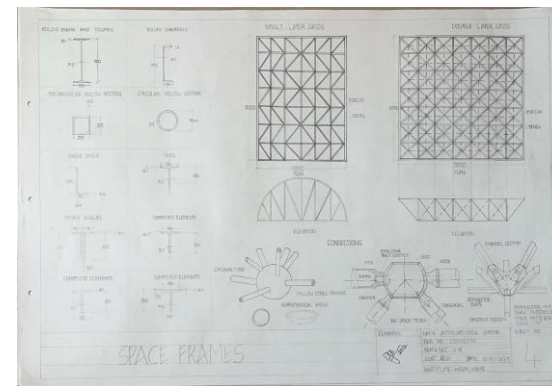
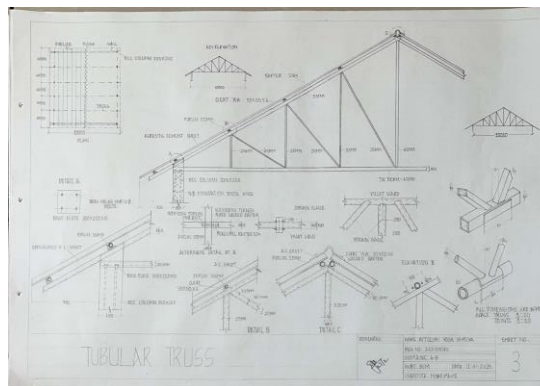
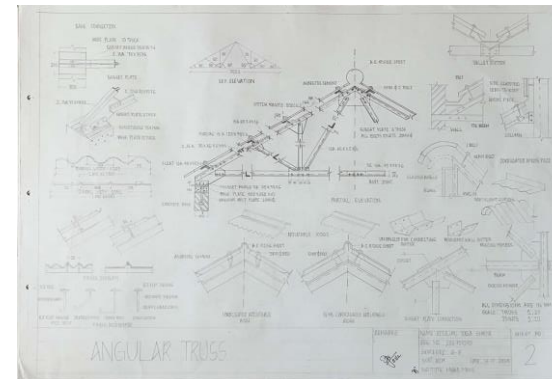
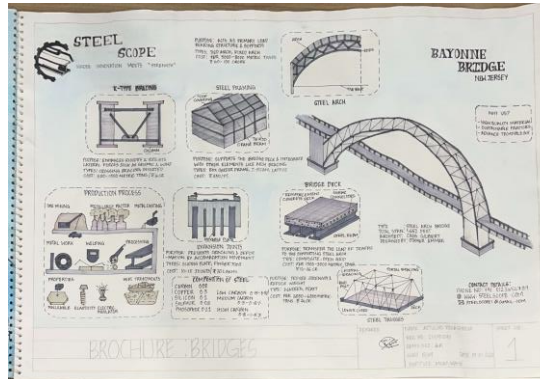
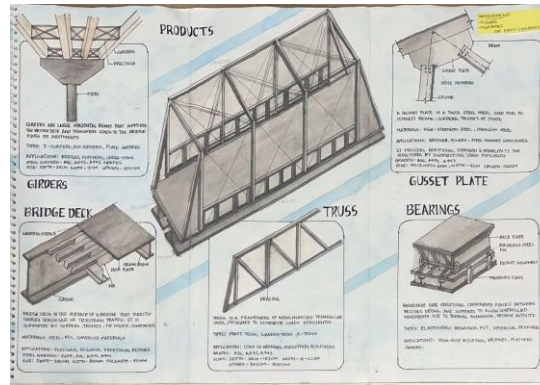
## STEEL

### COURSE OBJECTIVES:

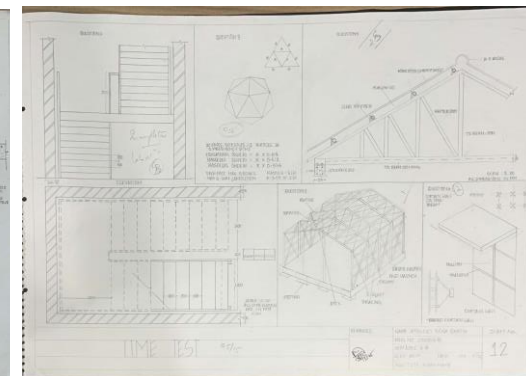
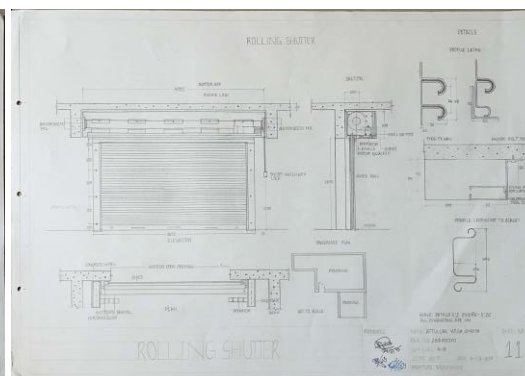
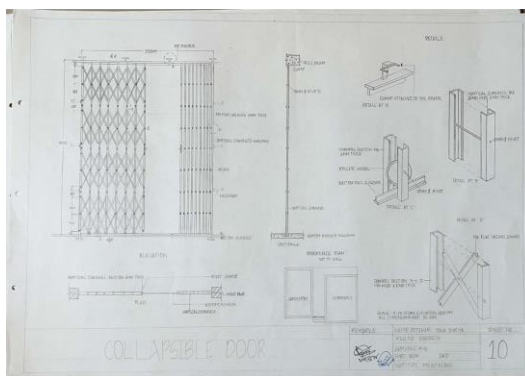
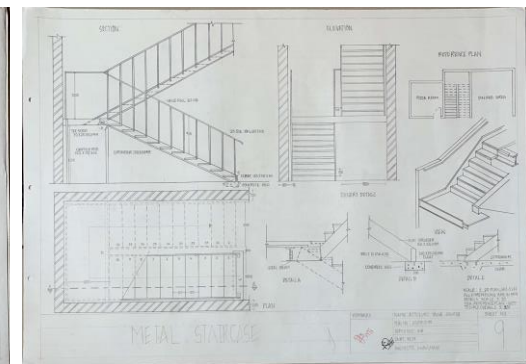
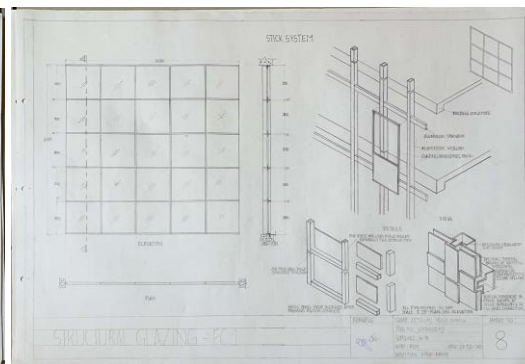
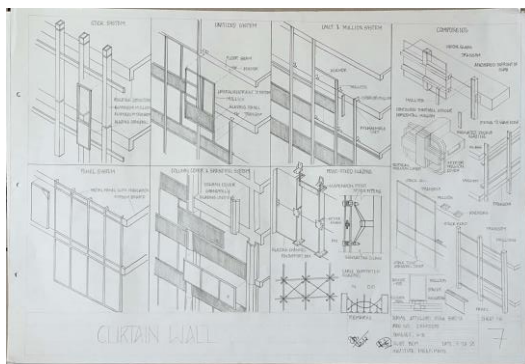
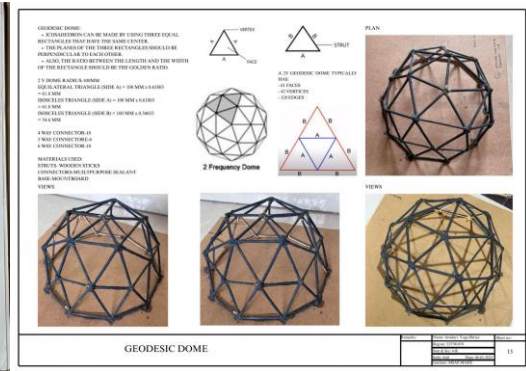
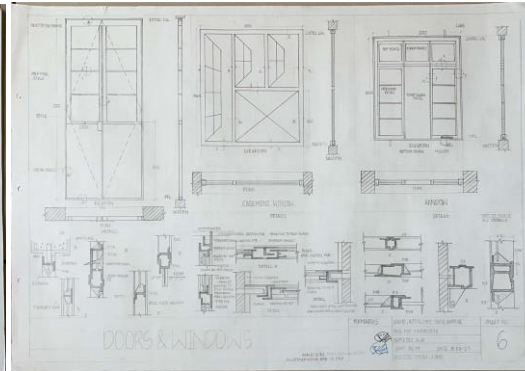
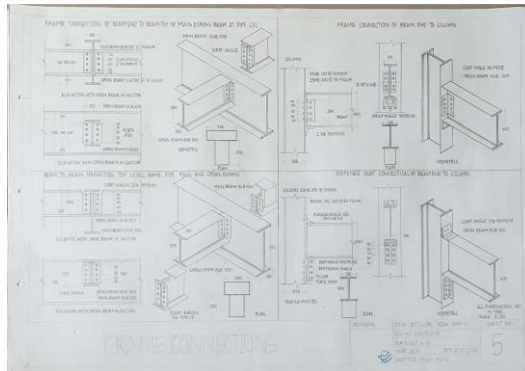
To understand steel as a building material & the involved construction techniques w.r.t chemical, physical properties, classification, composition, and its varied uses to enhance the structural strength, usability, and aesthetic qualities of the spaces inside/ outside the building.

### PROJECT BRIEF:

This course intends to introduce and understand the building materials steel and various construction techniques



## STEEL



# ARC 2110 HISTORY THEORY & CRITICISM - III

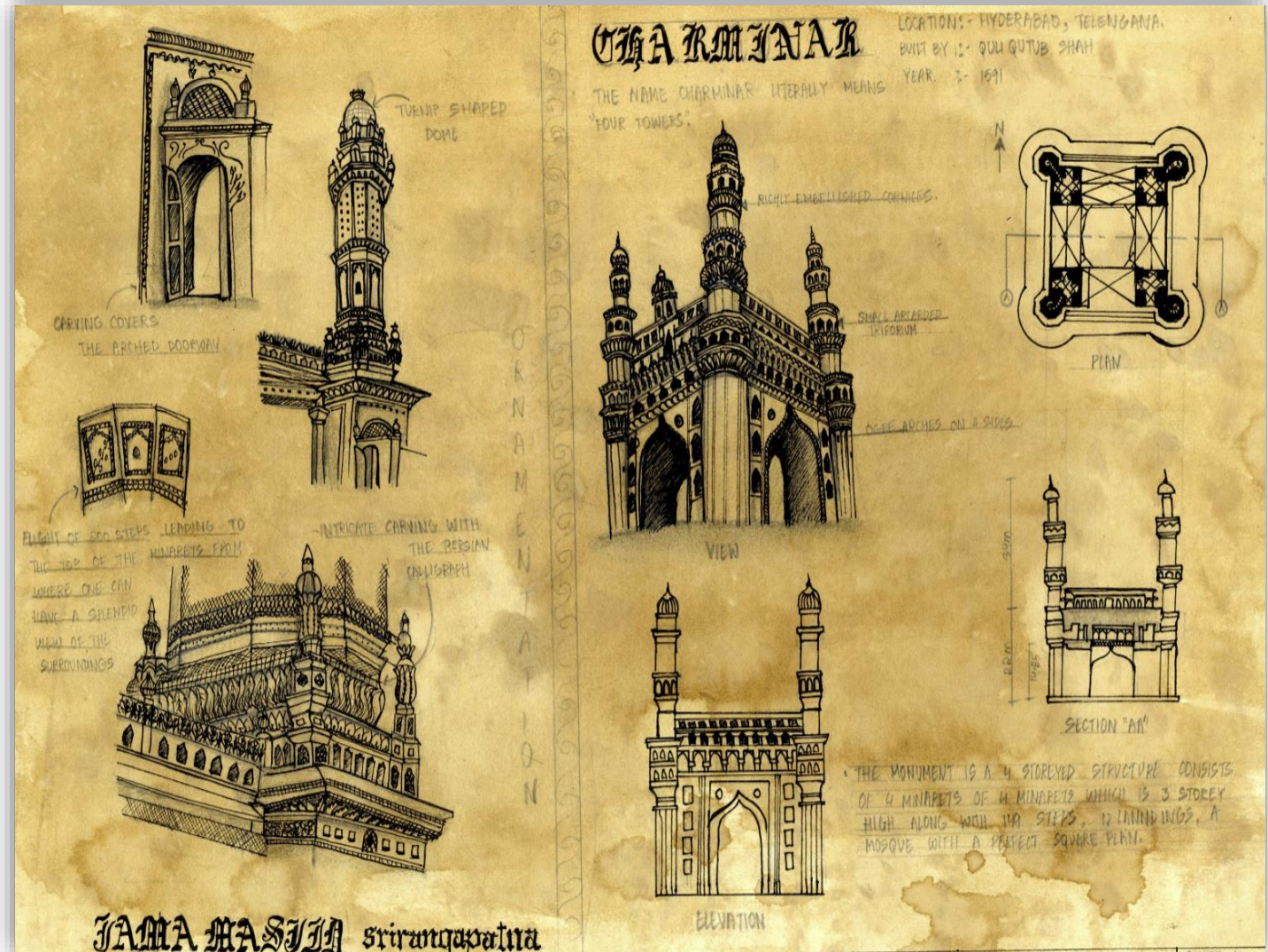
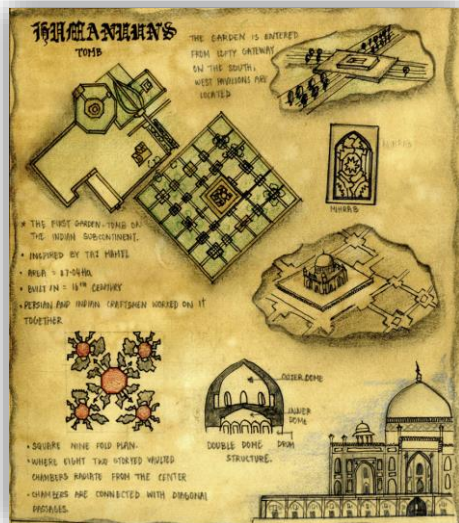
## ISLAMIC ARCHITECTURE

### COURSE OBJECTIVES:

To study the architectural style, with regards to its architectural components, nomenclature and major features of their style being studied. To understand the Indo- Islamic Architecture style and planning of the built environment, techniques and materials used for the construction and their evolution.

### PROJECT BRIEF:

This course intends to introduce and understand Indo- Islamic Architecture dated between 600-1336 AD of their components and styles with respect to construction, geographic influence, socio-political background, construction technology, ornamentation and planning of the structure.







# BACHELOR OF ARCHITECTURE

Undergraduate Program

# Bachelor of Architecture Undergraduate Program

Year

---

3

Architecture

# ARC 3101 ARCHITECTURAL DESIGN & DETAILING - V

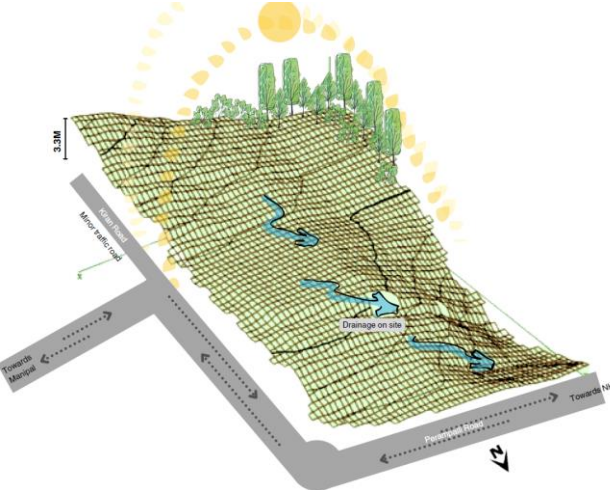
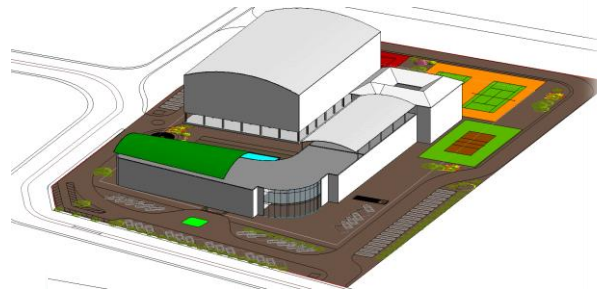
## ENVIRONMENT DESIGN

### COURSE OBJECTIVES:

To grasp the concept of green building assessment, it involves analyzing best practices in sustainable and green construction through case studies, proposing sustainable designs. This process includes designing and evaluating projects like commercial and export complexes, student hubs, office buildings, shopping malls, and retail spaces using energy optimization and simulation tools.

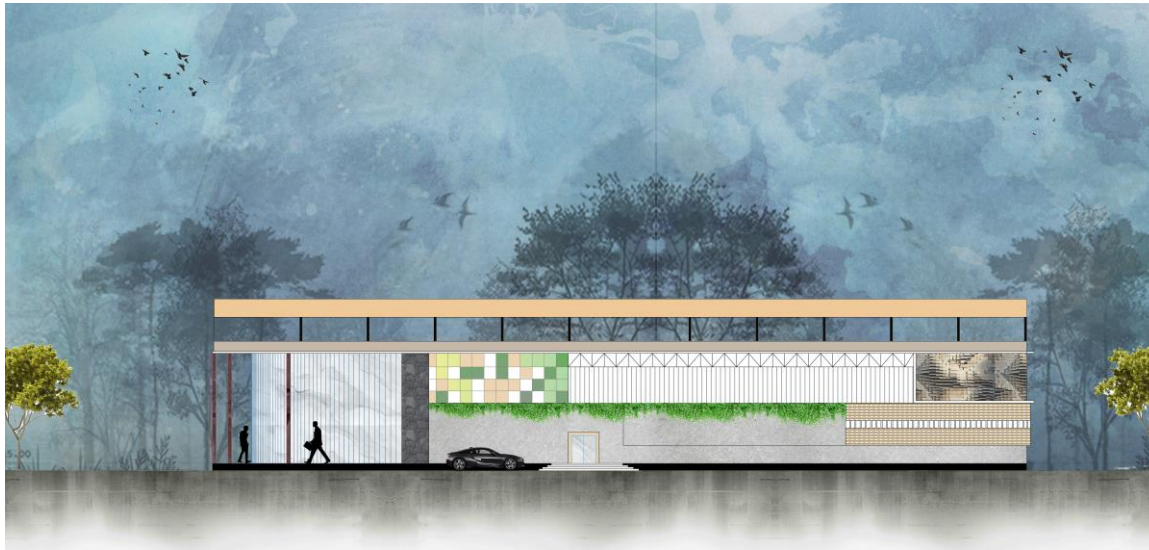
### PROJECT BRIEF:

I've designed a 20,000 m<sup>2</sup> sports complex focused on green, sustainable practices, aiming for LEED certification. The user-friendly design integrates energy efficiency, water conservation, and eco-friendly materials to create a functional, environmentally responsible space.

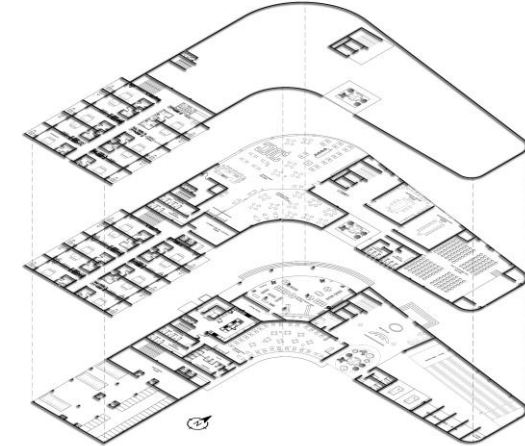


# ARC 3101 ARCHITECTURAL DESIGN & DETAILING - V

## ENVIRONMENT DESIGN



### ELITE RETREAT COMMERCIAL BLOCK



SECOND FLOOR  
DELUXE ROOMS, LIFT LOBBY LOBBY, ALL SERVICES

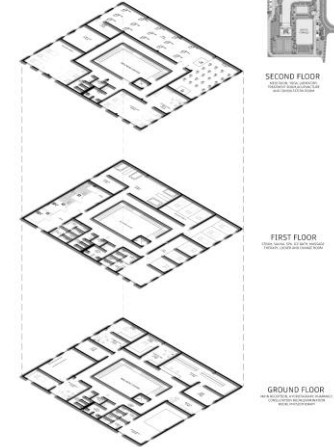
FIRST FLOOR  
WELLNESS HALL, CONFERENCE HALL, BUSINESS CENTER, SPORTS HALL, OUTDOOR SEATING, DELUXE ENTRY

GROUND FLOOR  
GAMING ZONE, MAIN RECEPTION, SPORTS CLUB, MAIN RESTAURANT, MAIN KITCHEN

ELITE RETREAT IS A COMPREHENSIVE PROJECT THAT INCLUDES WELLNESS CENTERS, SPORTS COMPLEXES, A COMMERCIAL BLOCK, AND VARIOUS OUTDOOR COURTS. IT'S DESIGNED TO OFFER A DIVERSE RANGE OF SPACES FOR RELAXATION, RECREATION, AND BUSINESS, CREATING A WELL-ROUNDED AND ENGAGING ENVIRONMENT. ELITE RETREAT IS A MULTIFACETED PROJECT, WITH ITS COMMERCIAL BLOCK OFFERING A BLEND OF LEISURE, BUSINESS, AND ENTERTAINMENT. THE DESIGN INCORPORATES SPACES LIKE A SPORTS BAR WITH OUTDOOR SEATING, ALL POSITIONED TO TAKE ADVANTAGE OF SCENIC POOL VIEWS, CREATING AN INVITING AND VERSATILE ENVIRONMENT.

AKASH C SURYAVAMSHI | 223701262

### ELITE RETREAT WELLNESS CENTRE

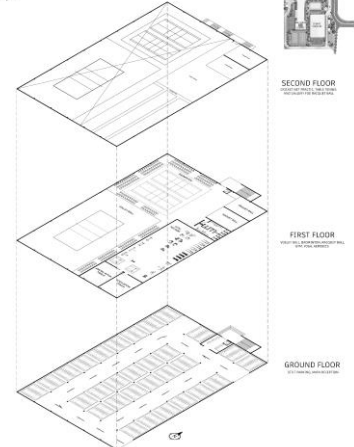


SECOND FLOOR  
GYM, SPA, TREATMENT ROOMS

FIRST FLOOR  
GYM, SPA, TREATMENT ROOMS

GROUND FLOOR  
GYM, SPA, TREATMENT ROOMS

### ELITE RETREAT SPORTS COMPLEX



SECOND FLOOR  
SPORTS HALL, OUTDOOR SEATING

FIRST FLOOR  
SPORTS HALL, OUTDOOR SEATING

GROUND FLOOR  
SPORTS HALL, OUTDOOR SEATING

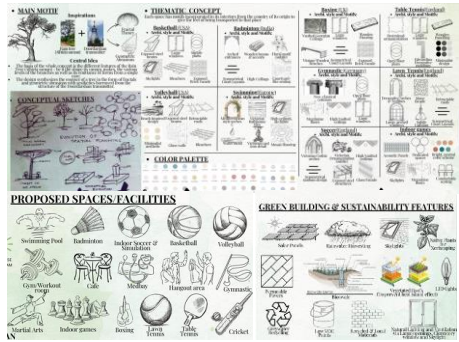
ELITE RETREAT IS A COMPREHENSIVE PROJECT THAT INCLUDES WELLNESS CENTERS, SPORTS COMPLEXES, A COMMERCIAL BLOCK, AND VARIOUS OUTDOOR COURTS. IT'S DESIGNED TO OFFER A DIVERSE RANGE OF SPACES FOR RELAXATION, RECREATION, AND BUSINESS, CREATING A WELL-ROUNDED AND ENGAGING ENVIRONMENT. THE WELLNESS CENTER AT ELITE RETREAT OFFERS A RANGE OF SERVICES, INCLUDING GYM, SPA, TREATMENT ROOMS, AND OUTDOOR SEATING. THE SPORTS COMPLEX AT ELITE RETREAT IS DESIGNED TO OFFER A BLEND OF LEISURE, BUSINESS, AND ENTERTAINMENT. THE LAYOUT INCLUDES A COMMERCIAL BLOCK AND VARIOUS OUTDOOR COURTS. IT'S DESIGNED TO OFFER A DIVERSE RANGE OF SPACES FOR RELAXATION, RECREATION, AND BUSINESS, CREATING A WELL-ROUNDED AND ENGAGING ENVIRONMENT. THE SPORTS COMPLEX AT ELITE RETREAT IS DESIGNED TO OFFER A BLEND OF LEISURE, BUSINESS, AND ENTERTAINMENT. THE LAYOUT INCLUDES A COMMERCIAL BLOCK AND VARIOUS OUTDOOR COURTS. IT'S DESIGNED TO OFFER A DIVERSE RANGE OF SPACES FOR RELAXATION, RECREATION, AND BUSINESS, CREATING A WELL-ROUNDED AND ENGAGING ENVIRONMENT.

# ARC 3101 ARCHITECTURAL DESIGN & DETAILING - V

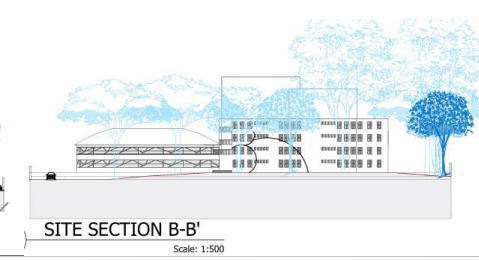
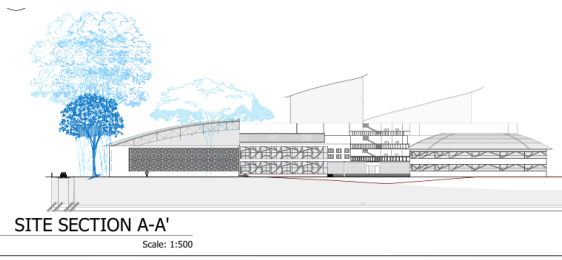
## ENVIRONMENTAL DESIGN

### PROJECT BRIEF:

Designing a 22,287.53 m<sup>2</sup> sports complex that focuses primarily on aspects of sustainability and green building. Central concept for the design is based of "FRACTAL INTRICACIES AND GEOMETRIC MODULATIONS"- an amalgamation of contextual and thematic concepts.



VEGETATION DETAILS			
NAME	HT.	REPRE.	REASON
Acacia Tree	25m		Erosion control, Shade & Windbreak
Jamaican Cherry Tree	12m		Rapid Growth, Climate Tolerance
Eucalyptus Tree	20m		Carbon Sequester, soil stabilization
Neem Tree	30m		Air Purification
Ixora	3m max		climate resistant, low maintenance
Plumbago	2m		Long lasting flowers, Climate resistant



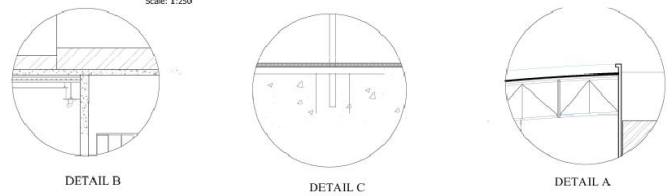
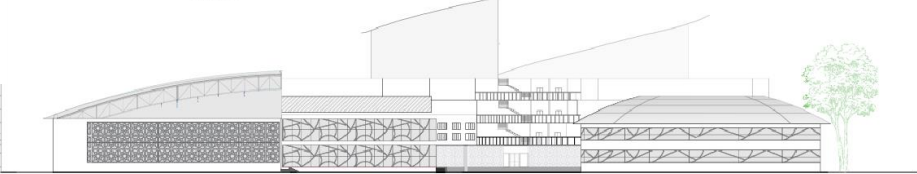
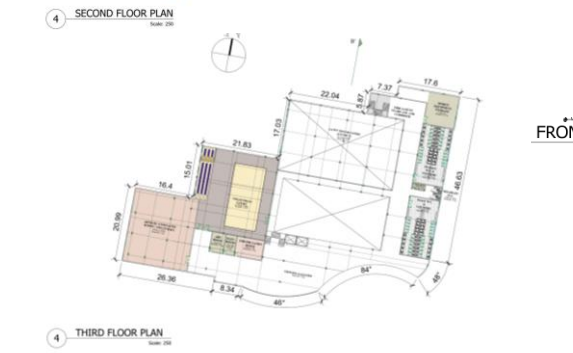
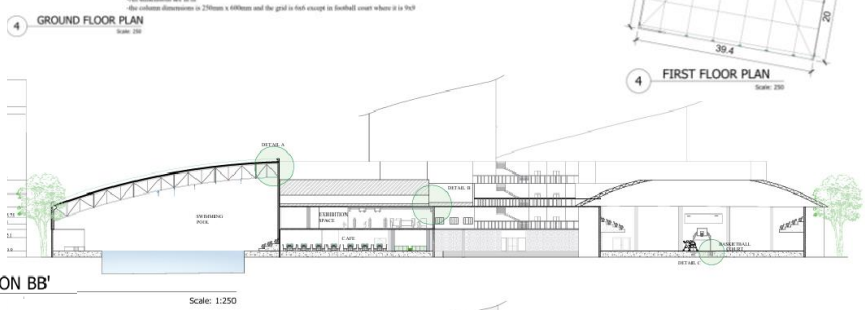
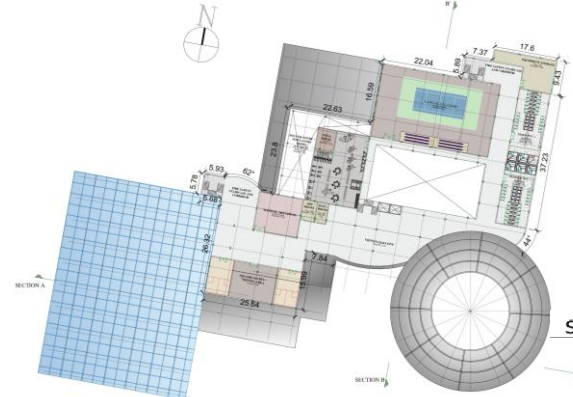
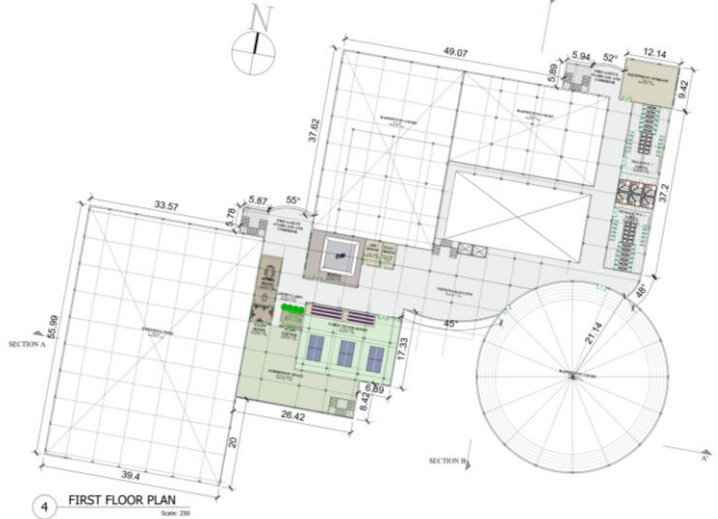
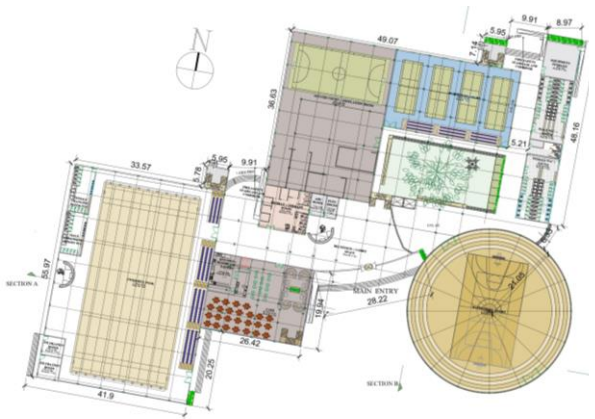
MATERIAL DETAIL			
MATERIAL	HAT.	WHERE?	WHY?
Permeable Pavers		Vehicular pathway inside the site	Stormwater Manag, Reduce H2E
Gravel		Pedestrian Walkway	High durability, Low maintenance
Textured Asphalt		Ramp for accessing basement parking	Excellent Traction
Natural Grass		Vegetated areas	Landscaping

HARDSCAPE DETAILS			
NAME	HT.	REPRE.	MATER.
Pergola	4m		Timber and Creep
Fountain	2m		Rec, Granite and mosaic
Signage	0.5m		Timber
Retaining Wall	1.8m wt		Stone

# ARC 3101 ARCHITECTURAL DESIGN & DETAILING - V

## ENVIRONMENTAL DESIGN



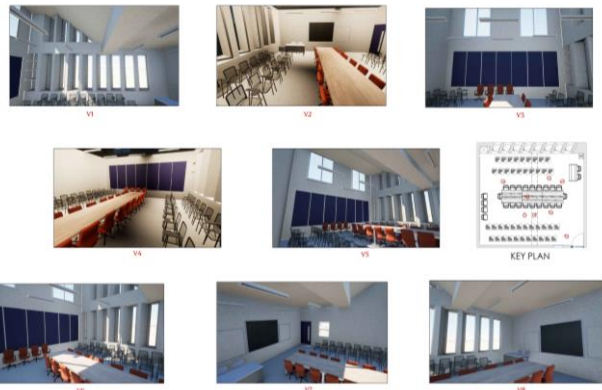
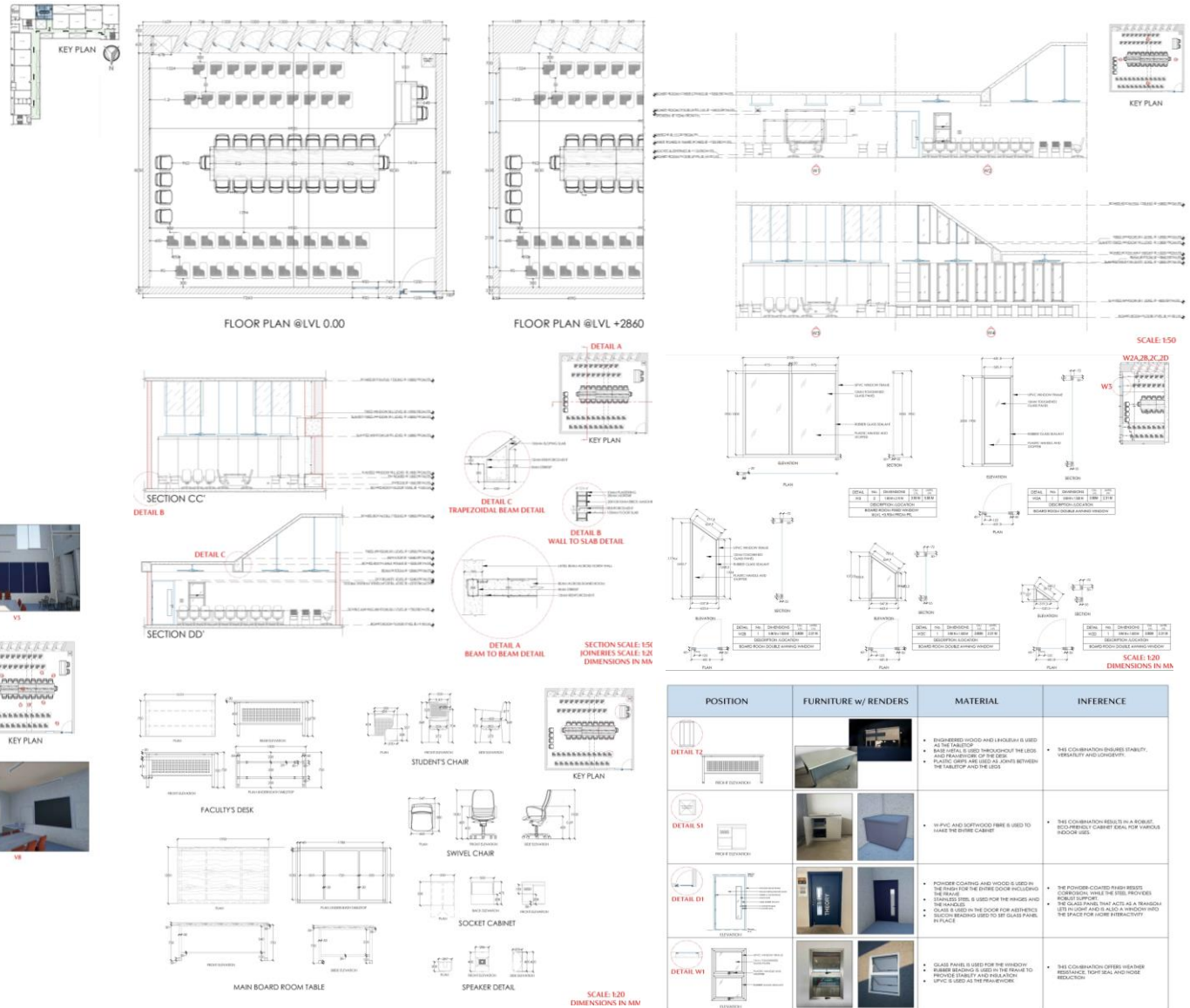
# ARC 3103 MEASURED DRAWING

## COURSE OBJECTIVES:

Measured drawing is very important to communicate the understanding of built environment and to convey the scheme of construction and design. In this course students learn the importance and methods of measuring and documenting an existing built environment/ landscape through drawings

## PROJECT BRIEF:

This course intends to choose tools and methodology of measurement, organize collection of secondary information and reconnaissance survey, organize field data collection and develop drawings through them and analyze measured drawing.



# ARC 3103 MEASURED DRAWING- I

**FLOOR PLAN**

**SECTIONS**

**ELEVATION**

**KEY PLAN**

**MATERIAL ANALYSIS**

**SECTION SCALE 1:500**

**JOINERIES SCALE 1:20**

**FLOOR PLAN**

**SECTIONS**

**ELEVATION**

**KEY PLAN**

**ALL DIMENSIONS IN M SCALE 1:100**

**VIEW 1**

**VIEW 2**

**VIEW 3**

**WEST ELEVATION**

**SOUTH ELEVATION**

**KEY PLAN**

**TOP OF THE ROOF 8515 MM**

**LINTEL 5750MM**

**SILL 4485MM**

**FIRST FLOOR 3445MM**

**ROOF 4055MM**

**ROOF 2405MM**

**LINTEL 1905MM**

**SILL 3655MM**

**PLINTEL 3655MM**

**GROUND 0MM**

**SCALE 1:50 DIMENSION IN MILLIMETRES (MM)**

**SPATIAL AND LANDSCAPE ANALYSIS**

**GENERAL LAYOUT AND FUNCTIONALITY**

**PLAN**

**SECTION**

**ELEVATION**

**SCALE 1:50**

**DRAINAGE SYSTEM**

**ACCESSIBILITY AND MOVEMENT**

**LANDSCAPE**

**MATERIAL PALLETTE**

POSITION	REF. IMAGE	MATERIAL	INFERENCE
DETAIL F1 TERRACE STEPS		INTERLOCKED TERRAZZO SLAB	STEP DOWN WITH TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL G1 WALL WITH PLASTER		INTERLOCKED TERRAZZO SLAB	THE WALL TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL D1 RAUNDS & DRAIN		INTERLOCKED TERRAZZO SLAB	ADDITION OF TERRAZZO SLAB TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL D2 PLANTER BOX		CONCRETE SLAB ON TERRAZZO SLAB	CONCRETE SLAB ON TERRAZZO SLAB TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.

**SPATIAL ANALYSIS**

**LANDSCAPE ANALYSIS**

**EAST ELEVATION**

**KEY PLAN**

**TOP OF THE ROOF 8515 MM**

**LINTEL 4805MM**

**SILL 4155MM**

**ROOF 4055MM**

**LINTEL 1455MM**

**SILL 1455MM**

**GROUND 0MM**

**SCALE 1:50 DIMENSION IN MILLIMETRES (MM)**

**DETAIL A DOOR DETAIL**

**DETAIL B BALCONY DETAIL**

**DETAIL C BALCONY RAILCOVER DETAIL**

**DETAIL D CORNER DETAIL**

**MATERIAL PALLETTE AND CONSTRUCTION DETAIL**

POSITION	REF. IMAGE	MATERIAL	INFERENCE
DETAIL F1 TERRACE STEPS		INTERLOCKED TERRAZZO SLAB	STEP DOWN WITH TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL G1 WALL WITH PLASTER		INTERLOCKED TERRAZZO SLAB	THE WALL TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL D1 RAUNDS & DRAIN		INTERLOCKED TERRAZZO SLAB	ADDITION OF TERRAZZO SLAB TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.
DETAIL D2 PLANTER BOX		CONCRETE SLAB ON TERRAZZO SLAB	CONCRETE SLAB ON TERRAZZO SLAB TO BE CONSTRUCTED WITH INTERLOCKED TERRAZZO SLAB ON CONCRETE SLAB AS PER WORKING DRAWING. TERRAZZO SLAB TO BE LAYED ON CONCRETE SLAB WITH 20MM SAND BED.

**KEY PLAN - 1:50**

**DETAIL A TRAPEZOIDAL BEAM DETAIL**

**DETAIL B TERRAZZOTA NALLI DETAIL**

**Shringeri House - by class of 3c**

**EXPLODED VIEW**

**SCHEMATIC ROOF PLAN**

**DETAILS**

**DETAIL A**

**DETAIL B**

**DETAIL C**

**DETAIL D**

**DETAIL E (INTERIOR DETAIL)**

**KEY PLAN**

**MORNING 8:15 AM - 7 AM**

**MORNING 11 AM - 12:30 PM**

**MORNING 11 AM**

**MORNING 1 AM - 9 AM**

**NOON 3 PM - 3:30 PM**

**NOON 3 PM - 3 PM**

**NOON 3 PM - 4 PM**

**NOON 4:30 PM - 5 PM**

**KEY PLAN**

# ARC 3103 MEASURED DRAWING

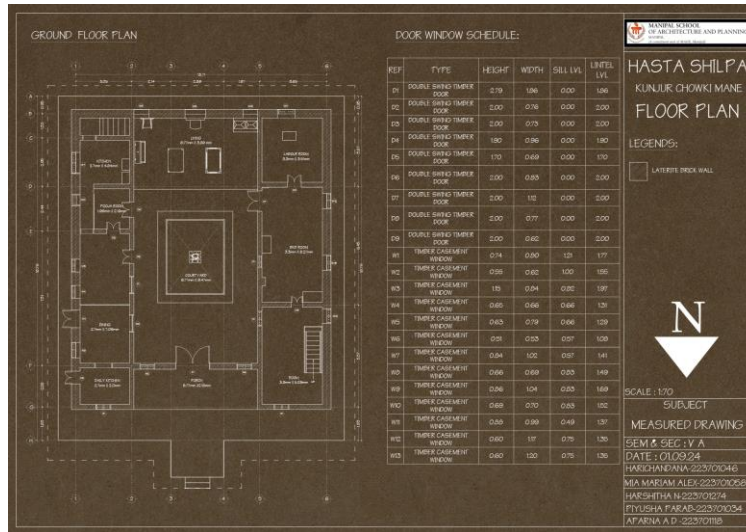
## KUNJUR CHOWKI MANE

### COURSE OBJECTIVES:

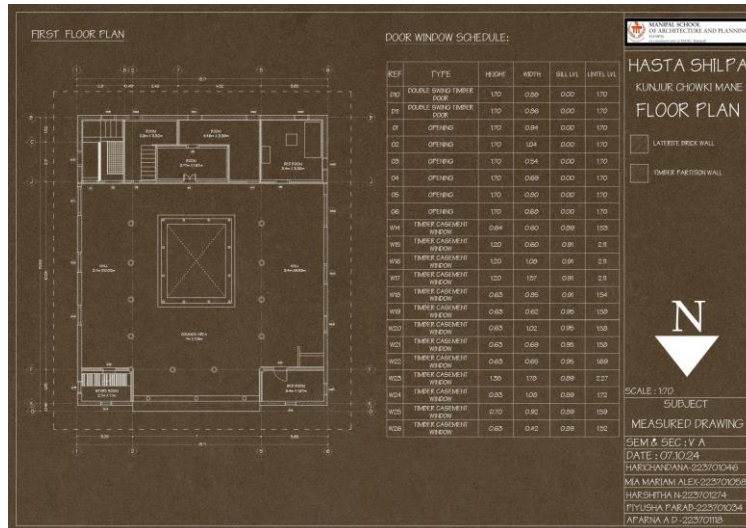
In architecture, measured drawing is a very important medium to communicate the understanding of Built Environment and to convey the scheme of construction and design. In this course students will learn the importance and methods of measuring and documenting an existing built environment through drawings

### PROJECT BRIEF:

The Kunjur Chowki Mane was built in the architectural style of Kerala based on the Fifteenth century treatise 'Manushyalaya Chandrika'. The plan of the structure follows a mandala or a grid aligned to the cardinal directions wherein the center of the mandala is left open or not built up, to coincide with the central courtyard. The basic house module is Nalukettu (nalukettu-wings) four blocks or wings of different widths in a descending order, the largest being the southern, and then the western followed by the northern and, the eastern wing being the least



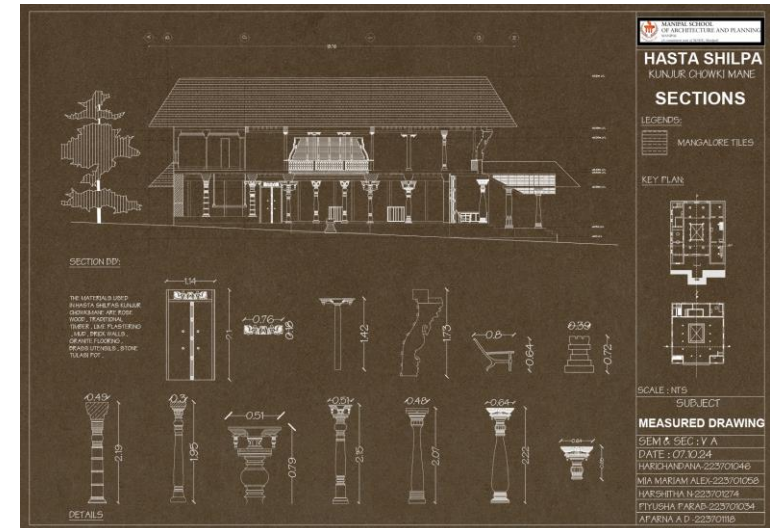
GROUND FLOOR PLAN



FIRST FLOOR PLAN



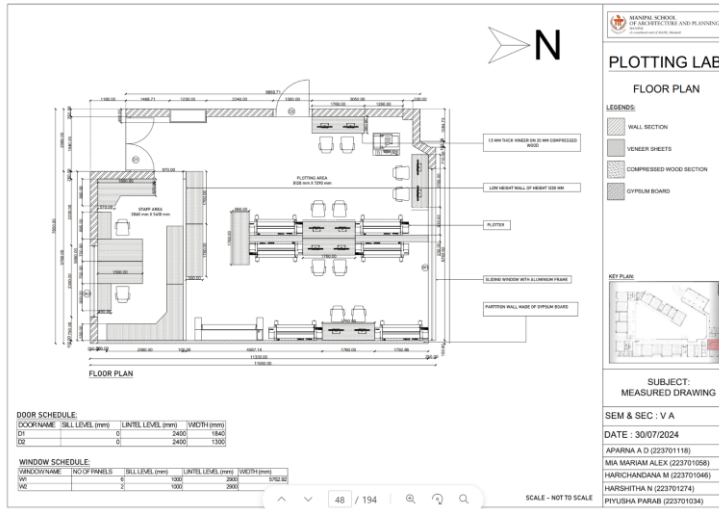
ELEVATIONS



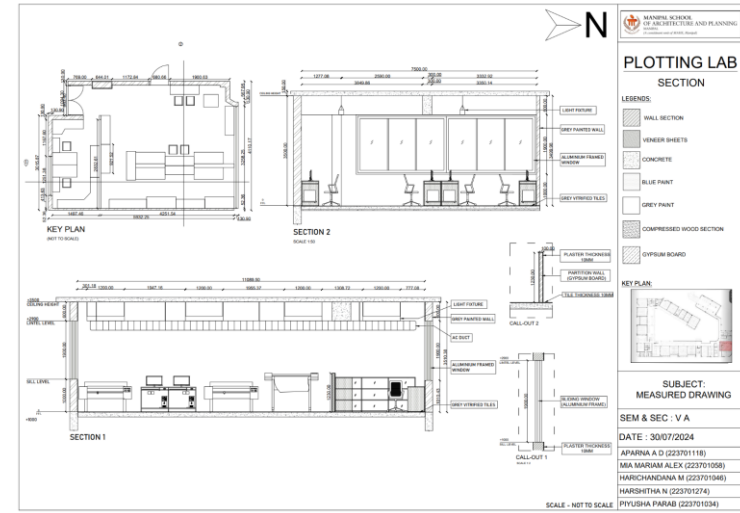
SECTIONS

# ARC 3103 MEASURED DRAWING

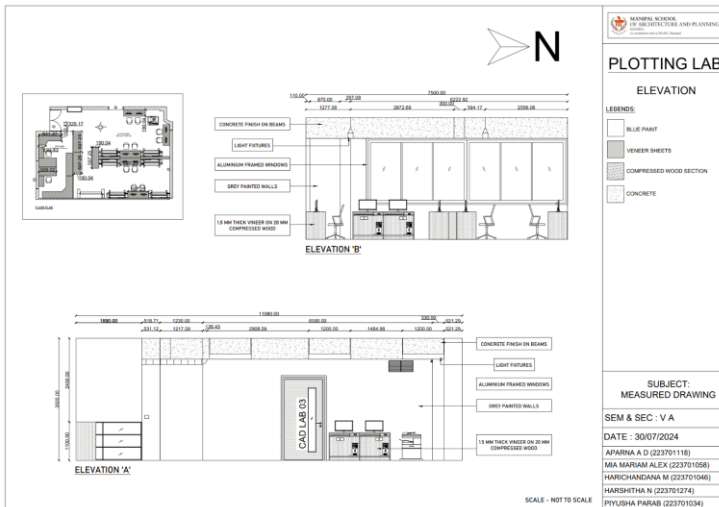
## MSAP CAMPUS



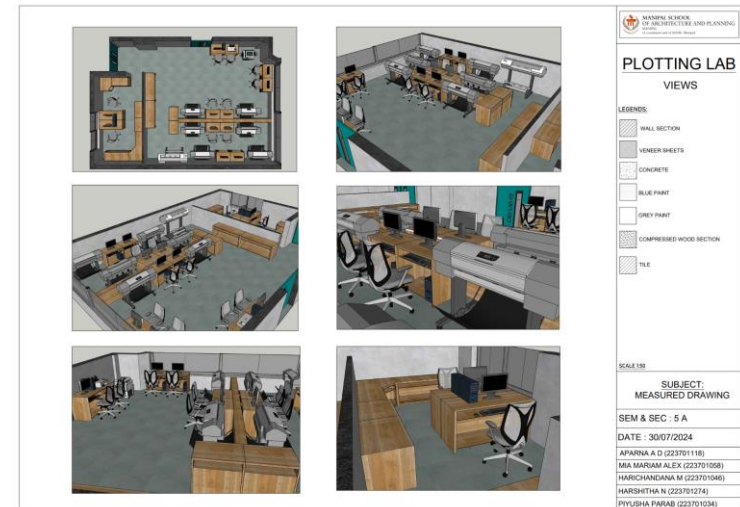
FLOOR PLAN



SECTIONS



ELEVATIONS



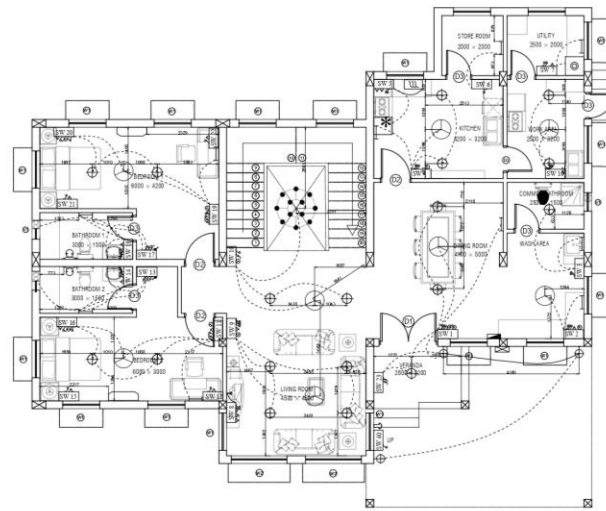
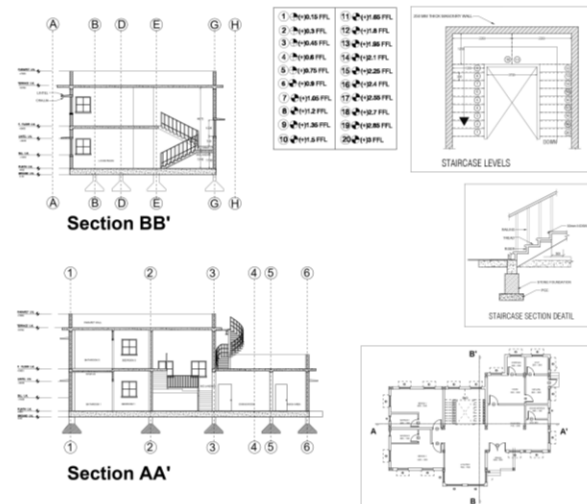
VIEWS

## COURSE OBJECTIVES:

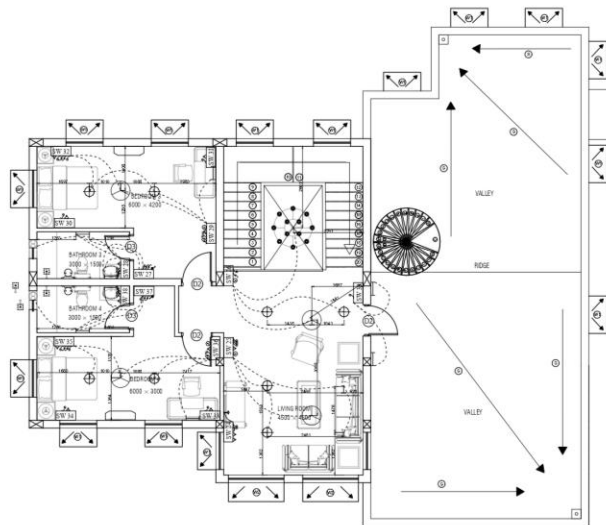
The objective is to understand the importance and process of creating Working. This includes producing drawings and developing essential documents such as Centre Line Plans, Floor Plans, Elevations, Sections, and more. Additionally, it focuses on understanding the significance of building engineering services, including electrical and plumbing systems, and preparing related detailed drawings. It emphasizes the importance of site and site services by developing a comprehensive Site Marking Layout.

## PROJECT BRIEF:

Preparation of working drawing and details for a selected self-designed project through the following drawings: Set-out marking, Centerline, Excavation Layout, Plinth Beam Layout, Floor Plans – Ground Floor, First Floor, Terrace, Sections, Elevations, Detailed Section ,Stairs, Electrical, Plumbing, Kitchen & Toilet, Site Services & Development, Door, and Window details.



GROUND FLOOR PLAN

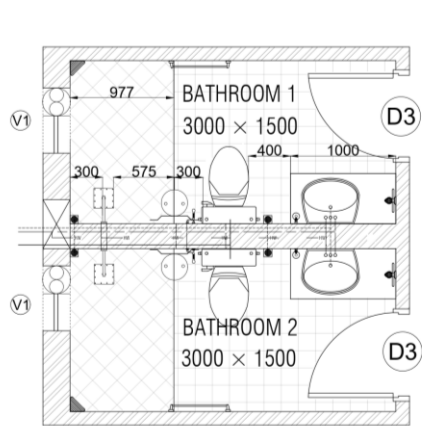
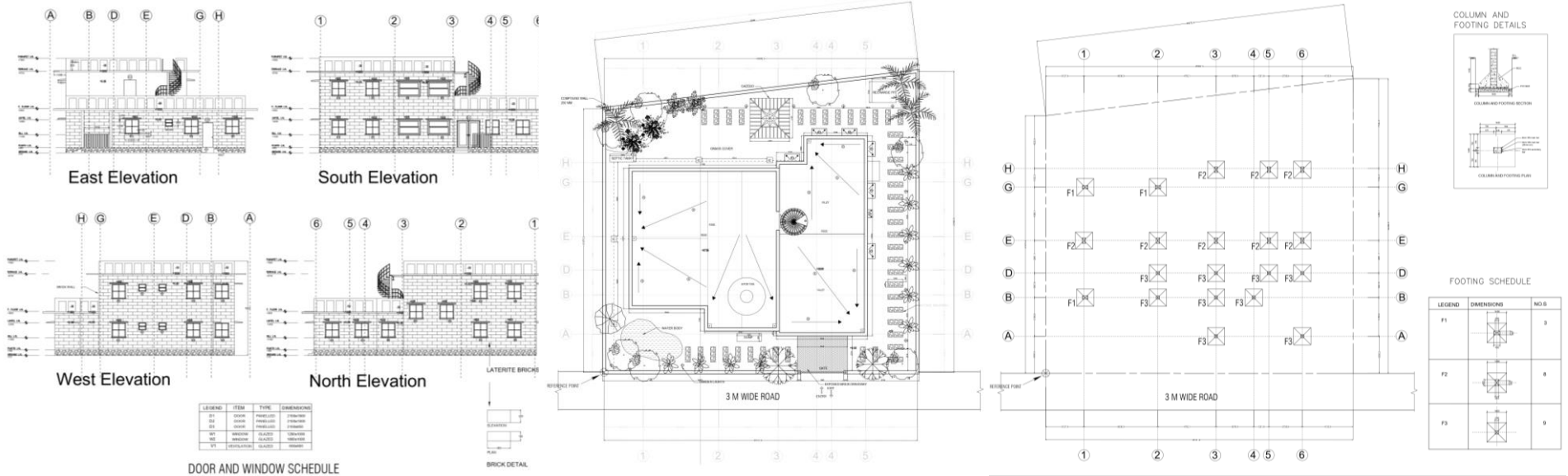


FIRST FLOOR PLAN

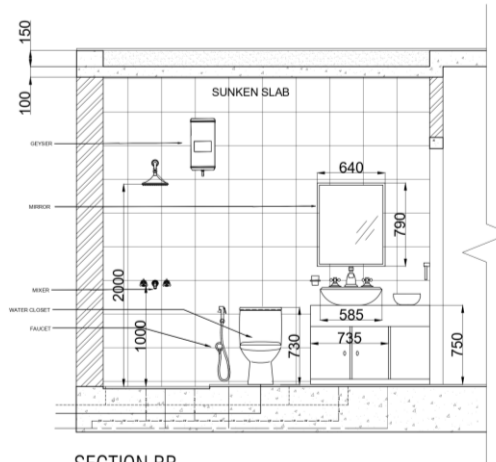
SYMBOL	NAME	NO.
	CEILING FAN HEIGHT - 2.8M FROM FFL	08
	TUBELIGHT HEIGHT - 2.32M FROM FFL	10
	CEILING LIGHT PT HEIGHT - 2.65M FROM FFL	14
	CALL BELL @8'-0" HEIGHT - 1.5M FROM FFL	01
	GEYSER SWITCH IN SWITCH BOARD	04
	ONE WAY SWITCH IN SWITCH BOARD	56
	TWO WAY SWITCH IN SWITCH BOARD	14
	GEYSER PT HEIGHT - 2.6M FROM FFL	04
	LAN IN SWITCH BOARD	01
	HEIGHT - 1.7 M FROM FFL METRE BOARD	01
	DISTRIBUTION BOARD HEIGHT - 1.7 M FROM FFL	01
	SW 1 SWITCH BOARD HEIGHT - 1.5M FROM FFL	40
	R FAN REGULATOR IN SWITCH BOARD	05
	WASHING MACHINE HEIGHT - FFL	01
	TV POINT HEIGHT - 1.5M FROM FFL	01
	AIR CONDITIONER HEIGHT - 2.2M FROM FFL	04
	GATE LIGHT HEIGHT - 2M FROM FFL	02
	REFRIGERATOR HEIGHT - FFL	01
	EXHAUST FAN HEIGHT - 2.85M FROM FFL	03
	MICROWAVE HEIGHT - 0.9M FROM FFL	01
	15amp SOCKET IN SWITCH BOARD	11
	WALL MOUNTED LIGHT PT	04

ELECTRIC APPLIANCE LEGEND

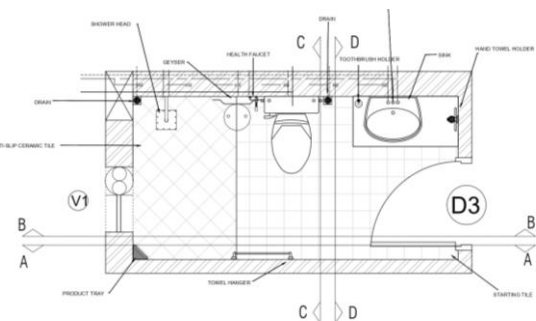
# ARC 3104 WORKING DRAWING



BATHROOM PLAN



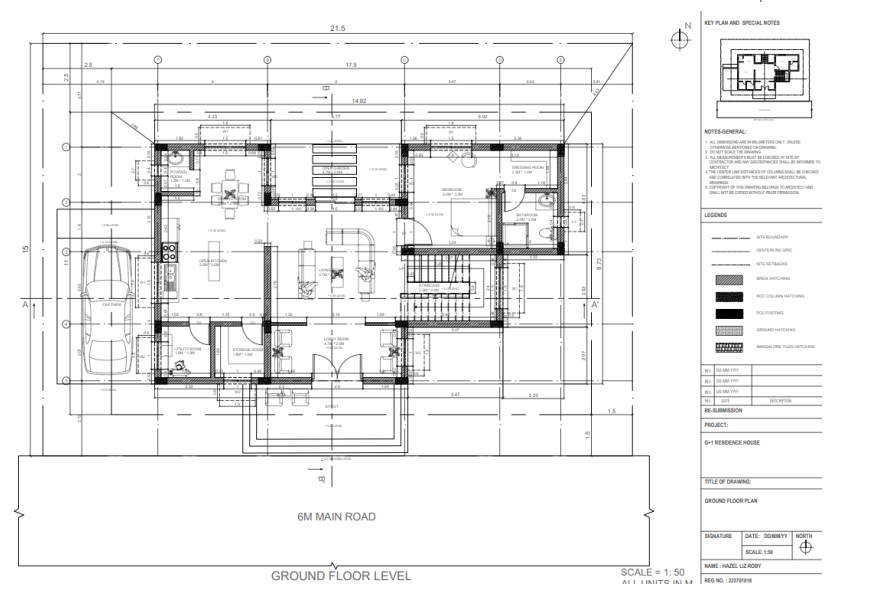
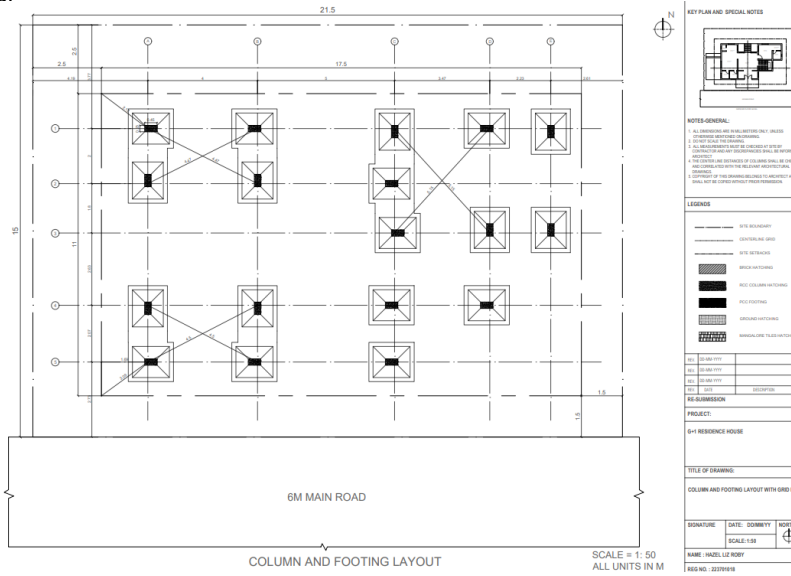
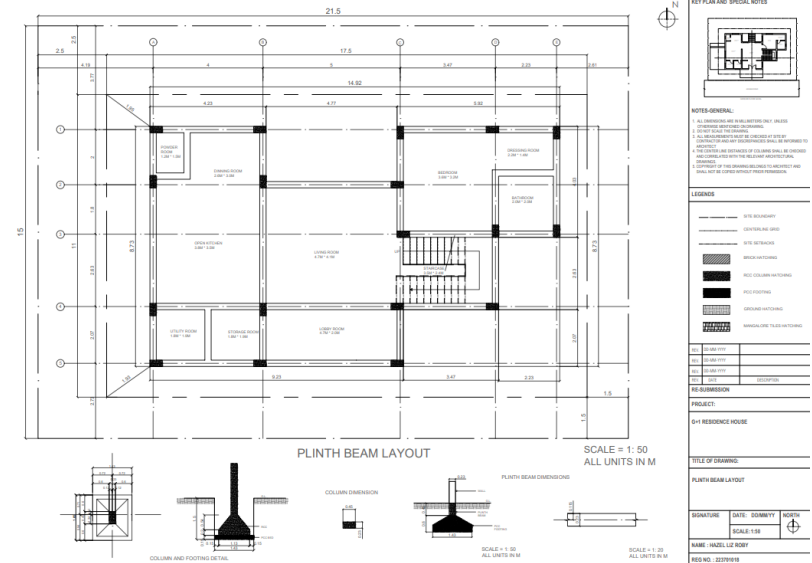
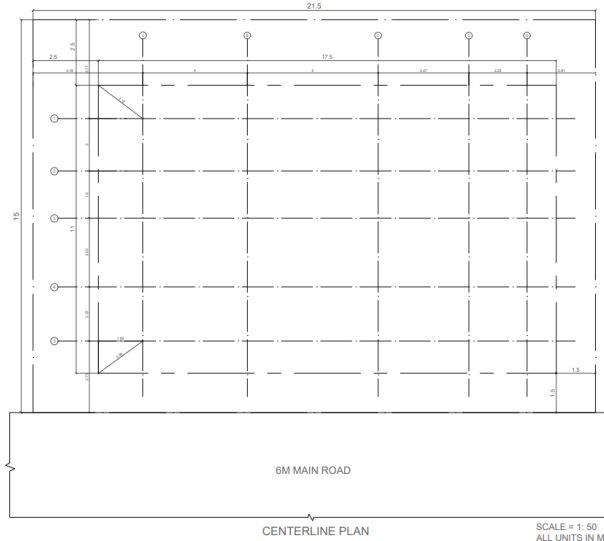
SECTION BB



BATHROOM 1  
3000 × 1500

# ARC 3104 WORKING DRAWING

**COURSE OBJECTIVES:**  
 The objective of this course is to develop the skills and techniques of preparation of production drawings by taking an already self designed project of the earlier semester and imparting training of the drafting of working drawing details.



**KEY PLAN AND SPECIAL NOTES**

**NOTES GENERAL:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
7. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
9. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.

**LEGENDS**

- SITE BOUNDARY
- OVERLAP AND JOINT
- SITE NETWORK
- BRICK WALL FINISH
- RCC COLUMN WALL FINISH
- RCC FINISH
- TERRAZZO FINISH
- MARBLE/STONE TILE FINISH

**REVISIONS**

NO.	DATE	DESCRIPTION
1	10/10/2018	ISSUED FOR PERMIT
2	10/10/2018	ISSUED FOR PERMIT
3	10/10/2018	ISSUED FOR PERMIT

**PROJECT:**  
G+1 RESIDENCE HOUSE

**TITLE OF DRAWING:**  
FIRST FLOOR PLAN

**SIGNATURE:** \_\_\_\_\_ **DATE:** 10/10/2018 **SCALE:** 1:50 **NORTH:**

**NAME:** HAZEL LIZ ROBY **REG. NO.:** 223701018

**SCHEDULE OF WINDOWS AND VENTILATORS**

NO.	TYPE	SIZE (W x H)	NO.	TYPE	SIZE (W x H)
1	WINDOW	1.2 x 1.8	1	VENTILATOR	0.6 x 0.6
2	WINDOW	1.2 x 1.8	2	VENTILATOR	0.6 x 0.6
3	WINDOW	1.2 x 1.8	3	VENTILATOR	0.6 x 0.6

**SCHEDULE OF DOORS**

NO.	TYPE	SIZE (W x H)	NO.	TYPE	SIZE (W x H)
1	DOOR	0.9 x 2.1	1	DOOR	0.9 x 2.1
2	DOOR	0.9 x 2.1	2	DOOR	0.9 x 2.1
3	DOOR	0.9 x 2.1	3	DOOR	0.9 x 2.1

**SECTION DETAIL OF CAR PARK**

**SECTION DETAIL OF PLUMBING BEARING TO INTERIOR WALL**

**SCALE = 1:50 ALL UNITS IN M**

**ELEVATIONS**

**NOTES GENERAL:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
7. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
9. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.

**LEGENDS**

- SITE BOUNDARY
- OVERLAP AND JOINT
- SITE NETWORK
- BRICK WALL FINISH
- RCC COLUMN WALL FINISH
- RCC FINISH
- TERRAZZO FINISH
- MARBLE/STONE TILE FINISH

**REVISIONS**

NO.	DATE	DESCRIPTION
1	10/10/2018	ISSUED FOR PERMIT
2	10/10/2018	ISSUED FOR PERMIT
3	10/10/2018	ISSUED FOR PERMIT

**PROJECT:**  
G+1 RESIDENCE HOUSE

**TITLE OF DRAWING:**  
ELEVATIONS

**SIGNATURE:** \_\_\_\_\_ **DATE:** 10/10/2018 **SCALE:** 1:100 **NORTH:**

**NAME:** HAZEL LIZ ROBY **REG. NO.:** 223701018

**SECTIONS**

**STAIRCASE DETAIL**

**NOTES GENERAL:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
7. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
9. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.

**LEGENDS**

- SITE BOUNDARY
- OVERLAP AND JOINT
- SITE NETWORK
- BRICK WALL FINISH
- RCC COLUMN WALL FINISH
- RCC FINISH
- TERRAZZO FINISH
- MARBLE/STONE TILE FINISH

**REVISIONS**

NO.	DATE	DESCRIPTION
1	10/10/2018	ISSUED FOR PERMIT
2	10/10/2018	ISSUED FOR PERMIT
3	10/10/2018	ISSUED FOR PERMIT

**PROJECT:**  
G+1 RESIDENCE HOUSE

**TITLE OF DRAWING:**  
SECTIONS AND STAIRCASE DETAIL

**SIGNATURE:** \_\_\_\_\_ **DATE:** 10/10/2018 **SCALE:** 1:50 **NORTH:**

**NAME:** HAZEL LIZ ROBY **REG. NO.:** 223701018

**SECTIONS**

**NOTES GENERAL:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
7. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
9. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.

**LEGENDS**

- SITE BOUNDARY
- OVERLAP AND JOINT
- SITE NETWORK
- BRICK WALL FINISH
- RCC COLUMN WALL FINISH
- RCC FINISH
- TERRAZZO FINISH
- MARBLE/STONE TILE FINISH

**REVISIONS**

NO.	DATE	DESCRIPTION
1	10/10/2018	ISSUED FOR PERMIT
2	10/10/2018	ISSUED FOR PERMIT
3	10/10/2018	ISSUED FOR PERMIT

**PROJECT:**  
G+1 RESIDENCE HOUSE

**TITLE OF DRAWING:**  
EAST AND WEST ELEVATIONS

**SIGNATURE:** \_\_\_\_\_ **DATE:** 10/10/2018 **SCALE:** 1:20 **NORTH:**

**NAME:** HAZEL LIZ ROBY **REG. NO.:** 223701018



# ARC 3106 BUILDING CONSTRUCTION & MATERIALS VI

## PREFAB AND PRECAST

### COURSE OBJECTIVES:

To study innovative materials such as FerroCrete; Fiber-reinforced concrete; Pre-Cast- Substructure and support system; precast foundations. Roof and wall systems; Glass and Ceramics; other innovative materials-properties and uses. Paints and Varnishes: Types and characteristics.

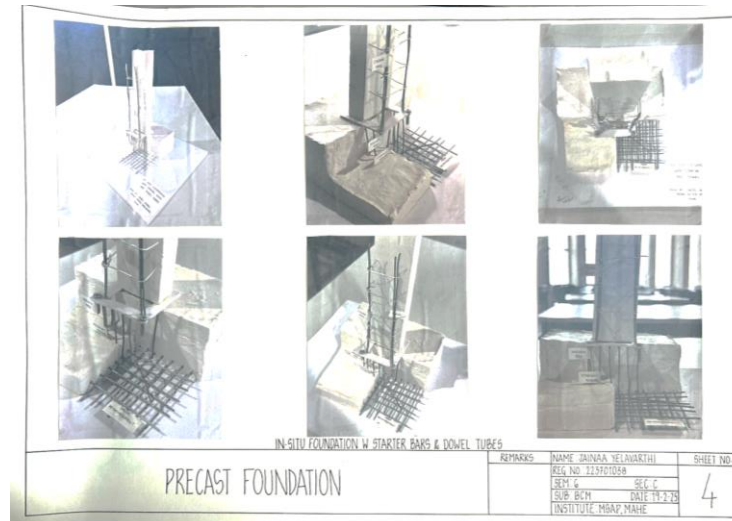
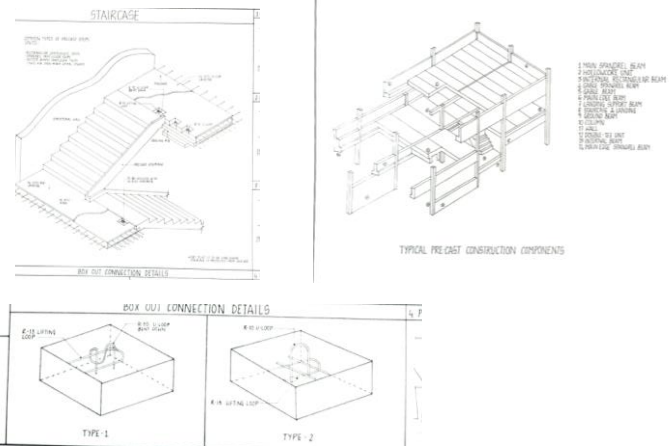
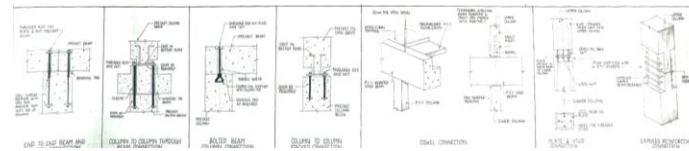
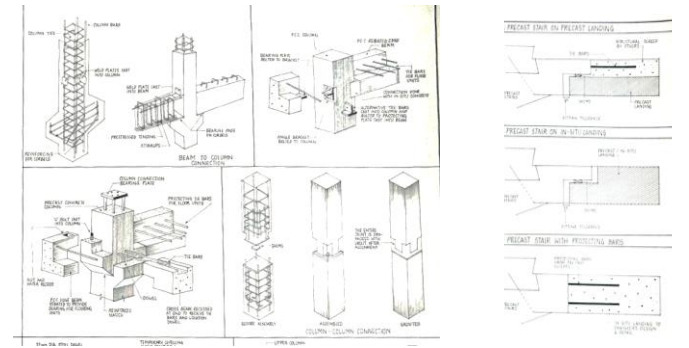
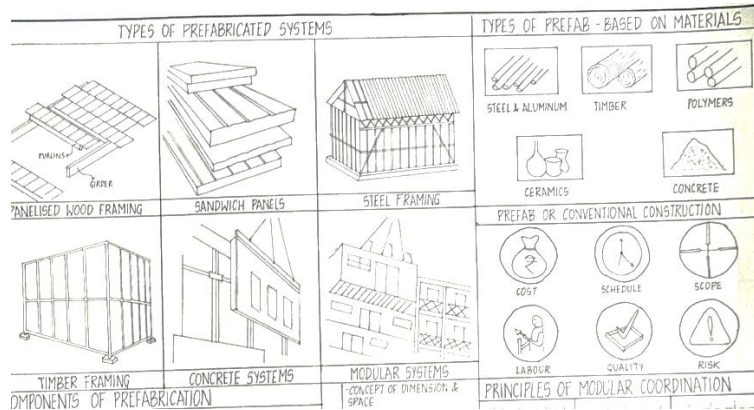
Construction Equipment for various stages in the process of building construction (pre and during the construction process).

### PROJECT BRIEF:

This course intends to compare structural concepts and identify suitable construction system and recommend joinery details for roofing and paneling. To identify Glass and Ceramics as construction materials. Relate types, compositions, physical & mechanical properties.

To develop an understanding about advanced materials and the latest technologies.

To recommend construction equipment for various stages in the process of building construction (pre and during the construction process). Recommend transportation & erection methods.

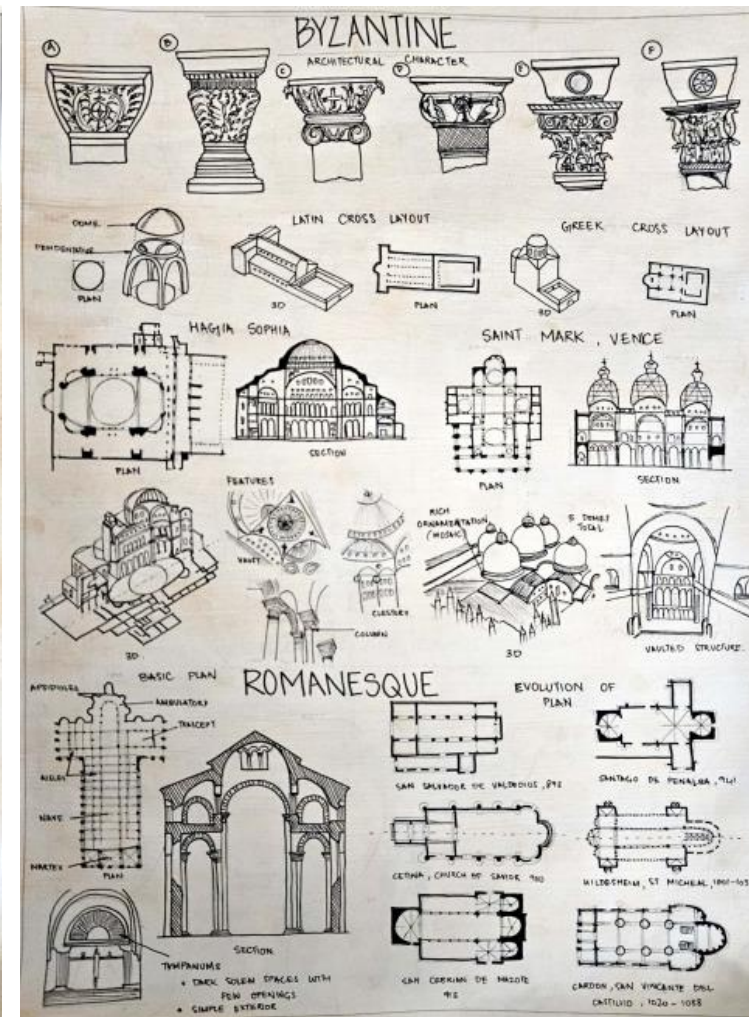
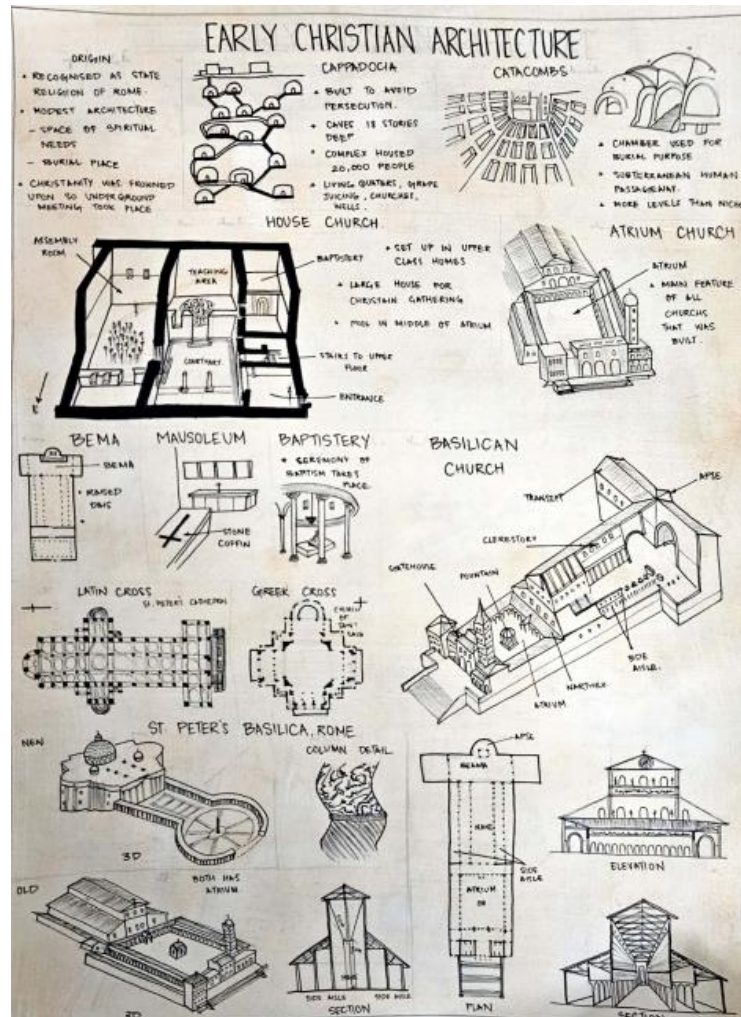


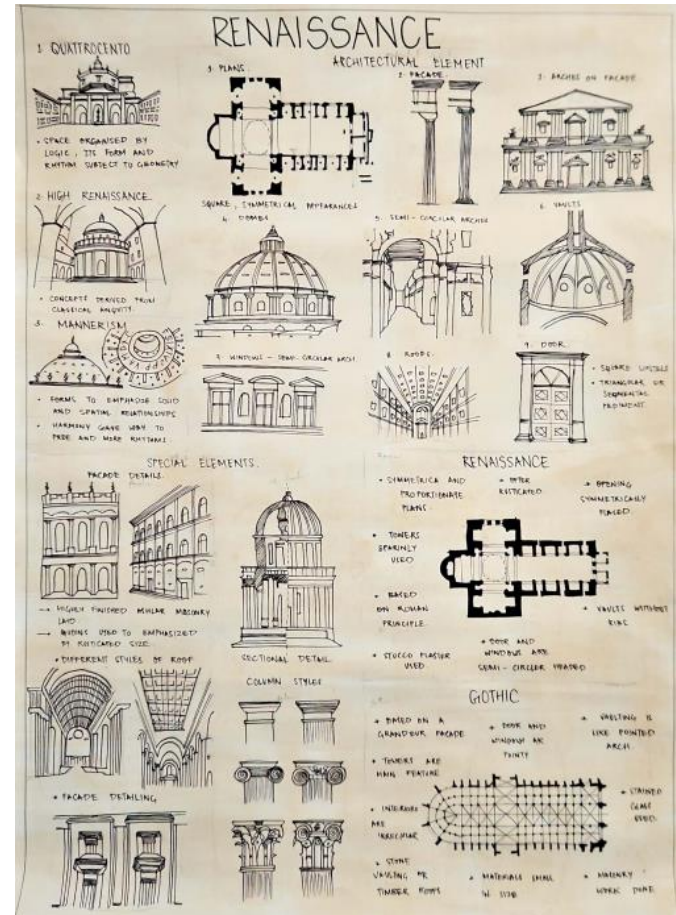
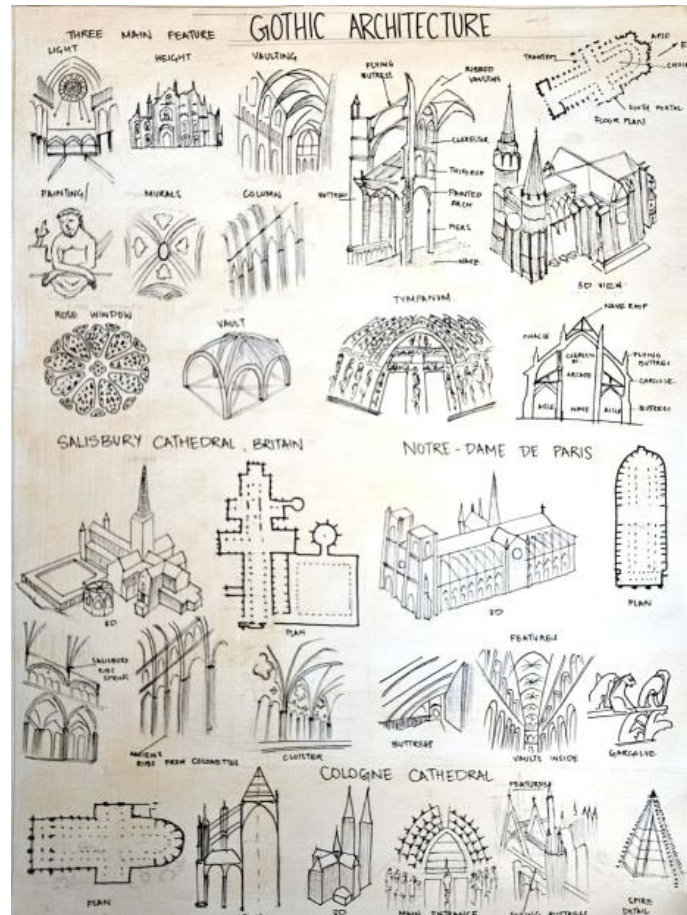
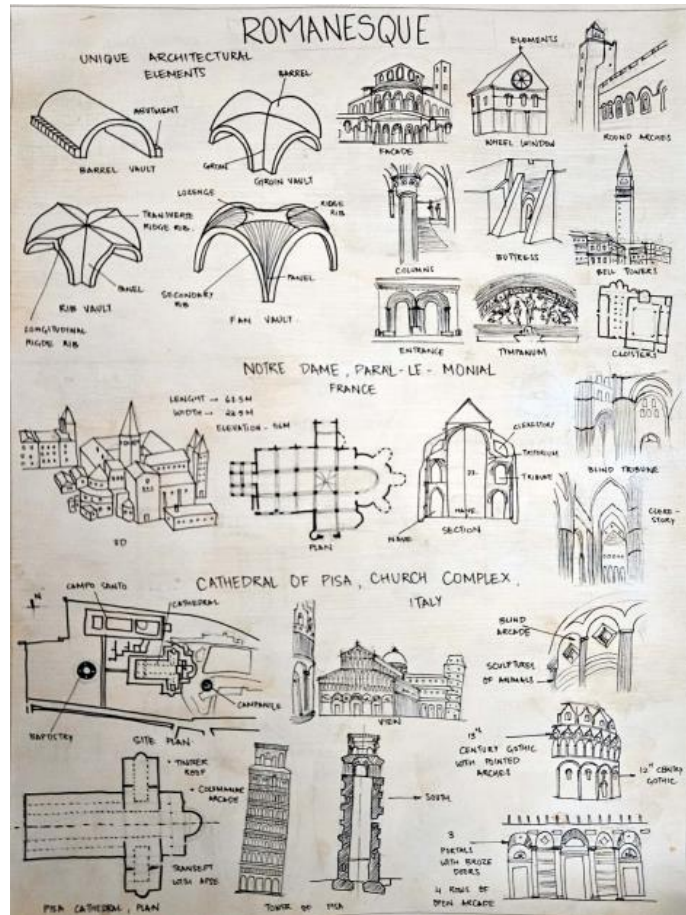
## COURSE OBJECTIVES:

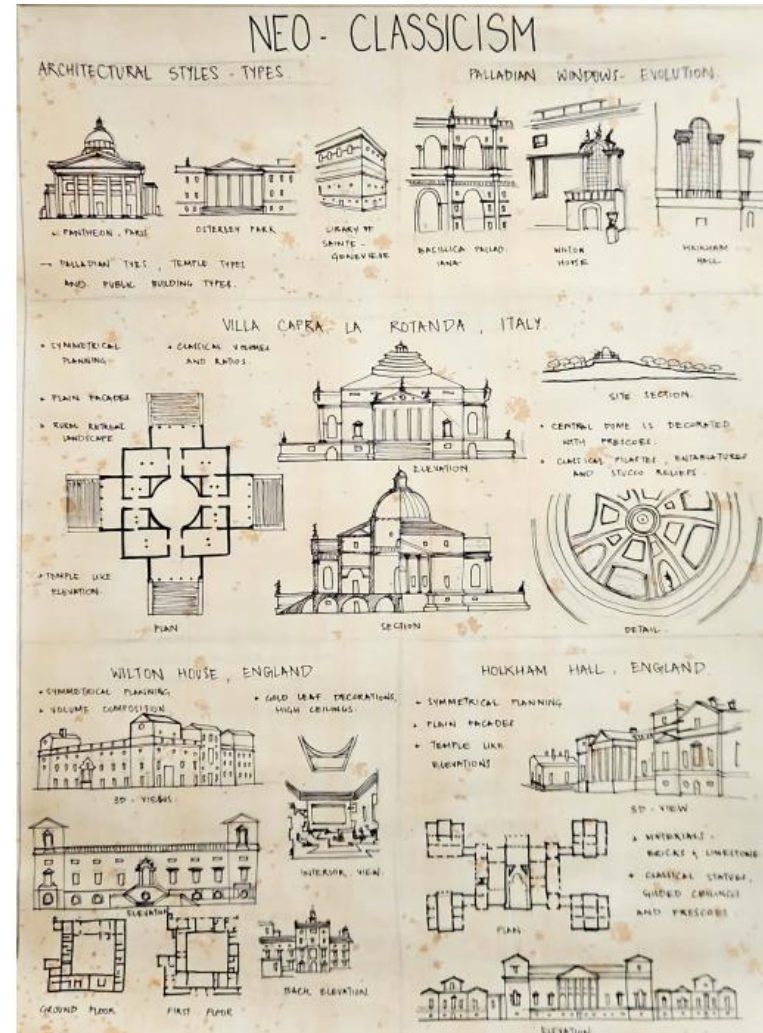
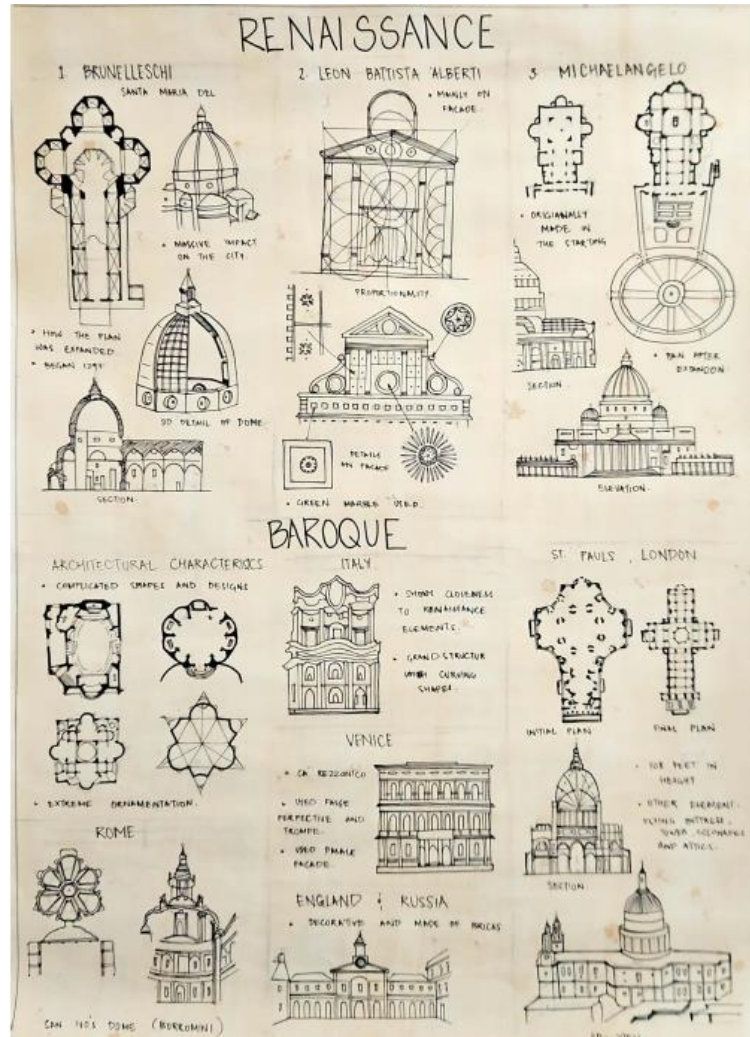
To study the architectural style, with regards to its architectural component, nomenclature and major features of the style being studied. To understand the settlement patterns and their physicality in relation to the geographical, and geological aspects. To understand the built environment, techniques and materials used for the construction.

## PROJECT BRIEF:

This course intends to introduce and understand ancient civilizations and analyze the evolution, general settlement pattern, geographic and climatic influence, socio-political background, construction technology, material influence







# ARC 3110 HISTORY THEORY & CRITICISM - IV

## EARLY CHRISTIAN ARCHITECTURE

### COURSE OBJECTIVES:

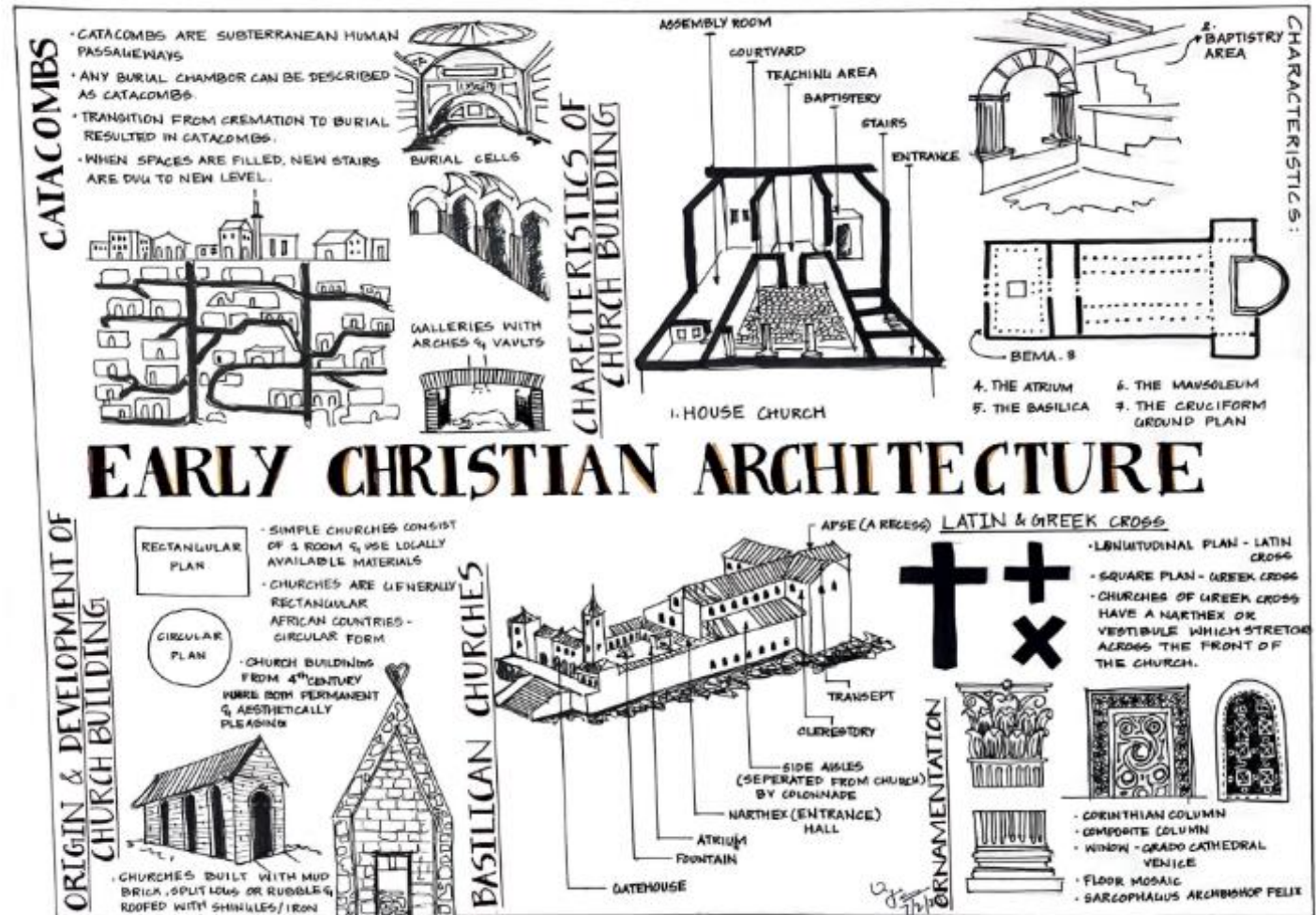
To explain the historical significance and concepts and identify key features of Christian Architecture.

Analyze the evolution of various architectural typologies, components and its styles.

Compare the distinct styles as per significant rulers & periods..

### PROJECT BRIEF:

This course intends to introduce and understand ancient civilizations and analyze the evolution, general settlement pattern, geographic and climatic influence, socio-political background, construction technology, material influence



# ARC 3110 HISTORY THEORY & CRITICISM - IV

## EARLY CHRISTIAN ARCHITECTURE

### ARCHITECTURE STYLE

- PLAN IS BASED ON ROMAN BASILICA.
- CHOIR IS RAISED BY FEW STEPS.
- ROSE WINDOW OVER PRINCIPAL DOOR.
- DARK SOLEMN SPACES.
- STONE VAULTING.
- GEOMETRIC COMPOSITION.
- SIMPLE EXTERIOR.
- MODEST HEIGHT.

## ROMANESQUE

### ARCHITECTURAL CHARACTER

- GENTRIC PLAN BASED ON HELLENIC CROSS
- MASSIVE DOMES & SQUARE BASE.
- GLORIOUS MARBLE & GOLD MOSAIC.

## BYZANTINE

### ARCHITECTURAL ELEMENTS.

EVOLUTION

### HAGIA SOPHIA

PLAN

ELEVATION

- A DOME CARRIES A CORONA OF 40 ARCHED WINDOWS
- VAULTED SANCTUARY APSE AT EAST END OF NAVE
- GREEN AND WHITE MARBLE COLUMNS
- MARBLES AND GOLD MOSAIC ENCRUSTED UPON THE BRICK CORE OF STRUCTURE.

# ARC 3110 HISTORY THEORY & CRITICISM - IV

## GOTHIC ARCHITECTURE

ARCHITECTURAL FEATURES

- MASSIVE STRUCTURES
- SLIT WINDOWS, ROSE WINDOWS
- STAINED GLASS
- SEMICIRCULAR ARCHES
- VERY THICK WALLS
- POINTED ARCHES
- RIBBED VAULTS
- FLYING BUTTRESSES
- GARGOYLES
- CLERESTORY WINDOWS
- TYMPANUM
- COLUMNS & PIERS
- PAINTING
- NARRATIVE MURALS
- PANEL PAINTING

# GOthic ARCHITECTURE

SALISBURY CATHEDRAL

PLAN

NOTRE DAME DE PARIS

CHARACTERISTICS

- QUADRI PARTITE RIBBED VAULT
- CLERESTORY
- TRIPORIUM
- NAVE ARCADE

PLAN:

- WIDE CENTRAL NAVE WITH DOUBLE AISLES

FACADE:

- THE CIRCULAR WHEEL WINDOW
- TWO WESTERN TOWERS
- RANGE OF STATUE NICHEs
- ROW OF 28 STATUES REPRESENTING KINGS

PLAN

NAVE BAYS

FLYING BUTTRESSES

KEY EVENTS IN RENAISSANCE HISTORY

1429 - COSIMO DE' MEDICI INHERITS MEDICI BANK

1454 - GUTENBERG BIBLE IS PUBLISHED

1492 - COLUMBUS REACHES THE BAHAMAS

1504 - MICHELANGELO FINISHES "DAVID"

1513 - MACHIAVELLI PUBLISHES "THE PRINCE"

1555 - THE PEACE OF AUGSBURG

1570 - FIRST MODERN ATLAS IS PUBLISHED

MOST REPRESENTATIVE ARCHITECT IS BRAMANTE (1444-1514)

HIS SAN PIETRO IN MONTORIO WAS DIRECTLY INSPIRED BY CIRCULAR ROMAN TEMPLES.

QUATTROCENTO

IN THE QUATTROCENTO, CONCEPTS OF ARCHITECTURAL ORDER WERE EXPLORED AND RULES WERE FORMULATED.

SPACE WAS ORGANIZED BY PROPORTIONAL LOGIC, ITS FORM AND RHYTHM SUBJECT TO GEOMETRY, RATHER THAN BEING CREATED BY INTUITION.

HIGH RENAISSANCE

# RENAISSANCE ARCHITECTURE

CLASSICAL ORDER WAS USED, I.E., THE DORIC, IONIC AND CORINTHIAN.

ARCHITECTURAL STYLES

DORIC

STRUCTURE WAS LOOKED UPON AS WORK OF ART.

ARCS OF ACCESSORIES, IN WHICH IRON, GOLD & SILVER WORK, & TOMBS, ALTAR...

FONTS AND FOUNTAINS, WERE DESIGNED IN LARGE NUMBERS.

RENAISSANCE VAULTING, USED IN THE HALLS, PASSAGES & STAIRCASE.

MANNERISM

FLOOR PLAN

DOMES

VAULTING

DOORS

- PLANS HAVE SQUARE & SYMMETRICAL APPEARANCE
- DOMESTIC BUILDINGS ARE SURMOUNTED BY CORNICE
- DOMES IS USED FREQUENTLY BOTH AS STRUCTURAL FEATURE AND ROOFING
- SEMI CIRCULAR ARCHES ARE USED
- ARCHES ARE USED IN ARCHES SUPPORTED ON PIERS/ COLUMNS
- DOORS HAVE SQUARE LINTELS
- EXTERNAL WALLS - ASHLAR MASONRY

SANTA MARIA DEL FIORI

**STRUCTURE OF CUPOLA**

- OCTAGONAL STAR SHAPED LANTERN WITH BUTTRESSES.
- STAIRS BUILT IN HOLLOW SPACE.
- FRAME CONSISTING OF ANGULAR AND INTERMEDIATE VAULTING RIBS LINKED TOGETHER
- ANGULAR CRESTS WHICH REVEAL INTERNAL RIBS.
- HOLLOW SPACE BETWEEN THE CALOTTE.
- EXTERNAL CALOTTA
- INTERNAL CALOTTA
- TAMBOUR WITH LARGE ROUND EYES

### RENAISSANCE ARCHITECTURE

ARCHITECTURE OF LEON BATTISTA ALBERTI

**EMBLEM WITH FACE OF BABY JESUS**

THE MATERIAL USED HERE IS FLORENCE, WHICH CAN DISPLAY DIFFERENT SHADES OF GREEN, FROM LIGHT GREEN TO ALMOST BLACK COMPONENTS

- CIRCULAR WINDOW
- FOUR STRIPED FILASTERS
- SCROLL BUTTRESSES.


S. PETERS, ROME

- IN PLAN, IT WAS A GREEK CROSS, LATER EXTENSION OF AISLES AND NAVE TOWARDS EAST MADE IT A LATIN CROSS.
- THE EXTERIOR HAS AN IMMENSE ORDER OF CORINTHIAN FILASTERS.
- THE WALLS ARE FACADED WITH PLASTER AND COLOURED TO IMITATE MARBLE.
- THE DOME IS BEAUTIFULLY DECORATED IN MOSAIC.
- THE CENTRAL CROSSING IS COVERED BY THE DOME.


ARCHITECTURAL CHARACTERISTICS

- QUADRATURA
- GRAND STAIRCASE
- MIRROR
- LIGHT


ITALY - CARLO MADRNO




GRAND STAIRWAY




DOMES



COLONNADES






LOUVRE PALACE


ELEMENTS

- COMPLICATED SHAPES
- BREAKING OUT OF THE BOX
- EXTREME ORNAMENTATION, OFTEN GILDED WITH GOLD
- LARGE ELLIPTICAL FORMS, WITH CURVED LINES
- TWISTED COLUMNS
- GRAND STAIRWAY
- HIGH DOMES
- INTEREST IN LIGHT AND SHADOWS
- DECORATIVE SCULPTURES
- NICHS


VENICE - BALDASSARRE

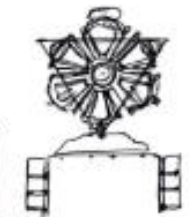



SCULPTURES



TWISTED COLUMNS








# BAROQUE ARCHITECTURE

ENGLAND AND RUSSIA

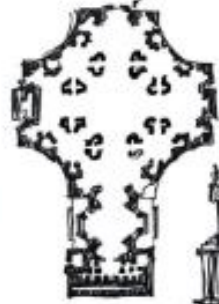
SAMBRIDGE EMMANUEL CHAPEL




ENGLAND:  
SIR CHRISTOPHER WREN USED BAROQUE STYLE FOR TOWN PLANNING INSPIRED FROM THE PLANS OF VERSAILLES AND ROME.

RUSSIA:  
TRADITIONAL CHURCHES SOMETIMES WERE MADE OF BRICKS; LATER IT WAS IMPORTED FROM THE LOW COUNTRIES AND FINALLY IT BECAME AN EXTRAVAGANT ART.

PLAN




ELEVATION




ST. PAULS, LONDON

- DESIGNED BY SIR CHRISTOPHER WREN.
- INITIAL WAS GREEK CROSS BUT LATER CHANGED TO MEDIEVAL PLAN.
- CROWNED BY DOME
- ELEMENTS: BUTTRESS, TOWERS, COLONNADES & ATTIC

ROCCOCO / ROCOCO / LATE BAROQUE





- USED THE SAME ELEMENTS AS BAROQUE, BUT IN A MORE DELICATE MANNER.
- IN ROLL, SHAPES WERE COMPLEX & NOT SYMMETRICAL.
- APPLICATION OF GOLD WAS PURPOSEFUL.
- COLOURS WERE OFTEN LIGHT AND PASTEL.

ARCHITECTURAL STYLE

VILLA CAPRA LA ROTONDA

SITE SECTION

PLAN

ELEVATION

EARLY PALLADIANISM

- DEFINED RECOVERY, REINVENTION & IMITATION.
- TYPES OF STYLES:
  - PALLADIAN TYPE: PALLADIAN ARCHITECTURE STYLE - USED IN HOUSES.
  - TEMPLE TYPE: INSPIRED FROM ROMAN AND GREEK TEMPLES.
  - CLASSIC BLOCK TYPE: MAINLY PUBLIC BUILDINGS LIKE LIBRARY, PERFORMING ART CENTRE ETC.

CHARACTERISTICS:

- HOLISTIC CLASSICAL VOLUMES
- SYMMETRY
- PROPORTION
- GEOMETRICAL AND CLASSICAL FORMS.
- MINIMAL ORNAMENTATION
- TEMPLE FRONT FACADE.

THE PALLADIAN WINDOW

THE PALLADIAN WINDOW IS A THREE PART WINDOW FEATURING A LARGE CENTRAL ARCHED OPENING FLANKED BY TWO SMALLER RECTANGULAR OPENINGS.

## NEO-CLASSISM ARCHITECTURE

ENGLISH PALLADIANISM

WILTON HOUSE

PLAN

ELEVATION

NEO PALLADIANISM

- ARCHITECTURAL STYLE DEVELOPED BY INIGO JONES
- ARCHITECTURAL FEATURES:
  - SYMMETRICAL PLANNING
  - CLASSICAL VOLUME COMPOSITION.
  - PLAIN FACADES
  - MATERIALS: LOCAL LIMESTONE.
  - LARGER CHIMNEYS
  - DOUBLE CUBE ROOM
  - GOLD LEAF DECORATION.

SCHEMATIC PLAN

WILTON HOUSE


ELEVATION

MARBLE HALL

INTERIOR DESIGN:

- STUCCO RELIEFS, GILDED MOLDINGS AND MARBLE PANELING
- STAIRCASE WITH BRONZE BALUSTRADES
- ELEGANT FIRE PLACE WITH CLASSICAL PEDIMENTS

CHARACTERISTICS: TEMPLE TYPE



- HOLISTIC CLASSICAL VOLUMES
- SYMMETRY
- PROPORTION
- MINIMAL ORNAMENTATION
- MONUMENTAL SCALE
- GEOMETRICAL AND CLASSICAL FORMS
- TEMPLE LIKE VOLUMES
  - COLUMNS & ORDERS
  - PEDIMENTS AND PORTICO

TEMPLE TYPE

LA MADELEINE, PARIS

- HAS COFFERED BARREL VAULTS AND OCVLUS IN DOMES.
- LARGE BRONZE DOORS
- INTERIORS IS RICHLY DECORATED

PANTHEON, PARIS

- THE DOME CONSISTS OF THREE LAYERS
- INNER DOME WITH COFFERED CEILING
- STRUCTURAL MIDDLE SHELL
- OUTER DOME

PERIMENT TYMPANUM

THE NAIVE AND THE COR

# NEO-CLASSICISM ARCHITECTURE

CLASSIC BLOCK TYPE

- STRUCTURES WITH CUBOIDAL VOLUMES WITH A STRONG HORIZONTAL EMPHASIS, FLAT OR MINIMALLY PITCHED ROOFS AND GRAND COLONNADES.
- MOSTLY PUBLIC BUILDINGS WERE DESIGNED IN THIS STYLE ACROSS EUROPE

ALTES MUSEUM

A GRAND ENTRANCE HALL WITH A CIRCULAR ROTUNDA

FRIEZE AND ORNAMENTATION

THE LAST PHASE AND DECLINE

CHARACTERISTICS:

- SIMPLIFIED MONUMENTAL NEOCLASSICISM.
- GRAND CIVIC BUILDINGS
- EXTENSIVE USE OF CLASSICAL ELEMENTS
- INFLUENCE OF EMPIRE AND BEAUX-ARTS STYLES.

THE VIRGINIA STATE CAPITOL

THE WHITE HOUSE, WASHINGTON



BACHELOR OF ARCHITECTURE  
Undergraduate Program

Bachelor of Architecture  
Undergraduate Program

Year

4

Architecture

# ARC 4101 ARCHITECTURAL DESIGN & DETAILING -VII

## HUMAN CENTRIC CAMPUS DESIGN

### PROJECT BRIEF:

A gated community project with a **human-centric approach**, prioritizing the wellbeing and experience of its residents. By creating a balanced environment where people can live, socialize, and relax, the project embodies the principles of modern urban living, with a focus on **comfort, sustainability, and social connection**.

total floor area	3144 + circulation
No of floors	4608
Built up	119808
FAR	3.9

Site area	30733
ground coverage	17%

No of gal	2500	Loch	135
Day total L	CUM No	capacity (X 1000)	
supply UGT	1.5 506250	506	4 126.56 (12*5*2)
OHT	0.5 168750	169	16 10.547 (3*3*2)
Fire OHT	10000	10	8 10.3*3*2
T. grey OHT	0.5 50000	50	4 12.5*3*3*2
STP -grey	0.5 237500	1	170 7*8*3
STP -black	2 100000	1	290 11*10*3
STP-sec.	0.5 1	1	60

MASTER PLAN

SITE SECTIONAL ELEVATION (SE)



# ARC 4101 ARCHITECTURAL DESIGN & DETAILING -VII

## HUMAN CENTRIC CAMPUS DESIGN

### COURSE OBJECTIVES:

To classify context oriented design, integrated systems and innovative approaches in campus planning and to design large scale master planning through tools and techniques, parameters of topography, climate and infrastructure development and making use of environment strategies

### PROJECT BRIEF:

This course helps us to plan the space in the form of function through master planning through the movement and also by form through exploring various different shapes in the building

MASTER PLAN:



**AREA PROGRAMMING:**

UNIT	NO.	SQ. FT.	NO.	SQ. FT.	AREA
Living cum Bedroom	1	9	9	18	
Bedroom	1	11	11	22	

**4 BHK & 5 BHK:**

UNIT	NO.	SQ. FT.	NO.	SQ. FT.	AREA
Living cum Bedroom	1	11	11	22	
Bedroom	1	11	11	22	

**6 BHK:**

UNIT	NO.	SQ. FT.	NO.	SQ. FT.	AREA
Living cum Bedroom	1	11	11	22	
Bedroom	1	11	11	22	

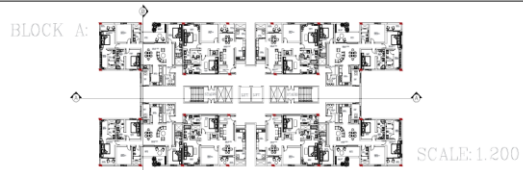
**ENT HOUSE:**

UNIT	NO.	SQ. FT.	NO.	SQ. FT.	AREA
Living cum Bedroom	1	11	11	22	
Bedroom	1	11	11	22	

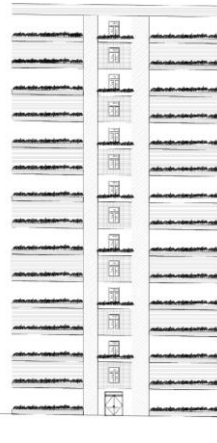
**TOTAL SITE AREA: 31000 SQ.M**  
**TOTAL BUILT UP AREA: 77500**  
**TOTAL NO OF UNITS: 320**

# ARC 4101 ARCHITECTURAL DESIGN & DETAILING - VII

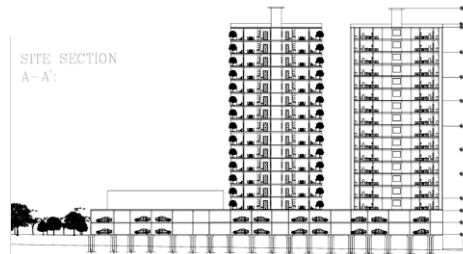
## HUMAN CENTRIC CAMPUS DESIGN



FRONT ELEVATION BLOCK A :



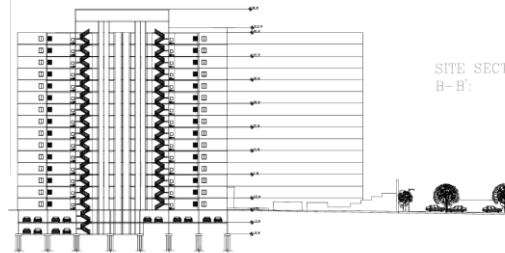
SITE SECTION A-A':



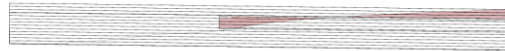
T AND PILL DIAGRAM



SITE SECTION B-B':



CUT AND PILL DIAGRAM



3BHK VILLA GROUND FLOOR PLAN:



3BHK VILLA FIRST FLOOR PLAN:



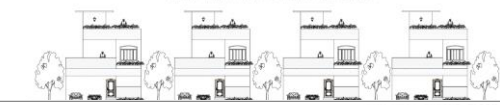
SECTION A-A':



SECTION B-B':



3BHK VILLAS FRONT STREET ELEVATION :



4BHK VILLA GROUND FLOOR PLAN:



4BHK VILLA FIRST FLOOR PLAN:



4BHK VILLA SECOND FLOOR PLAN:



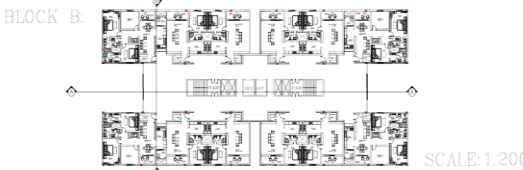
SECTION A-A':



SECTION B-B':



4BHK VILLAS STREET ELEVATION:



FRONT ELEVATION BLOCK B :



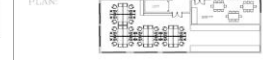
CLUB HOUSE GROUND FLOOR PLAN:



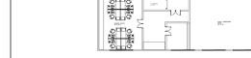
CLUB HOUSE FIRST FLOOR PLAN:



CLUB HOUSE SECOND FLOOR PLAN:



CLUB HOUSE FOURTH FLOOR PLAN:



CLUB HOUSE ROOF TOP PLAN:



COMMERCIAL SPACE:

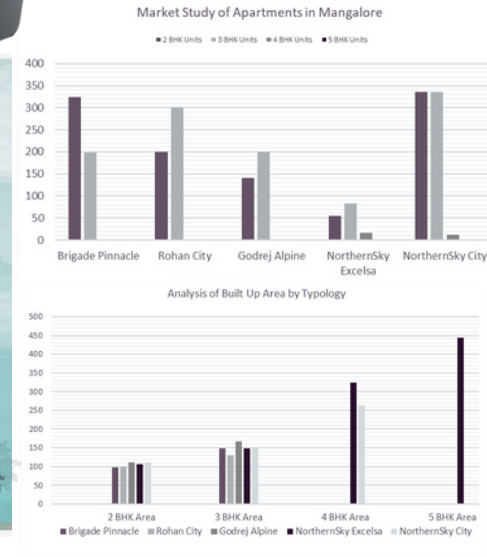
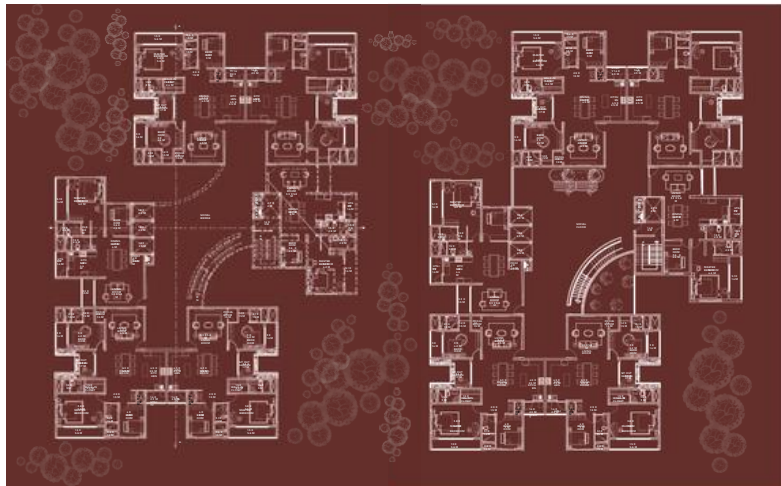
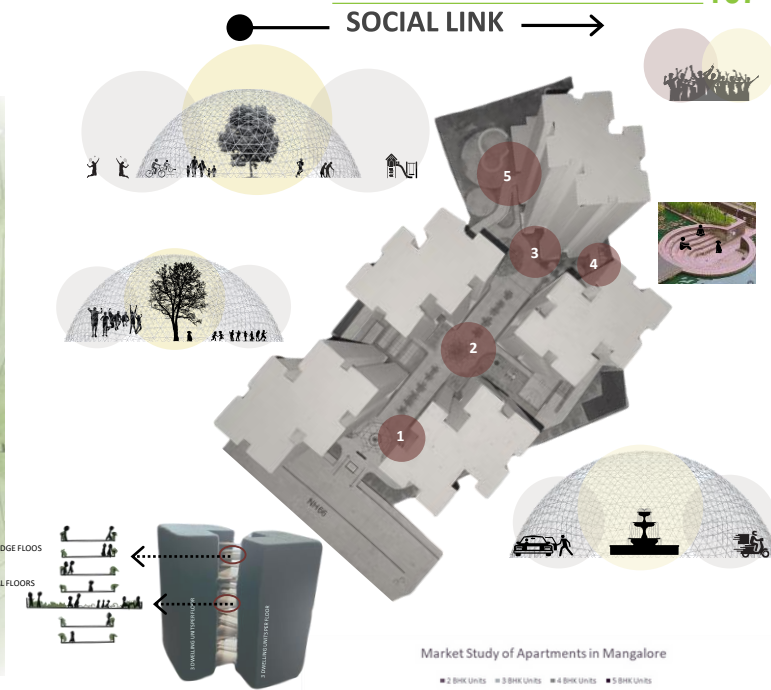


# ARC 4101 ARCHITECTURAL DESIGN AND DETAILING - VII

## SOCIAL LINK HIG Housing in Mangalore, Karnataka

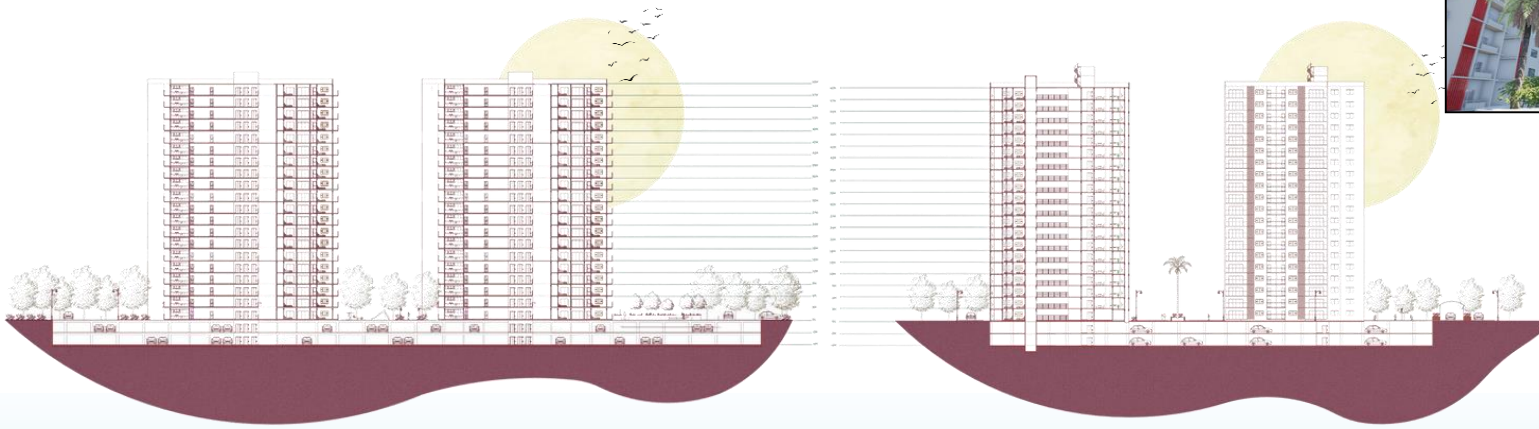
### PROJECT BRIEF:

The design addresses the significant issue of limited neighborhood socialization, moving beyond the conventional view of corridors as narrow circulation spaces. Drawing inspiration from the communal atmosphere and spaces of "Chawls," I developed the concept of "Social Link." This concept focused on creating social nodes at the landscape level while establishing vertical social connections through visual links between common areas on different floors. The design also emphasized breaking the norm of narrow corridors, transforming them into spaces that play a key role in fostering neighborly interactions.



# ARC 4101 ARCHITECTURAL DESIGN AND DETAILING - VII

SOCIAL LINK    HIG Housing in Mangalore, Karnataka



# ARC 4103 SETTLEMENT STUDIES

## STUDY OF CITY KOLKATA

### COURSE OBJECTIVES:

To study the knowledge on the evolution of human settlements, settlement patterns and basic services, and the impacts of urbanisation/industrialisation on planning approaches. It also provides with knowledge of land & housing economics, survey and analysis tools, legislation and development control regulations, government & non-governmental organisations, and schemes and programs.

### PROJECT BRIEF:

This study entails detailed history and evolution of Kolkata. The next part of the study consists of detailed documentation and analysis of the built form of the stretch from the MIT Junction- Tiger Circle.



The first historic mention of Calcutta found in Ain-i-Akbar in 1596



Job Charnock halted at Sutanati on August 24, 1690

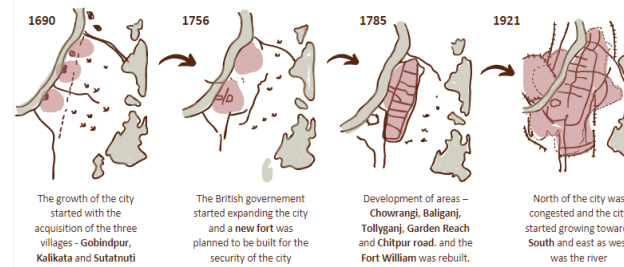


Foundations of British Calcutta laid by Job Charnock

- The permission was granted to the East India company to purchase 3 villages of Sutanati, Kalikata and Govindapur in the immediate neighbourhood of the fort.
- The purchase price in 1690 was Rs. 1300.
- It was in 1690 that Job Charnock realized the potentials of these regions
- He Laid the foundations of British Calcutta on the site of the 3 villages on the eastern banks of the Hooghly river.
- Calcutta grew around the villages of Kalikata, Sutanati, Govindapur and Chitpore on the east bank.
- On the south fringe was Sunderbans, the world's largest estuarine forests.
- Eastwards extended the salt lake – the draining board of Calcutta.



Map showing the three villages



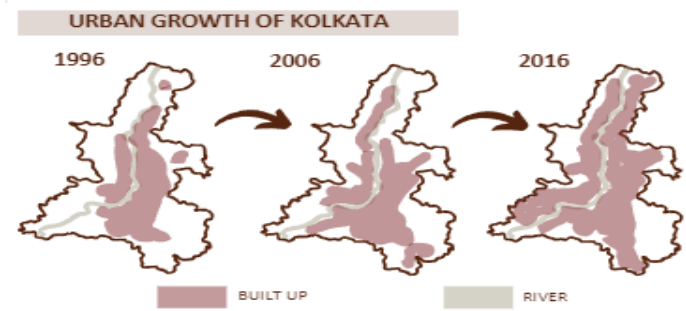
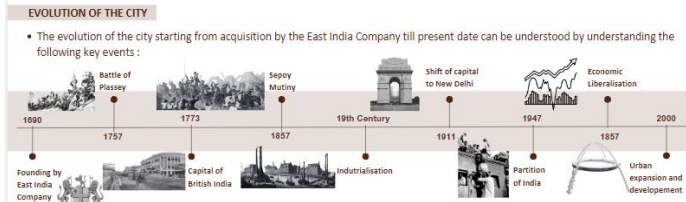
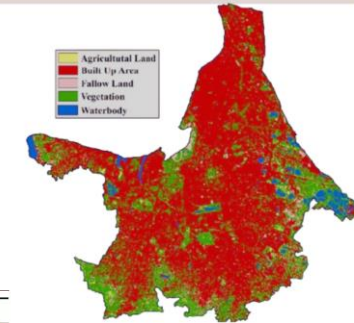
The growth of the city started with the acquisition of the three villages - Gobindpur, Kalikata and Sutanati

The British government started expanding the city and a new fort was planned to be built for the security of the city

Development of areas – Chowranghi, Balliganj, Tollyganj, Garden Reach and Chitpur road, and the Fort William was rebuilt.

North of the city was congested and the city started growing towards South and east as west was the river

### CURRENT LAND USE MAP OF KOLKATA



- NORTH KOLKATA**
  - Neighbourhood of elite Bengalis, artisans and craftsmen
  - Low height buildings with maximum coverage
  - The buildings are attached with no setbacks
- CENTRAL KOLKATA**
  - Established on the site of Gobindpur village.
  - Covered between Esplanade and Park Street, it forms the CBD of the city.
  - Monumental scale of proportions
- SOUTH KOLKATA**
  - Extends to eastern wetlands and the river in the west.
  - Lies on the south of the circular road.
  - Preplanned and have a definite control over urban form
  - The buildings have proper setbacks on all four sides

### CIVIC BODY TO REVISE BLDG RULES

> KMC won't regularise unauthorised construction if the violation is more than 10% of the area allowed to be built

> Set to revise building rules

> KMC has kept completion certificates on hold for hundreds of newly built buildings for violation of rules after the Garden Reach tragedy

> KMC's bldgs dept told to offer relief to the owners of small land by relaxing rules so that they can build homes without taking illegal route of constructing a building

> Relaxations will also be given to think pilots

**NEW NORMS**

> Citizens had to scope of regularising minor deviations after 2014. But KMC may take stringent action if one takes advantage of such relaxations and flouts rules

> KMC will allow external deviations during execution of a project if a revised plan is submitted stating the purpose of such changes

> Citizens had to scope of regularising minor deviations after 2014. But KMC may take stringent action if one takes advantage of such relaxations and flouts rules

> KMC won't regularise unauthorised construction if the violation is more than 10% of the area allowed to be built

> Set to revise building rules

> KMC has kept completion certificates on hold for hundreds of newly built buildings for violation of rules after the Garden Reach tragedy

> KMC's bldgs dept told to offer relief to the owners of small land by relaxing rules so that they can build homes without taking illegal route of constructing a building

> Relaxations will also be given to think pilots

### HIGH POPULATION DENSITY:

Due to the growing population of Kolkata, new residential and commercial projects are increasingly being developed in the city's peripheries like Rajarhat and New Town.

### ENVIRONMENTAL ISSUES

Rapid urbanization and inadequate planning have led to the encroachments of Water bodies, limited green spaces, and falling of air quality below safe levels.

### POLICY GAPS:

Even though the policies are well thought, the implementation is often inconsistent, leading to many issues.

Therefore, as the population increases the challenge is to create a balance between the city's historical legacy, rapid urbanization and environmental challenges. While there are efforts to solve these challenges, effective implementation of these is needed.

# ARC 4103 SETTLEMENT STUDIES

## STUDY OF A ROAD STRETCH IN MANIPAL – MIT JUNCTION TO TIGER CIRCLE

### ROAD+BUILDING EDGES

900 mm ht

Distance from the road to building edge (setback)

Main landmark buildings are placed after the ROW, to avoid future complications.

### FOOTPATH+ROAD STUDY

- Zig zag concrete paver block
- Cosmic concrete paver block
- Flower concrete paver block

Single or two-story buildings with simple facades, gable roofs, and prominent signage.

Other commercial areas have a row of billboards marking shop entrances.

Hotels and malls feature glass and modern facades.

Billboards dominate lower facades, altering visuals.

Green facade features a patterned, minimalist look.

Trees and greenery soften the urban landscape.

Continuous electric poles disrupt the elevations.

CANARA MALL SIDE

### LAND USE AND DENSITY

PRESENT CONDITION

- Institutional building
- Commercial building

The two types of building typologies adjacent to this particular stretch is the commercial on one side and institutional on the other. Areas marked show the congestion zones (vehicular and pedestrian) as all the buildings adjacent to the stretch attract a considerable amount of crowd at almost all times of the day.

### KEVIN LYNCH'S 5 PRINCIPLES

- LANDMARK** - Canara mall KMC
- DISTRICT** - Prominent institutional district
- PATH** - Udupi-Agumbe Highway
- NODES**
  - Commercial Nodes
  - Transportation Nodes
  - Institutional Nodes
  - Institutional Nodes
  - Recreational node

Tiger circle

MIT

This side of the pedestrian walkway is shaded by the buildings shadow.

Tiger circle

MIT Junction

The pedestrian pathway in this side is not shaded well.

# ARC 4103 SETTLEMENT STUDIES

## SETTLEMENT MORPHOLOGY OF TOKYO

### COURSE OBJECTIVES:

To study the evolution of a city, notably its changes spatiotemporally. The study featured various aspects feeding into these changes, such as the geography and activities influencing the settlement patterns, the major events that produced unanticipated conversions, and the interventions implemented to regulate them.

### PROJECT BRIEF:

The project discusses the evolution of Tokyo, Japan. It investigates the origins and major events and regulations that changed the trajectory of settlement.

**Settlement History of TOKYO**

By: Anshula S Kamath: 213701084  
Eesha Mulumoodi: 213701076  
Settlement Studies Assignment 1  
Section B, MSAP.

**TOKYO: An Overview**  
Capital of Japan: 13,452 km<sup>2</sup>  
Population: 13.49 million  
Type of Settlement: Metropolitan Prefecture

Edo is now Tokyo, capital of Japan  
Kyoto became cultural capital

**1600s: Edo, the fishing village**  
Edo, a fishing village  
Kyoto was the capital of the Japanese Empire

**How Calamities shaped Tokyo**

1636: Appan Sea in the Pacific Ring of Fire, susceptible to frequent seismic activity.  
1657: Nonesuch Plague caused most of the city to be razed.  
1657: Meireki: the Great Fire of Meireki spread out outside the water wall, a city need for reconstruction of land from sea in order to sustain the growing population.  
1923: The Great Kanto Earthquake  
1945: After the 1945 WWII bombings Tokyo was redesigned and rebuilt as per the land use map by municipal authorities.

**1600s: Edo, the fishing Village**

- 12th Century: Great flood built bridge across the river to connect to central Edo.
- 14th Century: Built his residence in the area during the Chokoku era.
- 15th Century: Family eventually moved out but the legacy remained through Edo Castle.
- 16th Century: Castle built on Edo Castle, was constructed on the site of Shogun's residence.
- 1603: First shogun allowed the residents to occupy whole land from the Meiji River, leaving the rest until 1603/04/05.
- Early 17th Century: Shogun: Shogun's residence moved to accommodate a Shogun, transformed the castle into a city within a city.
- 1663: Most of the fish city walls were destroyed due to WWII bombing and the 1923 earthquake.

**The Great Fire of Meireki: Rebuilding Edo**

During the Great Fire of Meireki: January 18 1657, almost 60% of the town was destroyed. In the time it took to rebuild, the city was redesigned and rebuilt as per the land use map by municipal authorities.

**Measures taken to prevent fire accidents in future:**

- Firebreaks are high open spaces. In Warring of old, the land had been for long periods. It had to be built in such a way that it could be used as a firebreak.
- High open spaces: covered by trees, for fire to spread.
- Residents were allowed to safe beyond the water shore, most shogun was allowed to construct Edo Castle. Shogun was the only one who could build for any reason in water to check fire in case of disaster. The land had to be very strategic and to be used for any emergency out.

**Meiji Restoration**

- Meiji Restoration: Meiji Restoration, which was the first step in the modernization of Japan, took place in 1868. It was the beginning of the Meiji period, which was the start of the Meiji Restoration.
- Meiji Restoration: Meiji Restoration, which was the first step in the modernization of Japan, took place in 1868. It was the beginning of the Meiji period, which was the start of the Meiji Restoration.

**Industrial Revolution**

- Establishment of the first Railway Station in Japan (Shinjuku Station, 1872) connecting the city to the surrounding areas.
- Industrial centers for textiles in the vicinity of the station.
- Other cities like Osaka, Kobe, and Yokohama were also developing industrial and commercial centers.
- Low-lying land near densely populated areas was reclaimed by reclamation by sea after 1912. City of extension.
- Industrial water consumption was very high.
- Chemical, mechanical and electrical, food and other industries were established.

**World War - II (1945)**

- Consequences of World War II: Bombing of Tokyo (March 10, 1945) and the atomic bombing of Hiroshima (August 9, 1945) and Nagasaki (August 9, 1945).
- Post-WWII: An approach to rebuild the city was taken. The city was divided into blocks and the blocks were rebuilt. The city was rebuilt in a way that it could be used as a firebreak.

**Urban settlements**

- Population in Tokyo (right) and in the rest of Japan (left) in 1950.
- Population in Tokyo (right) and in the rest of Japan (left) in 1950.

**Sum settlements**

- Sum settlements: Sum settlements, which were the traditional settlements of the Japanese people, were built on the hillsides of the mountains.

**Modern-day Tokyo**

- Development of the city: Tokyo's development in 1957 is shown in the map. The city was built on the hillsides of the mountains.

**Bye-Laws- Revised City Planning Act**

- Bye-Laws: Bye-Laws, which were the traditional laws of the Japanese people, were built on the hillsides of the mountains.

**Control of Building Use by Land Use Zones**

- Control of Building Use by Land Use Zones: Control of Building Use by Land Use Zones, which were the traditional laws of the Japanese people, were built on the hillsides of the mountains.

# ARC 4103 SETTLEMENT STUDIES

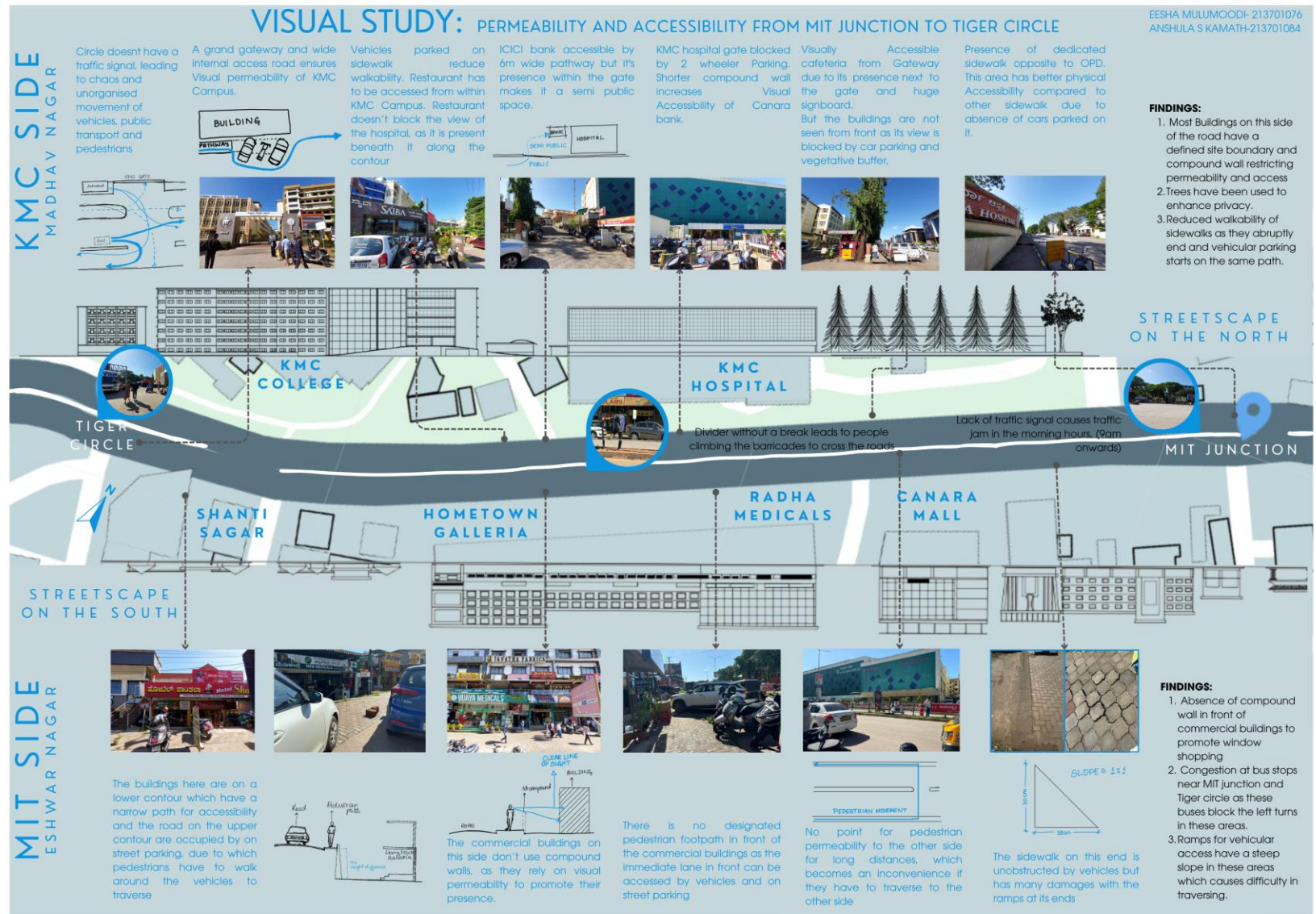
## MAPPING OF BUILT ENVIRONMENT: PERMEABILITY STUDY

### COURSE OBJECTIVES:

To study the evolution of a city, notably its changes spatiotemporally. The study featured various aspects feeding into these changes, such as the geography and activities influencing the settlement patterns, the major events that produced unanticipated conversions, and the interventions implemented to regulate them.

### PROJECT BRIEF:

The project discusses the evolution of Tokyo, Japan. It investigates the origins and major events and regulations that changed the trajectory of settlement.



## COURSE OBJECTIVES:

This course provides students with the knowledge on the evolution of human settlements, settlement patterns and basic services, and the impacts of urbanization/industrialization on planning approaches. It also provides students with knowledge of land & housing economics, survey and analysis tools, legislation and development control regulations, government & non-governmental organizations, and schemes and programs.

## PROJECT BRIEF:

The assignment involves selecting a city and mapping its evolution by analyzing factors that contributed to its growth, along with the impact of current residential bye-laws on the city's- built form. The findings should have detailed city's origin, growth, and development regulations.

### ORIGIN OF THE CITY

**'SOMETHING GOOD COMETH OUT OF EVIL';**

this goes the Biblical saying. This legendary proverb aptly describes the birth of the city of Chandigarh, which was conceived immediately after India's Independence in 1947.

With the partition in the subcontinent, **Lahore, the capital of undivided Punjab** fell within Pakistan, leaving East Punjab without a Capital. It was decided to build a **new capital city called Chandigarh** about 240 Km north of New Delhi on a gently sloping terrain with foothills of the Himalayas the Shivalik Range on the North. Chandigarh is one of the most significant urban planning experiments of the 20th century. It has become a symbol of planned urbanism.



#### GEOGRAPHICAL LOCATION:

**Latitude :** 30°50' N and **Longitude :** 76°48'  
**Altitude :** 304.8 - 365.76 meters above sea level.

Pandit Jawaharlal Nehru, Independent India's first Prime Minister, laid down the founding principles of the new city when he said "Let this be a new town, symbolic of freedom of India, unfettered by the traditions of the past.....an expression of the nation's faith in the future". The city is a product of Nehru's vision.

### EVOLUTION OF THE CITY

#### Mayer's Plan- 1950

- Mayer was the first one to get the Chandigarh project
- Matthew Nowicki was invited to join the staff assembled to plan Chandigarh.
- Mayer was thrilled with the prospect of planning a brand-new city and accepted the entire project.
- His brief was to prepare a master plan for a city of half a million, business, industry, recreation and allied uses.
- He was also responsible for preparing detailed government facilities and architectural controls for other areas.
- Mayer stated that he was trying to create something "that applies to what way in Radburn, the greenbelt towns, and Baldwin hills.
- The basic aim, stated Mayer, was a beautiful city.
- The flatness of the site allowed almost complete freedom in creating street layout geometric grid in favour of a loosely curving system.
- The death of Nowicki necessitated the selection of a new architect for Chandigarh.
- It was the minister of planning who suggested Le-Corbusier.



- Placing of Four major components of city including:
  - Capitol,
  - University,
  - City Center,
  - Industrial Area
- ALBERT MAYER'S SUPER BLOCK
  - Super block measured 500 m x 1000 m in dimension
  - Each super block consisted of three parts, which contained housing, schools, shopping centers, others amenities.
  - 3 types of housing - Low, Middle and High income groups were inter-mixed.
- The provincial govt. Buildings are located the upper edge of the city within a fork in one of the rivers, while the central business district occupies an area near the center.
- A curving network of main roads surrounds the residential superblocks, each of which contains a central area of parkland
- Located between two boundary rivers
- fan shaped plan
- Govt. Centre - Northeast Side of the City
- Super Block - Accommodating some 1500 families.
- 3 Superblocks to make a district
- Industrial area planned in southern corner
- Administration area in north-east
- 2 Large parkland zones across city
- Future expansion in the southwest across the plan

### ORIGIN OF THE CITY

#### SELECTION OF SITE:

The selection process for the site of the proposed capital of Punjab in 1948 was a meticulous one. A Committee, led by P.L. Verma, Chief Engineer, was appointed by the Government of Punjab to evaluate existing towns in the state. However, none of the existing towns were deemed suitable due to factors like military vulnerability, lack of drinking water, inaccessibility, and the inability to accommodate a large influx of refugees.

Ultimately, the present site was chosen in 1948 based on several favorable attributes:

- Central Location:** The site was centrally located within the state of Punjab, making it accessible and strategically significant.
- Proximity to the National Capital:** Its close proximity to New Delhi was a key factor in its selection.
- Water Supply:** The availability of a sufficient water supply was critical for sustaining the population and growth of the new capital.
- Fertility of Soil:** The fertile soil was ideal for agriculture and sustaining the local economy.
- Land Gradient:** The natural gradient of the land facilitated effective drainage, which is essential for urban planning.
- Scenic Beauty:** The site was beautiful, with a panorama of blue hills providing a picturesque backdrop.
- Moderate Climate:** The moderate climate of the area was another advantage, contributing to comfortable living conditions.



#### PLANNERS AND ARCHITECTS OF CHANDIGARH CITY

In 1950, American firm M/s. Mayer, Whittlesey, and Glass was commissioned to prepare the Master Plan for Punjab's new capital.

Albert Mayer and Matthew Nowicki developed a fan-shaped Master Plan with self-sufficient neighborhood units but the project halted after Nowicki's death.

In 1951, the project was handed over to Le Corbusier, who led a team including Maxwell Fry, Jane B. Drew, and Pierre Jeanneret.

Le Corbusier developed the final Master Plan, designed the Capital Complex, and set architectural controls for key buildings.

Maxwell Fry and Jane B. Drew left after three years; Pierre Jeanneret became Chief Architect and Town Planning Adviser.

M.N. Sharma succeeded Jeanneret as the first Indian Chief Architect and later became Administrative Secretary of Chandigarh's Department of Architecture.



### EVOLUTION OF THE CITY

#### Le Corbusier's Intervention - Formulation of new plan 1951

- In 1951 it was given to Le Corbusier
- Le Corbusier requested the assistance of his cousin Pierre Jeanneret.
- Le Corbusier could then visit India twice a year for a month (he came to the site 22 times).
- In Chandigarh, Le Corbusier's system of self-supporting neighbourhood units known as a sector has worked very well
- Sector which is introverted in character communicates only at 4 junctions with the adjoining neighbourhood units



The Open Hand Monument, designed by Le Corbusier in Chandigarh's Capital Complex, symbolizes giving, receiving, peace, prosperity, and unity.



"GIVE ME THE CANVAS, AND I WILL PAINT A CITY THAT EMBODIES HARMONY, ORDER, AND THE FUTURE OF MODERN URBAN LIVING."

#### Le Corbusier's Intervention - Formulation of new plan 1951

- Kept orientation of grids as it was
- The grid of superblock increased in size to 1200 x 800 mts.
- Accommodating up to 25000 inhabitants
- Within superblock centralized market was replaced by continuous broad street across the block.
- Capital Complex and high court combined in one govt. complex and shifted to higher ground.
- CBD Area Remained the same
- Two linear parks were replaced by total of 6 later by 8.
- Each Sector with its own green space around which houses are designed V7 Road Concept.



Le Corbusier's master plan was similar to the original by Albert Mayer and Matthew Nowicki, with changes to the road network from curving to a grid-iron pattern for fast traffic.

The plan area was reduced for economic reasons, and high-rise buildings were excluded, considering the socio-economic conditions and living habits of the people.

- Phased Development:** The master plan was to be implemented in two phases:
  - Phase I: 30 low-density sectors (Sector 1 to 30) on 9000 acres for 150,000 people.
  - Phase II: 17 high-density sectors (Sector 31 to 47) on 6000 acres for 550,000 people.
- Sector - Basic Planning Unit: Size: 800m x 1200m**
- Self-sufficient with shops, schools, health centers, and recreational spaces.
- Population: 3,000 to 20,000 per sector, varying by plot size and topography.
- Each sector has only four vehicular entries and features interconnected central green space.



## BYE LAWS REGARDING RESIDENTIAL DEVELOPMENT

**Water Conservation:**

- Dual flushing systems with a capacity of not more than 7 liters per W.C. are mandatory in all buildings having toilets/washrooms.

The use of recycled water is compulsory for:

- All buildings with an area of more than 2000 sq. m. in new developments.
- Apartments or group housing complexes with more than 20 tenements.

If recycled water is not supplied by the Municipal Corporation, a water treatment plant must be set up on-site for wastewater reuse.

**Tree Preservation:**

Minimum 6' x 6' area must be provided around trees during road construction/widening and pavement.

**Sewerage System:**

- Zero sewerage discharge into nallahs/choes/streams.
- FAB (Fixed Aerobic Bio) Technology should be used.
- Large campuses must have decentralized sewerage treatment plants.
- Tertiary treated water should be used intensively.

**Solid Waste Management:**

**Residential Areas:**

- Residences (other than apartments and small neighborhood shops) must store segregated waste (biodegradable and non-biodegradable) for collection by the Municipal Corporation.

**Group Housing Societies & Apartments:**

- Societies with more than 20 households and apartments of similar size must provide segregated solid waste management facilities on-site.

**Rain Water Harvesting System:**

Buildings on plots of one kanal and above must install a rainwater harvesting system to recharge groundwater.

**Storm Water Management:**

**Zero Drainage of Storm Water:**

All housing and institutional campuses with a total site area greater than 30 acres must implement zero drainage for stormwater.

**Sustainable Urban Drainage Systems (SUDS):**

- Sites with an area less than 10,000 sq.m. must implement rainwater harvesting and SUDS source control measures like green roofs, permeable paving, and infiltration trenches.
- Sites larger than 10,000 sq.m. should adopt integrated SUDS techniques to effectively reduce runoff.
- Sites larger than 20 acres must test soil infiltration rates before implementing SUDS and ensure zero stormwater drainage.

## IMPACT OF BYE LAWS ON CITY'S BUILT FORM

Chandigarh's urban planning, shaped by Le Corbusier's vision, has had a profound impact on the city's built form, reflecting both its strengths and limitations.

**Positive Impacts:**

- Uniformity and Aesthetic Control:** The city's strict zoning and architectural guidelines ensure that all new constructions blend seamlessly with the existing architectural style. This consistent aesthetic control preserves Chandigarh's unique identity, creating a cohesive urban landscape that stands as a testament to modernist principles.
- Low-Density Development:** The Floor Area Ratio (FAR) and ground coverage restrictions maintain Chandigarh's spacious, green character. While these controls preserve the city's "Garden City" essence, they also contribute to urban sprawl as the growing demand for housing pushes development to the outskirts.
- Controlled Vertical Growth:** Height restrictions limit the number of floors in buildings, resulting in a predominantly low-rise cityscape. This aligns with Le Corbusier's original vision, maintaining the open and airy feel of the city. However, it also constrains the supply of housing and commercial space, leading to challenges in accommodating the city's growing population.
- Environmental Sustainability:** Chandigarh's bylaws include mandatory green building norms and setbacks, which promote environmental sustainability. These regulations ensure that developments contribute to better air circulation and help reduce the urban heat island effect, supporting a healthier living environment.

**Negative Impacts:**

- Cultural Disconnect:** Despite its innovative design, Chandigarh's planning deviated from traditional Indian urban practices, leading to a cultural disconnect. The city's modernist layout, while functionally effective, sometimes feels unfamiliar to residents who are more accustomed to traditional city forms.
- Navigational Challenges:** The uniformity of roads and sectors, while visually powerful, can create confusion, especially for visitors. The similarity across different areas can make it difficult to navigate, detracting from the city's user-friendliness.
- Social and Economic Exclusion:** The focus on middle and upper-class housing has left lower-income groups underserved. The lack of affordable housing within the city has led to the development of slums on the periphery, highlighting the socio-economic disparities created by the planning model.
- Underutilized Open Spaces:** While open spaces are integral to the city's design, some of them, particularly those in front of major centers, can feel too vast and impersonal. Instead of fostering community interaction, these spaces can sometimes feel empty and underutilized.

## PROJECT BRIEF:

The assignment requires mapping urban attributes of a specific area using survey techniques. The output is an A1 poster illustrating various urban elements, such as visual, permeability, built, perception, and movement studies, based on selected road stretches in Manipal.

COIN CIRCLE

SYNDICATE CIRCLE

**7,522** ANALYSIS OF PEDESTRIAN CONCERNS ON THE ROAD STRETCH FROM COIN CIRCLE TO SYNDICATE CIRCLE

GENDER: 48% M 52% F AGE: 85% 18-25 10% 26-35 5% 36-50

**SAFETY CONCERNS**

**Feeling of Safety:** While 40.9% of pedestrians feel safe, 31.8% do not, and 27.3% are uncertain, indicating a general lack of confidence in pedestrian safety.

**Road Crossing Safety:** Only 13.6% of pedestrians feel safe crossing the road, while 40.9% find it unsafe, highlighting a critical issue with road crossing infrastructure and visibility.

**Speeding Concerns:** 90.9% of respondents are concerned about speeding vehicles. Showing that speeding is perceived as a major threat to pedestrian safety.

**RECOMMENDATIONS:**

- Install more pedestrian crossings and enhance crossing visibility with clear signage and signals.
- Improve nighttime lighting to cover all dark spots and ensure visibility for pedestrians.
- Implement traffic calming measures such as speed bumps or raised crosswalks.

**SIDEWALK CONDITION AND COMFORT**

**Sidewalk Condition:** 68.2% of respondents rate the sidewalks as poor, highlighting uneven, narrow, or cracked sidewalks that affect pedestrian comfort.

**Obstructions:** 68.2% report obstacles such as parked vehicles and vendors obstructing the sidewalks, making walking difficult and forcing pedestrians onto the road.

**Cleanliness:** 59.1% find the road clean, a substantial 40.9% are dissatisfied with cleanliness, affecting the overall walking experience.

**RECOMMENDATIONS**

- Repair and widen sidewalks to ensure they are smooth and accessible for all users.
- Enforce regulations to prevent vehicles and vendors from obstructing pedestrian paths.
- Maintain regular cleaning of sidewalks and roads to ensure cleanliness and hygiene.

**RECOMMENDATIONS**

- Ensure sidewalks are accessible by adding ramps at crossings, making sidewalks wider, and including tactile paving for visually impaired pedestrians.
- Install benches and resting spots at regular intervals, ideally every 100-200 meters.

**PUBLIC TRANSPORT CONNECTIVITY**

**Public Transport Access:** 77.3% of respondents report that public transport is easily accessible from the pedestrian route, indicating decent connectivity. However, 22.7% feel that public transport options are not conveniently located.

**AMENITIES AND ACCESSIBILITY**

**Amenities (Benches and Resting Spots):** 95.5% of respondents believe there are not enough benches making the journey particularly challenging for the elderly and those who need breaks.

**Accessibility for Disabled Individuals:** 95.5% report that the sidewalks are not accessible for people with disabilities or mobility issues, indicating a lack of ramps, wide sidewalks, or tactile paving.

**Safe Roads Save Lives**

GOVERNMENT Toolkits Used for Analysis

213701194 VARSHA CHOPRA 213701328 KANAV SHARMA

# ARC 4107 RESEARCH TECHNIQUES

## SYMBOLISM OF ARCHITECTURE IN HORROR FILMS

### ABSTRACT

- Built spaces and sets play a crucial role in horror films, serving as more than mere backdrops for instilling fear.
- This research explores how architectural elements and spatial design contribute to the psychological and emotional impact of horror narratives.
- Through an interpretational analysis of iconic horror films, we plan to identify key architectural motifs—such as the eerie and old mansions, the empty corridors, and the decaying urban environment—and examine their symbolic meanings.



### BACKGROUND STUDY

- Evoking emotions in an individual is something films and movies do exceptionally well.
- There is something very appealing in the visual; through carefully crafted scenes, character development, and cinematic techniques such as lighting and camera angles, films create immersive experiences that impact viewers on a deep emotional level.
- This synergy of elements allows films to evoke a wide range of emotions, from fear and joy to sadness and suspense, making them powerful tools for emotional engagement and empathy.



### HOW IS FEAR AND ANXIETY INSTILLED IN ONE THROUGH FILMS?

COLOURS

CAMERA ANGLES

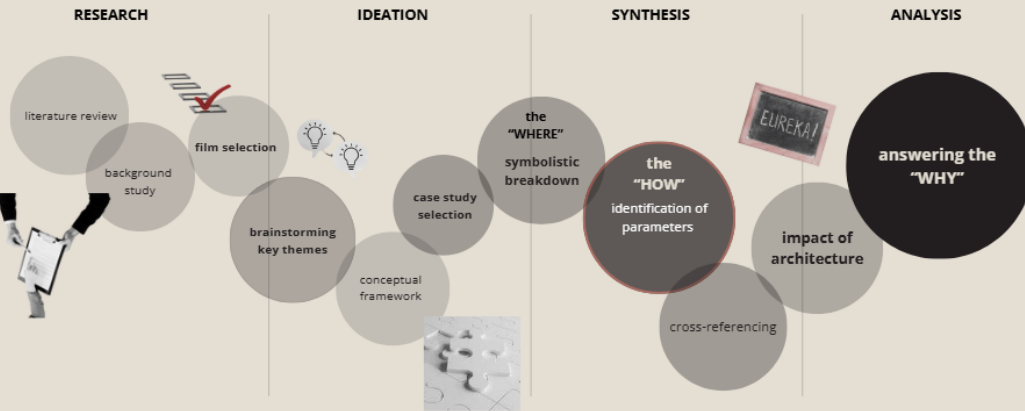
LOW KEY LIGHTING

ARCHETYPES

SENSE OF HELPLESSNESS

ISOLATION

### METHODOLOGY



### HORROR MOVIE AESTHETICS: XIANGYI FU (RESEARCH PAPER)

USE OF COLOUR: Suspiria

USE OF SPACE: Silence of the Lambs

DESIGN DESCRIPTION: The Shining

The Shining

Jack's camera

Jack

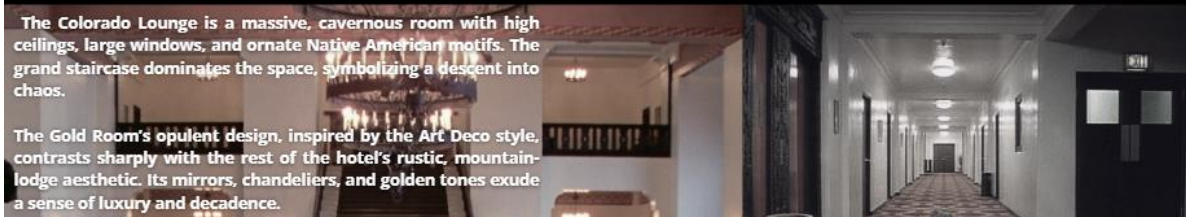
Wendy

Wendy's camera

# ARC 4107 RESEARCH TECHNIQUES

## SYMBOLISM OF ARCHITECTURE IN HORROR FILMS

### THE SHINING (1980)



The Colorado Lounge is a massive, cavernous room with high ceilings, large windows, and ornate Native American motifs. The grand staircase dominates the space, symbolizing a descent into chaos.

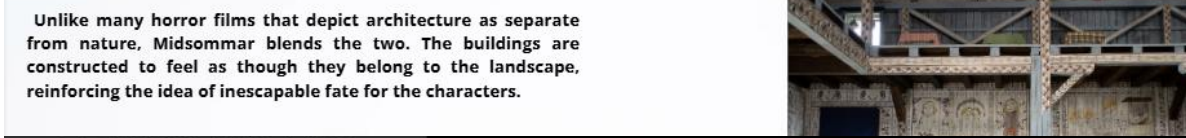
The Gold Room's opulent design, inspired by the Art Deco style, contrasts sharply with the rest of the hotel's rustic, mountain-lodge aesthetic. Its mirrors, chandeliers, and golden tones exude a sense of luxury and decadence.

### SUSPIRIA (1977)



- Suspiria blurs the line between dream and reality, and the architecture plays a large role in this. The building seems to shift, creating a sense of temporal and spatial distortion.
- influence of Art Nouveau in the academy's architecture, particularly how the curvilinear forms and decorative elements add to the film's surreal and gothic atmosphere.

### MIDSOMMAR (2018)



Unlike many horror films that depict architecture as separate from nature, Midsommar blends the two. The buildings are constructed to feel as though they belong to the landscape, reinforcing the idea of inescapable fate for the characters.

### FRANKENSTEIN



The laboratory where Dr. Frankenstein creates his monster is a central architectural feature. Examine its towering, industrial design, full of strange machinery and scientific equipment, which contrasts with the more domestic spaces in the film.

### HAUNTING OF HILL HOUSE



- The house's gothic design, with its ornate carvings, pointed arches, and heavy stonework, contributes to a foreboding atmosphere.

### DATA COLLECTION AND COMPARATIVE ANALYSIS



	THE SHINING	SUSPIRIA	MIDSOMMAR	FRANKENSTEIN	HAUNTING OF HILL HOUSE
SPATIAL LAYOUT	<b>Interior Spaces:</b> spaces like hallways, rooms, and the maze-like architecture	<b>Interior spaces of the dance academy:</b> the grandiose, ornate rooms, corridors and open spaces	<b>Open, Vast Spaces:</b> Unlike traditional horror films, Midsommar takes place in wide-open environments	<b>Laboratory Spaces:</b> The laboratory is a central architectural feature	<b>Labyrinthine:</b> The house has a maze-like interior, where rooms appear detached from each other in illogical ways
COLOUR	Intense, bright and almost <b>surreal colour palette</b> . E.g: The Red bathroom	<b>vivid and saturated</b> , dominated by bold reds, blues, and greens	<b>natural light</b> and a muted yet lush range of greens, yellows and whites, reflecting the rural Swedish setting	<b>Monochromatic Palette:</b> the architecture plays a key role in creating contrast through light and shadow	<b>Dark and Muted Colors:</b> The interior design of the house is often depicted with dark, muted tones
OVERALL AESTHETICS	Cold, geometric spaces and <b>eerie symmetry</b> create a sense of isolation and dread	<b>Vibrant, saturated colors</b> evoke a surreal nightmare, blending supernatural horror with fairy-tale-like visuals	<b>Bright, pastoral and sun-drenched</b> , it contrasts horror with a peaceful rural setting, unsettling through the eerie beauty of daylight	Gothic, stark, and shadow-filled, <b>emphasizing a macabre, industrial aesthetic</b>	Dark, moody tones and oppressive spaces, <b>using shadow and light to build tension and claustrophobia</b>
CONTEXT	The Overlook Hotel's isolated and <b>massive layout</b> mirrors the protagonist's psychological unraveling	<b>The gothic, labyrinthine</b> dance academy with its vibrant and unreal color scheme intensifies the supernatural horror	<b>The vast, sunlit</b> Swedish countryside contrasts the traditional dark horror setting, amplifying unease	The Gothic castle and <b>industrial laboratory</b> reflect the unnatural and scientific horror of creation	<b>The house itself becomes a living character</b> with its decaying interior mirroring the psychological torment of the characters
ARCH. STYLE	The Overlook Hotel blends <b>Art Deco</b> and rustic alpine lodge styles, repetitiveness symbolises psychological descent	The dance academy features <b>Baroque</b> and <b>Art Nouveau</b> styles	<b>Swedish vernacular architecture</b> , with wooden buildings and open communal spaces, mirrors the cult hiding sinister rituals	<b>Gothic revival</b> architecture dominates the castle, emphasizing darkness	<b>Victorian Gothic architecture</b> , with its sprawling, decaying mansion, reflects both the grandeur and the haunted
ICONIC FEATURES	maze-like corridors, grand lobby and the hedge maze are iconic	vibrant stained glass, spiral staircases, and ornate décor reflect surrealism	The communal dining hall and maypole stand out, symbolizing unity and tradition, the yellow pyramid gives a sense of uneasiness	The laboratory with its towering equipment and castle spires represents science's collision with nature	The massive, winding staircase, and dark, oppressive corridors are central to its haunted atmosphere

# ARC 4107 RESEARCH TECHNIQUES

## ASSESSING WALKABILITY AND PEDESTRIAN FACILITIES IN INDIAN CITIES: A CASE STUDY OF MANIPAL THE METHOD: SAMPLE DESIGN

### PROJECT BRIEF:

This study evaluates walkability in Indian cities, focusing on Manipal, Karnataka. Rapid urbanization has prioritized vehicles over pedestrian safety, leading to reduced walkability. Using survey data from university students, the research highlights the need for better pedestrian infrastructure, such as wider footpaths, green spaces, and improved lighting. Findings suggest that enhancing these facilities can reduce vehicle dependence and promote sustainable urban development. The study offers design solutions and policy recommendations that can be applied to other Indian cities, fostering more pedestrian-friendly environments.

### WHAT SETS EUROPEAN STREETS APART FROM INDIAN STREETS?

Walkability can be linked to the quality of the built environment, the urban form and connectivity, safety and desirability to walk, and infrastructure accessibility.



Hundreds of tourists from all over the world visit and stroll the streets of Barcelona.

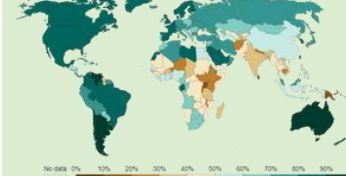


Women trying cross a busy road in Mumbai.

### REASON? ANS: RAPID URBANIZATION

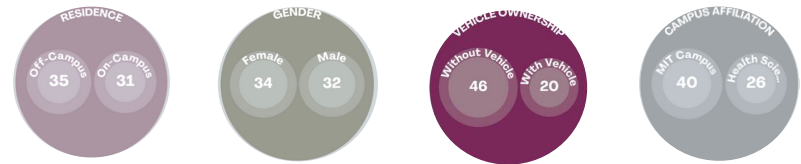
Share of the population living in urban areas, 2023

Share of the total population living in urban areas, given as estimates by HYDE until 2023 and UN projections through 2050, using the medium fertility scenario for future urbanization trends.



According to the United Nations survey, by 2050 nearly 70% of the global population will live in cities

This is leading to increased pressure on urban infrastructure, and lack of planning for future can lead to collapse of infra and chaos



### SAMPLING METHODS:

- Preliminary Study (**Non-Probability Convenience Sampling**): Online surveys.
- Structured Analysis Phase (**Stratified Sampling**)

### FINDINGS FROM SAMPLING



### EFFECTS: CURRENT STATE OF INDIAN STREETS





# ARC 1109 HISTORY THEORY & CRITICISM - V

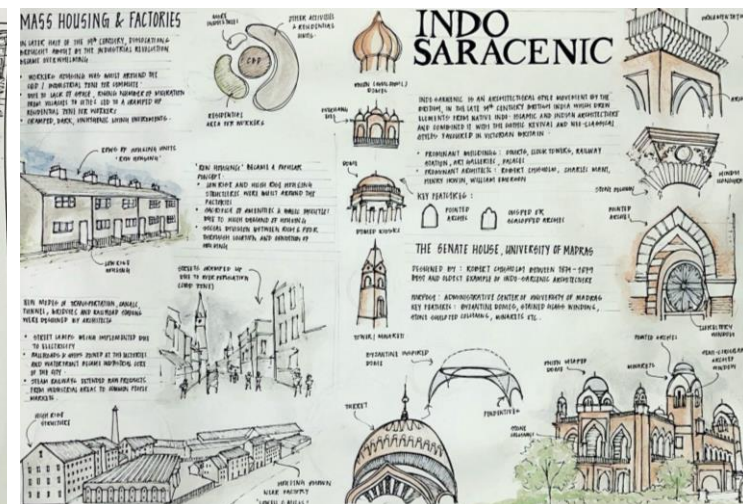
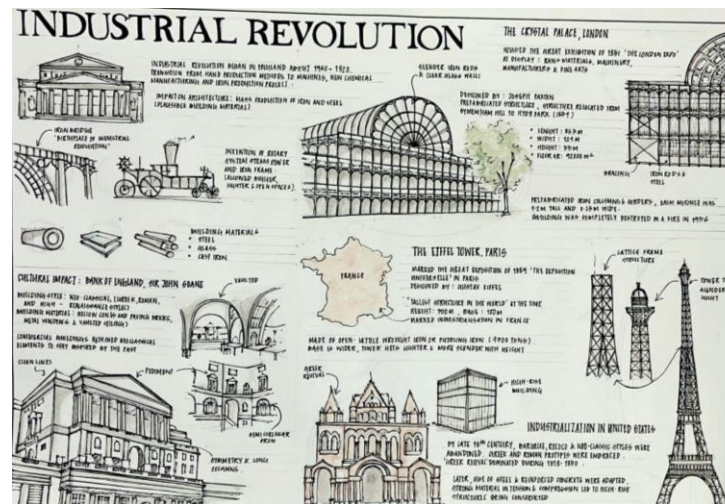
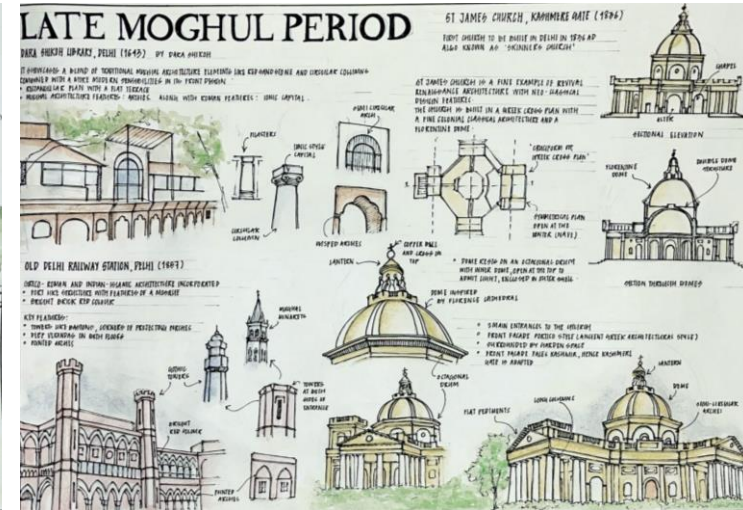
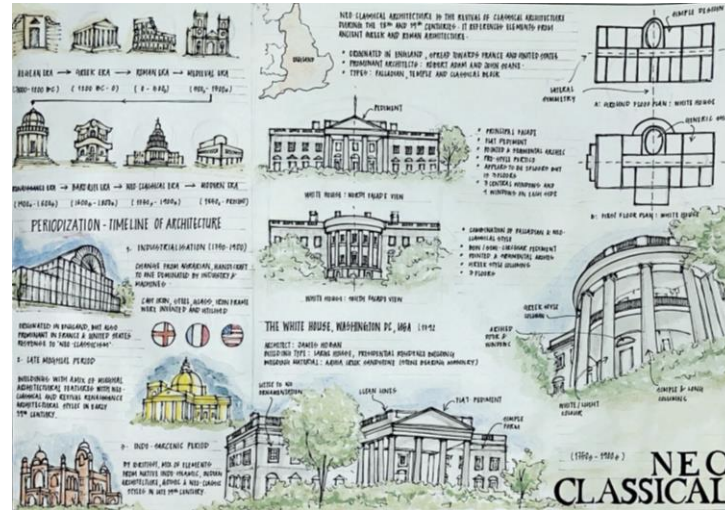
## MODERNISM & POST-MODERNISM

### COURSE OBJECTIVES:

This course focuses on exploring transitional architectural concepts from the Neo-Classical era to the Industrial Revolution globally and in India. It seeks to provide an in-depth understanding of the conditions in the latter half of the 19th century that significantly impacted architectural styles, planning approaches, and material choices, leading to the development of modern, post-modern, and other architectural movements. Students will also study the work of pioneering master architects who played a major role in shaping these influential styles..

### PROJECT BRIEF:

The aim is to conduct a comprehensive analysis and evaluation of various architectural styles that emerged from the Neo-Classical period, the Industrial Revolution, and the late Mughal era. This involves examining the defining characteristics, design principles, and cultural influences of each period. Additionally, the course will explore the significant paradigm shifts that these architectural styles introduced, leading to lasting impacts on design and construction practices. Through sketches and detailed write-ups, students will gain a deeper understanding of how each style reflects the socio-economic and cultural transformations of its time, ultimately shaping the trajectory of architectural history.



# ARC 1109 HISTORY THEORY & CRITICISM - V

## MODERNISM & POST-MODERNISM

### Introduction

**ARCHITECTURAL STYLE, SUSTAINABILITY & INCLUSIVE DESIGN**  
 LAURENCE BAKER WAS A BRITISH-BOREN INDIAN ARCHITECT BORN IN BIRMINGHAM, UK ON MARCH 2ND 1957. HE WAS ALSO KNOWN AS THE "GANDHI OF ARCHITECTURE" AS HE WAS STRONGLY INFLUENCED BY GANDHIAN PRINCIPLES, ESPECIALLY IN TERMS OF SIMPLICITY, SELF-RELIANCE, AND SOCIAL RESPONSIBILITY.

**ABOUT HIM**  
 • EDUCATED AT KING EDWARDS GRAMMAR SCHOOL & THE BIRMINGHAM SCHOOL OF ARCHITECTURE (GRADUATED 1977)  
 • HE CAME TO INDIA IN 1985 IN PART AS A MISSIONARY, SINCE THEN LIVED AND WORKED IN INDIA FOR OVER 30 YEARS  
 • HE OBTAINED INDIAN CITIZENSHIP IN 1989 AND RESIDED IN THIRUVANANTHAPURAM, KERALA  
 • HE WAS AN ARTIST, ARCHITECT AND CARTOONIST AMONG OTHER THINGS

**CONTRIBUTION TO INDIA**  
 • WORKED AS AN ARCHITECT FOR INTERNATIONAL MISSION (LEPROSY MISSION)  
 • FOCUSED ON CONVERTING & REPLACING SLUMS AND CREATING MORE AFFORDABLE HOUSING  
 • PROMOTED USE OF LOCAL MATERIALS, VERNACULAR ARCHITECTURE AND INTEGRATION WITH NATURE  
 • PROMOTED COST EFFECTIVE ARCHITECTURE AND CONSTRUCTION TECHNIQUES

**AWARDS:**  
 • PADMA SHRI (1990)  
 • INDIAN INSTITUTE OF ARCHITECTS' OUTSTANDING ARCHITECT OF THE YEAR AWARD (1992)  
 • UNO HANDEY AWARD (1992)  
 • J.K. CEMENT ARCHITECTURE AWARD (1993)  
 • KERALA GOVERNMENT'S CHIEF MINISTER'S OUTSTANDING ARCHITECT OF THE YEAR AWARD (1994)  
 • INDIA NATIONAL TRUST FOR ART AND CULTURAL HERITAGE (INTACH AWARD)

### HIS PHILOSOPHIES

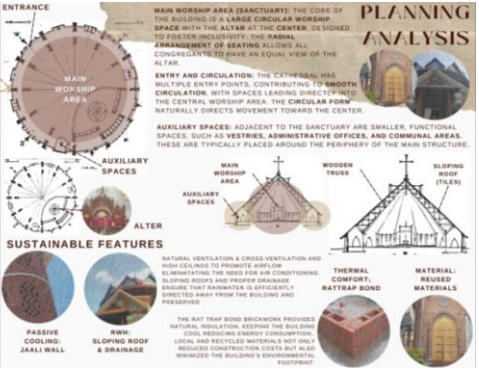
- COST EFFECTIVE CONSTRUCTION
- LOCALLY AVAILABLE MATERIALS
- CLIMATE RESPONSIVE DESIGN
- UNDERSTANDING THE SITE & EXISTING LANDSCAPE
- PRESERVE AND REUSE RESOURCES
- SUSTAINABILITY
- HUMAN CENTRIC DESIGNS
- TRADITIONAL TECHNIQUES AND VERNACULAR ARCHITECTURE
- MINIWEAVE WALLS



- PROMINANT PROJECTS:**
- Centre for Development Studies, Thiruvananthapuram, Kerala
  - Indian Coffee House, Thiruvananthapuram, Kerala
  - Chitralekha Film Studio, Akkulam
  - The Marlet, Thiruvananthapuram, Kerala
  - St. John's Cathedral, Thiruvalla, Kerala
  - Baker Model Housing, Chinnakkada

### SPIRITUAL AND SOCIAL IMPACT

- COMMUNITY-ORIENTED DESIGN**  
 THE CHURCH LAYOUT AND OPENING OF THE CATHEDRAL ENCOURAGES INTERACTION AND COMMUNITY TO PARTICIPATE IN CHURCH ACTIVITIES.
- INCLUSIVE DESIGN**  
 THROUGH THE CHURCH LAYOUT AND OPENING OF THE CATHEDRAL ENCOURAGES INTERACTION AND COMMUNITY TO PARTICIPATE IN CHURCH ACTIVITIES.
- CHALLENGES AND CRITICISM**  
 NON-TRADITIONAL FORM  
 WHILE BAKER'S VERNACULAR DESIGN WAS CELEBRATED FOR ITS INNOVATION, IT WAS ALSO CRITICIZED BY SOME FOR DEVIATING FROM THE TRADITIONAL LITURGICAL ARCHITECTURE. SOME SYMBOLICALLY REPRESENTED A DIVORCE FROM FAITH TO HERESY.
- MAINTENANCE OF JALIS**  
 ALTHOUGH EFFECTIVE IN FILTERING SOLAR RADIATION, REGULAR CLEANING TO PREVENT MOISTURE ACCUMULATION AND TO MAINTAIN THE AESTHETIC APPEAL OF THE JALIS WAS A CHALLENGE IN TROPICAL CLIMATES.



### ARCHITECTURAL STYLE & ELEMENTS

- BRICK JALI (PERFORATED SCREENS)**  
 • Technique: Creates intricate walls using bricks to allow air and light to pass through, reducing the need for mechanical ventilation systems.  
 • Benefits: Enhance natural ventilation, reduce the need for expensive air conditioning and artificial lighting, and provide privacy.
- RAT TRAP BOND FOR BRICK WALLS**  
 • Technique: Bricks are laid in such a way that a cavity is created inside the wall.  
 • Benefits: Saves up to 25-30% of bricks and mortar, provides good thermal insulation, and reduces overall construction costs.
- FILLER SLAB CONSTRUCTION**  
 • Technique: Uses less concrete by filling gaps of the slab with materials like brick rubble or expanded polystyrene beads.  
 • Benefits: Reduces concrete and water usage by 30%, making the roof more insulative while maintaining structural strength, also reduces thermal insulation.
- LINTELS**  
 • Technique: Uses wooden lintels instead of heavy concrete or steel lintels in arches or straight lintels.  
 • Benefits: Reduces weight and cost, and allows for easier replacement and repair.
- EXPOSED BRICKWORK**  
 • Technique: Bakes left the brick walls exposed without plastering them.  
 • Benefits: Provides a rustic and aesthetically pleasing finish, reduces maintenance, and saves a lot of money on plastering and painting costs, reduces maintenance, and saves a lot of money on plastering and painting costs.
- HIS PRINCIPLES**  
 • USE OF LOCAL MATERIALS  
 • RESPONDS TO CLIMATE  
 • SUSTAINABILITY AND FUNCTIONALITY  
 • AFFORDABILITY AND HUMAN-CENTRIC
- IMPACT ON ARCHITECTURE**  
 • Inspired a generation of architects to blend traditional and modern techniques.  
 • Demonstrated that sustainable and socially responsible architecture is not just a niche but a viable and impactful approach.  
 • His focus on low-cost housing and minimal environmental impact remains relevant in contemporary design.
- LOW COST CONSTRUCTION**  
 • Rubble Masonry: Reuse of brick rubble for foundations and lower walls.  
 • Brick Jali: Energy saving & Eco-friendly construction.  
 • Vaulted Roofs and Arches: Use of local materials and traditional techniques.  
 • Curved Walls: Baked frequently designed hollows with curved walls, which are more stable and resistant to wind.

### MATERIALS USED FOR CONSTRUCTION OF THE CATHEDRAL

- BRICK**  
 • Locally sourced exposed brick was used for the building's exterior walls, providing a rustic and traditional aesthetic while reducing costs.
- STONE**  
 • Local stone is used in the base of the building and for decorative elements, providing structural stability and durability.
- CLAY ROOF TILES**  
 • Traditional Kerala-style clay roof tiles were used, which are readily available and help keep the interior cool due to their thermal mass.
- WOOD**  
 • Used in the interior for doors and windows, typically teak wood, chosen for its durability and resistance to termites.
- RECYCLED MATERIALS**  
 • Old tiles, wooden doors, and other materials were reused, reducing waste and promoting sustainability.
- STAINED GLASS**  
 • Minimal stained glass was used, focusing on natural light filtering through the brick walls.
- KEY FEATURES**  
 • CIRCULAR LAYOUT  
 • BRICK JALIS  
 • VAULTED ROOF  
 • MINIMALISM
- VERNACULAR INSPIRATION**  
 • THE PHILOSOPHY OF INTEGRATING TRADITIONAL BUILDING WITH MODERN NEEDS. BAKER USED LOCAL MATERIALS AND TECHNIQUES TO KEEP THE INTERIOR COOL, DUE TO THE TROPICAL CLIMATE.
- STRUCTURAL ASPECTS**  
 • LOAD BEARING BRICK WALLS  
 • ARCHES AND VAULTS  
 • SLOPING ROOFS  
 • CIRCULAR FORM
- DESIGN PHILOSOPHY AND CONCEPT**  
 • COMMUNITY FORMER

### ST. JOHN'S CATHEDRAL, THIRUVALLA

**ABOUT THE CATHEDRAL**  
 ST. JOHN'S CATHEDRAL IN THIRUVALLA, DESIGNED BY LAURENCE BAKER, IS AN ICONIC STRUCTURE BLENDING TRADITIONAL KERALA TEMPLE ARCHITECTURE WITH EASTERN CHRISTIAN ELEMENTS. ITS HISTORY TRACES BACK TO THE FORMATION OF THE THIRUVALLA DIOCESE IN 1932. WHEN A SMALL CHAPEL WAS UPGRADED TO A CATHEDRAL, A NEW CHURCH WAS BUILT IN 1984, AND LATER, IN RESPONSE TO THE SECOND VATICAN COUNCIL'S CALL TO RECLAIM EASTERN CHURCH TRADITIONS, BAKER WAS COMMISSIONED TO DESIGN A NEW CATHEDRAL, WHICH WAS COMPLETED AND BLESSED IN 1979. DUE TO STRUCTURAL ISSUES, A NEW CATHEDRAL WAS CONSTRUCTED IN 2004 ON THE SAME SITE.

- HEIGHT:** 40 FEET CENTRAL DOME
- SPAN:** NO INTERNAL PILLARS, PROVIDING AN UNSTRUCTURED VIEW OF THE INTERIOR
- PILLARS:** 12 EXTERNAL PILLARS, SYMBOLIZING THE 12 APOSTLES
- CAPACITY:** 2,000 WORSHIPERS
- WALL THICKNESS:** RAT TRAP BOND MASONRY, 25-30 CM THICK
- ENTRANCES:** 4 METERS WIDE
- OPENINGS AND WINDOWS:** LARGE STAINED GLASS WINDOWS WITH BIBLICAL THEMES, 2.4 METERS IN HEIGHT

**ABOUT THE SITE**  
 • LOCATION: THIRUVALLA, KERALA, INDIA  
 • CONTEXT: THE CATHEDRAL IS LOCATED IN THE TOWN OF THIRUVALLA, SURROUNDED BY NATURAL LANDSCAPE AND TYPICAL OF KERALA, SUCH AS COCONUT GROVES AND PADDY FIELDS. THE SETTING CONTRIBUTES TO ITS SERENE, SPIRITUAL AMBIANCE.  
 • CLIMATE: TROPICAL MONSOON CLIMATE, HIGH HUMIDITY, HEAVY RAINFALL, AND WARM TEMPERATURES.  
 • SITE AREA: NOT SPECIFIED  
 • TOPOGRAPHY: THE SITE HAS A GENTLE SLOPE, WHICH ALLOWS FOR EFFECTIVE DRAINAGE AND ALIGNS WITH BAKER'S SENSITIVITY TO THE NATURAL ENVIRONMENT.

**CONSTRUCTION TECHNIQUES**  
 • RAT TRAP BOND BRICKWORK  
 • BRICK JALIS  
 • VAULTED ROOFS AND ARCHES  
 • LOW-COST FOUNDATION  
 • SLOPING ROOFS

### COMPARISON & ANALYSIS

Aspect	Traditional Building	Natural Area	Construction	Material	Structure	Challenges	Project Design	Key Features
Roofing	Flat roof with tiles	Thatched roof	Clay roof tiles	Traditional Kerala-style tiles	Modern waterproofing	Water damage, termite	Clay roof tiles, traditional tiles	Waterproofing, termite resistance
Walls	Plastered walls	Brick walls	Exposed brick	Brick jali	Brick walls	Heat, humidity	Exposed brick, brick jali	Thermal mass, natural ventilation
Foundations	Concrete foundations	Traditional foundations	Traditional foundations	Traditional foundations	Modern foundations	Soil erosion, waterlogging	Traditional foundations	Soil stabilization, waterlogging prevention
Interior	Plastered interior	Traditional interior	Exposed brick	Brick walls	Brick walls	Heat, humidity	Exposed brick, brick walls	Thermal mass, natural ventilation
Exterior	Plastered exterior	Traditional exterior	Exposed brick	Brick walls	Brick walls	Heat, humidity	Exposed brick, brick walls	Thermal mass, natural ventilation
Roofing	Flat roof	Thatched roof	Clay roof tiles	Traditional Kerala-style tiles	Modern waterproofing	Water damage, termite	Clay roof tiles, traditional tiles	Waterproofing, termite resistance
Walls	Plastered walls	Brick walls	Exposed brick	Brick jali	Brick walls	Heat, humidity	Exposed brick, brick jali	Thermal mass, natural ventilation
Foundations	Concrete foundations	Traditional foundations	Traditional foundations	Traditional foundations	Modern foundations	Soil erosion, waterlogging	Traditional foundations	Soil stabilization, waterlogging prevention
Interior	Plastered interior	Traditional interior	Exposed brick	Brick walls	Brick walls	Heat, humidity	Exposed brick, brick walls	Thermal mass, natural ventilation
Exterior	Plastered exterior	Traditional exterior	Exposed brick	Brick walls	Brick walls	Heat, humidity	Exposed brick, brick walls	Thermal mass, natural ventilation

### THE ARCHITECT OF SIMPLICITY

LAURENCE BAKER'S ARCHITECTURE IS CHARACTERIZED BY THE USE OF LOCAL MATERIALS AND VERNACULAR TECHNIQUES. HIS DESIGN PHILOSOPHY IS TO CREATE ENVIRONMENTALLY RESPONSIVE BUILDINGS THAT HARMONIZE WITH THE LOCAL CLIMATE AND CULTURE.

**COMMON THEMES IN ALL PROJECTS**

- MATERIALS: ALL PROJECTS PRIMARILY USE LOCALLY SOURCED MATERIALS SUCH AS BRICK, STONE, WOOD, AND CLAY.
- TECHNIQUES: BAKER EMPLOYED TRADITIONAL TECHNIQUES LIKE RAT TRAP BOND MASONRY, BRICK JALIS, AND VAULTED ROOFS.
- ENVIRONMENTAL: HIS DESIGN IS HEAVILY INFLUENCED BY THE LOCAL CLIMATE AND CULTURE.
- SUSTAINABILITY: BAKER'S ARCHITECTURE IS CHARACTERIZED BY THE USE OF LOCAL MATERIALS AND VERNACULAR TECHNIQUES.

**KEY FEATURES IN THE PROJECTS**

- FUNCTIONALITY AND AESTHETICS: BALANCE BETWEEN BEAUTY AND PRACTICALITY.
- COMMUNITY-CENTRIC DESIGN: FISHMAN'S VILLAGE AND ST. JOHN'S CATHEDRAL FOSTERED COMMUNITY ENGAGEMENT.

## INDUSTRIAL REVOLUTION

### COURSE OBJECTIVES:

To study the concepts of transitional architecture during the Industrial Revolution worldwide and in India.

To understand the thought that evolved in the post-industrial era across the world and India and the importance of evolution of contemporary architecture as a result of various influences like socio/ political/ cultural aspects.

To explore the contributions of Master Architects in contemporary architectural practice.

### PROJECT BRIEF:

This course offers an in-depth understanding of the conditions during the late 19th century, covering the Industrial Revolution in the West and the architectural styles that followed. It also examines the impact of modernism and postmodernism on Indian architecture and studies the notable works of prominent architects.

### PERIODISATION


<b>AEGEAN</b> ca. 3000-1200 BC
<b>GREEK</b> ca. 1200 BC
<b>ROMAN</b> ca. 0-500
<b>MEDIEVAL</b> ca. 500-1500
<b>RENAISSANCE</b> ca. 1400-1600
<b>NEOCLASSICAL</b> ca. 1750-1900

### NEOCLASSISM

- 1730 AD - 1925 AD
- ORDERLY & SYMMETRICAL, DORIC COLUMNS, FLAT FACADE, DOMES.
- LOW STOREY BUILDINGS, DENTAL MOLDING & FRIEZE, PEDIMENTS.
- MULTIPLE WINDOWS, ORNAMENTAL DETAILING

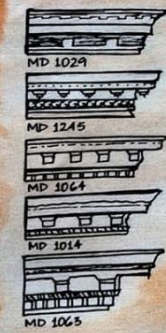
### TYPES OF NEOCLASSICAL BUILDINGS -


- TEMPLE
- DESIGN BASED ON ANCIENT TEMPLE.
- FEATURES OF PERISTYLE.
- PALLADIAN
- STYLE BY ANDREA PALLADIO, INFLUENCE - ROMAN ARCHITECTURE
- LARGE WINDOWS, CENTRAL ARCHED SECTION.
- CLASSICAL BLOCK
- RECTANGULAR/SQUARE PLAN WITH FLAT ROOF
- EXTERIOR RICH IN CLASSICAL DETAIL, DIVIDED INTO MULTIPLE LEVELS.
- REPEATED CLASSICAL PATTERN, ARCHES & COLUMNS.



THE US CAPITOL BUILDING, WASHINGTON DC

### MOULDINGS





THE WHITE LOTUS

RACHANA BHAT 213701346
7<sup>th</sup> SEMESTER B ARCH
SECTION-D MSAP, MANIPAL.

## INDUSTRIAL REVOLUTION

### INDUSTRIALIZATION & ARCHITECTURE

ARCH BRIDGE OVER RIVER SEVERN, SHROPSHIRE.  
BRITISH NATIONAL MOVEMENT



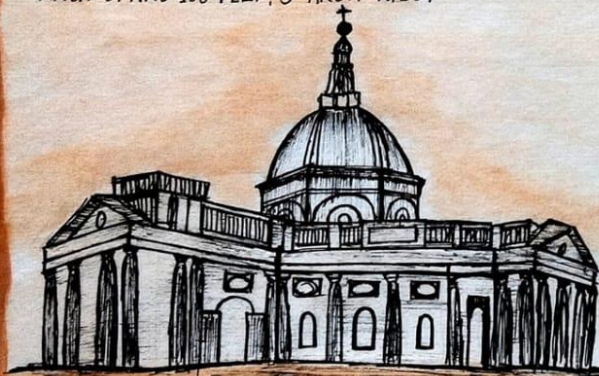
TECHNICAL - SUPPLYING THE IRON  
WORK FOR IRON BRIDGE.  
ARCH SPANS 100 FEET, 5 ARCH RIBS.

MASS HOUSING  
CITY OF LOWEL, MASSACHUSETTS



SOCIAL & CULTURAL - HOUSING & FACTORIES  
HIGH RISE STRUCTURES.

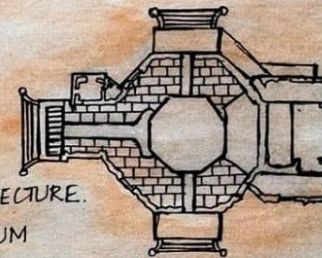
JAMES BURGADOS FACTORY, NEW YORK



ST. JAMES CHURCH, KASHMERE GATE

ST. JAMES CHURCH -

- 1<sup>st</sup> CHURCH BUILT IN DELHI (1836 AD)
- GREEK CROSS PLAN, COLONIAL CLASSICAL ARCHITECTURE.
- FLORENTINE DOME
- EG. OF REVIVAL RENAISSANCE ARCHITECTURE.
- DOME RESTS ON AN OCTAGONAL DRUM WITH INNER DRUM, OPEN TO ADMIT LIGHT.
- DESIGNED IN THE CLASSICAL VOCABULARY, TYPICAL OF 19<sup>th</sup> CENTURY.
- TOPPED WITH A COPPER BALL & A CROSS, IMITATING CHURCH (VENICE)
- THE COPPER BALL & CROSS WERE DAMAGED DURING THE 1857 UPRISING.



PLAN

RACHANA BHAT

213701346

7<sup>th</sup> SEMESTER

B.Arch

SECTION-D

MSAP, MANIPAL

# ARC 4109 HISTORY THEORY & CRITICISM - V

## INDUSTRIAL REVOLUTION

### OLD RAILWAY STATION (DELHI)

- BUILT IN 1867, OLDEST BRITISH BUILT
- GOTHIC - BASTIONS, IMPOSING FACADE, BRICK RED THRONE, BLUSTERED COLUMN WITH WHITE.



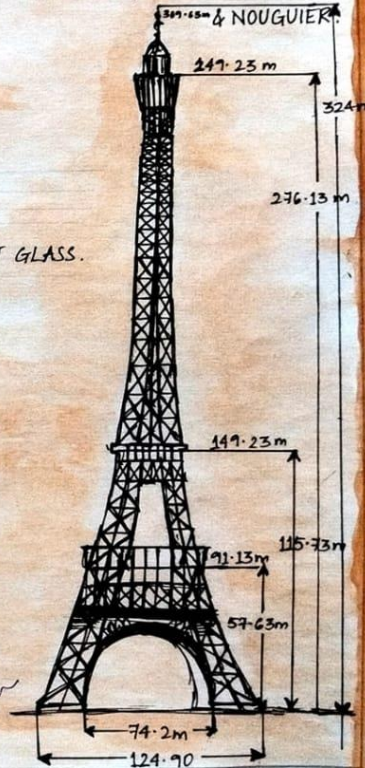
### DARA SHIKOH LIBRARY (DELHI)

- SON OF SHAH JAHAN, HEIR TO



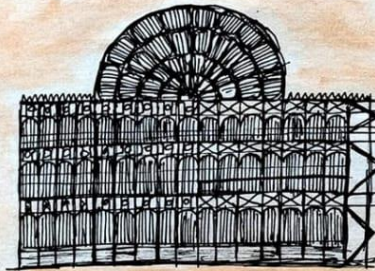
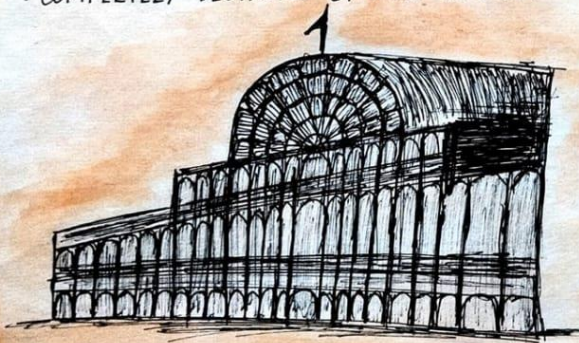
### THE UNIVERSAL EXPOSITION, 1889

- 100<sup>th</sup> ANNIVERSARY OF FRENCH REVOLUTION
- EIFFEL TOWER BY GUSTAV EIFFEL (BUILT FOR EXPO)
- TALLEST STRUCTURE WORLD WIDE THEN
- ARCHITECT - SAUVESTRE, DESIGN - KOECHLIN



### THE CRYSTAL PALACE (1851) BY SIR JOSEPH PAXTON

- DESIGN & HISTORY - 563 m LONG, 39m HIGH, LARGEST GLASS BUILDING AT THE TIME.
- PREFABRICATED IRON COLUMNS & GIRDERS ASSEMBLED ON SITE, LARGEST PANES OF SHEET GLASS.
- COMPLETELY DESTROYED BY FIRE IN 1936.



ELEVATION OF CRYSTAL PALACE

### CRYSTAL PALACE MISFORTUNES -

- BAD LUCK & FINANCIAL CRISIS, DAMAGED BY STRONG WINDS IN 1861,
- FIRE ON DEC 30, 1886 - DESTROYED NORTH END
- FIRE ON NOV 30, 1936 (PALACE DESTROYED)

RACHANA BHAT

213701346

7<sup>th</sup> SEMESTER B.Arch SECTION-D

MSAP, MANIPAL

# ARC 4109 HISTORY THEORY & CRITICISM - V

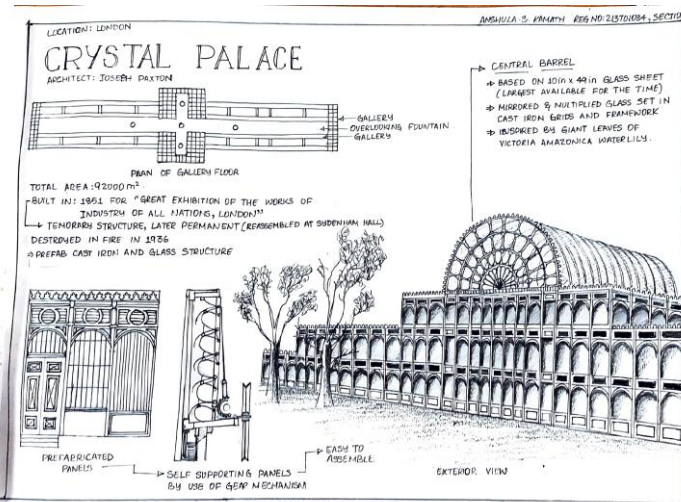
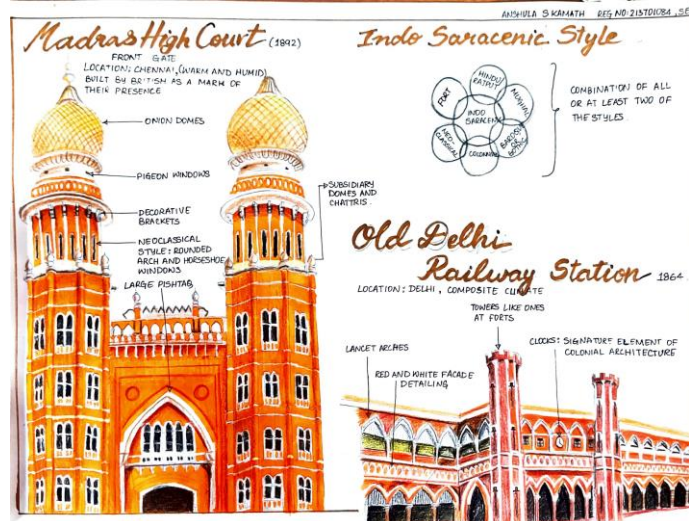
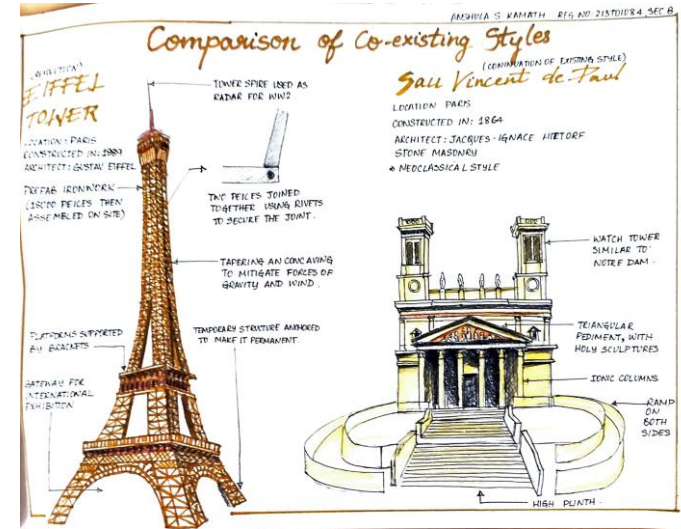
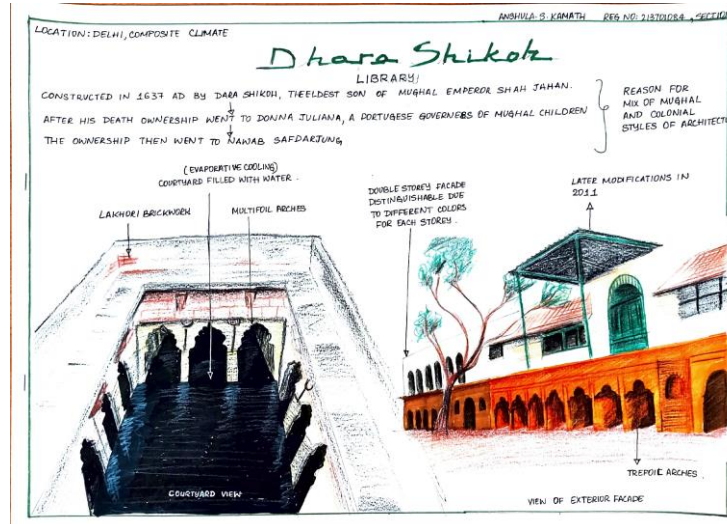
## LATE MUGHAL AND INDUSTRIAL REVOLUTION

### COURSE OBJECTIVES:

To study, the design transition from medieval architecture to industrial revolution, worldwide and in India. To understand how cultural, climatic, societal and political changes effected these transitions.

### PROJECT BRIEF:

This course intends to introduce and understand late Mughal and industrial revolution era architecture, why certain changes took place, along with material and construction techniques.



# ARC 4109 HISTORY THEORY & CRITICISM - V

## WORKS OF FAMOUS ARCHITECTS- LAURIE BAKER

### COURSE OBJECTIVES:

To study the architectural style and ideology of different architects. The architect that was allotted to our group was Ar. Laurie Baker. The impacts of an architect's life over his designs has been studied along with impacts of context of the structures.

### PROJECT BRIEF:

To study Laurie Baker's design principles using the structures he had designed. To understand various methods of designing, planning, decorating, and embellishing used by the architect. To understand his life impacted his design philosophies and in turn how it effected the users of the spaces.



**LAWRENCE WILFERED BAKER (a.k.a) LAURIE BAKER**  
 (2nd March 1917- April 2007)

"I have my own principles which I am unwilling to abandon. I dislike falsehood and deceit. A building should be Truthful"

- 1917: Born on March 2nd in Birmingham, England.
- 1937-1942: Studied architecture at the Birmingham Institute of Art and Design
- 1943-1945: Served as a conscientious objector in an Ambulance Unit during World War II. Posted in China and Burma, where he developed an interest in using local materials.
- 1945-1948: Worked with leprosy patients in China. Met Mahatma Gandhi, who inspired him to focus on using affordable materials and sustainable architecture.
- 1948: Married Dr. Elizabeth Chandy, an Indian medical doctor, and moved to India.
- 1951-1961: Worked in various parts of India, including the North East and Madhya Pradesh, designing hospitals and affordable housing.
- 1960s-1990s: Settled in Trivandrum. Became widely known as the "Gandhi of Architecture" for his minimalist and cost-effective designs.
- 1989: Awarded the Padma Shri by the Government of India for his contributions to architecture.
- 2007: Passed away on April 1st in Thiruvananthapuram, Kerala, leaving behind a legacy of sustainable and vernacular architecture in India.

### LAURIE BAKER

"THE GANDHI OF ARCHITECTURE"

BY:  
 EESHA MULMOODI - 213701076  
 BIRJERANE YASHASWINI  
 ANANTSAGAR - 213701116  
 ANSHULA S KAMATH - 213701084

#### EXPLORING BAKER'S DESIGN PRINCIPLES USING EXAMPLES:

##### INDIAN COFFEE HOUSE, THIRUVANANTHAPURAM

- Cylindrical structure
- Continuous spiral ramp connecting the 2 floors of the restaurant.
- Exterior brick jali work
- 360 degree view from the upper floor

##### THE HAMLET LAURIE BAKER'S RESIDENCE, TRIVANDRUM, 1969

Laure Baker's Residence is an example of incremental housing, where over different time periods, the residence is added on to/renovated as per the users' spatial requirements.

#### EVOLUTION OF THE HAMLET - PLANNING AND RENOVATION



- Initial plan of the Hamlet, timber & thatched roof building
- Multi-purposed as bedroom, living room, study, library and dining room
- On upper contour
- An independent extension to the plan made first as the "factory", to accommodate his ricees, later adjoined with more residential spaces for his son
- Designed for Adaptive Re-use as each space is flexible for multi-purpose activities
- On lower contour

##### LOYOLA CHAPEL

- Opening in wall helps the light enter the space such that it illuminates the space with a magical impact on the devotees

##### CENTRE FOR DEVELOPMENT STUDIES

- Structures built around the trees without filling.
- Courtyards and Verandahs.
- Pools of water which help regulating microclimate.
- Shaft provided to encourage forced ventilation inside the spaces.
- Push works.

##### LOYOLA COLLEGE WOMEN'S HOSTEL

- pyramidal roof
- vernacular mangalore tile roof
- Lancet Arches
- In Built Furniture to cut costs.

#### STRUCTURAL DETAILS - SITE LEVEL INTERVENTIONS, MATERIALS AND CONSTRUCTION TECHNIQUES

- Steeply contoured site of 15m gradation
- Stone retaining walls used to prop up buildings evenly against contours, with naturalistic stairs following the shape of the contour lines
- Column support for extended part of house to be level with the rest of the structure.

**Critical Regionalism** - Initial plan built at the top of a sub-urban terrain, and the extended plan was supported from down-sloping terrains as well

**Handmade/Locally produced bricks** from small-scale kilns arranged in a rat-trap bond were used to reduce the embodied carbon and improve the thermal comfort through the cavity in the bond

**Semicircular and Corbelled Arches** used as load bearing support systems and as decorative elements

**Gable window** for additional lighting and stack ventilation

**Pitched roof** to reduce rain load, and large overhangs for better shading.

Terracotta Mangalore roof tiles have low porosity to reduce water infiltration, an interlocking technique to secure placement of tiles with no leaks and the material itself is vernacular and improves thermal comfort

#### EXTERIOR AND INTERIOR DETAILING

- Entrance of the Hamlet, where reused glass has been used as an eccentric, decorative feature.
- Exposed brick walls are used for exteriors
- Decorative elements seen locally such as arches as load bearing elements and reused timber jalis for ventilation (through venturi effect)
- Mixture of Small and big openings used to control light inflow, privacy, rain infiltration and heat gain.
- Jali used to maximize inward air pressure

- Filler slab ceiling using Mangalore tiles to reduce concrete usage
- Hollow tile floor slab to reduce material use and improve sub-floor ventilation
- Inner courtyard that can be accessed from all floors/advantage regardless of level differences
- Exterior design is superimposed on to the interior layout, minimal differences between both

Doghhouse, with multiple clerestory gables and a conical form

Nicery

Jali brick arrangements

Interiors ornamented mostly with timber components (jackfruit wood)

STUDENT: ANSHULA KAMATH (213701084), EESHA MULMOODI (213701076), BIRJERANE YASHASWINI ANANTSAGAR (213701116) FACULTY: JAMBAVATI GOUDA MANIPAL SCHOOL OF ARCHITECTURE AND PLANNING

# ARC 4109 HISTORY THEORY & CRITICISM - V

## WORKS OF FAMOUS ARCHITECTS- LAURIE BAKER

### FISHERMANS' VILLAGE POONTHURA, TRIVANDRUM (1974-1975)

A settlement designed by Laurie Baker for the cyclone hit tribals of Poonthura, who's primary source of income was fishing.

#### BACKGROUND

- The coastal settlements, or fishing villages in Kerala were periodically faced with extreme weather challenges like cyclones and heavy rain.
- Laurie Baker, in aid for these disaster-prone areas, designed the Fisherman village to respond to these issues



- Due to strong ties of kinship, insular families and caste organisations, mediation of outside architect was hardly welcomed
- Limitation of mainland/city resources - conventional architects stayed away from these projects due to lack of funds and resources
- Dealing with large insular groups, with set ideas and traditions.
- Dealing with cyclones

#### CHALLENGES



#### CLIMATIC ZONE

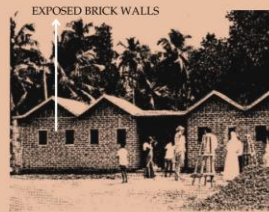
- Located in the warm humid climatic region of India.
- High humidity, strong sun and glare
- Long monsoon periods with heavy rains
- The breezes from the coast can alleviate discomfort considerably.

#### BAKER'S CONCEPT

- As a permanent community housing for tribals with limited resources the houses were built in clusters around a common area where their ties of kinship remain undisturbed.



This kind of arrangement also helps in reduction of intense solar radiations during late mornings and early mornings



EXPOSED BRICK WALLS

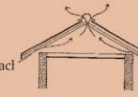


Courts provides unrestricted air movements within the settlement.

#### DESIGN STRATEGIES

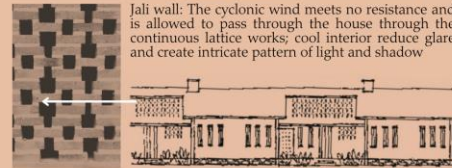
##### CONSTRUCTION

- Exposed brickwork and structure
- Sloped concrete roof
- Continuous latticework in the exposed walls
- Openness in design and individual units offset each other



##### CYCLONE PROTECTION STRATEGIES

- Low sloped roofs and courts serve as wind catchers
- Open walls function to dispel it
- Long row of housing replaced by even staggering
- Fronting courts catch the breeze and also get view of sea



Jali wall: The cyclonic wind meets no resistance and is allowed to pass through the house through the continuous latticework; cool interior reduce glare and create intricate pattern of light and shadow

STAGGERING: The long row of conventional housing is replaced by an even staggering



The way each unit offset each other to create openness in the design

These open spaces are used advantageously for daytime activities

#### ZONING AND CIRCULATION

Little private rectangle of land in between houses for drying nets, kids play, also catch the breeze and also get a view of the sea



Court where mending of nets and drying of fishes takes place

Interior unit-25m<sup>2</sup>  
Living+ Sleeping+ Washroom



#### OPEN SPACES

- Private rectangle of land in between houses for drying nets, kids play,
- Provides sleeping lofts within and adequate space outside for mending nets and cleaning and drying fish

#### EXTERIOR FEATURES:



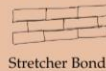
Uniformly tapering roof  
Clerestory windows jutting out as gable windows from the conical roof



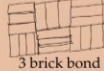
3 crosses



Granite and brickwork on facade.  
Different styles of brick bond were used in same building.  
Deep set openings,



Stretcher Bond



3 brick bond



Jhaali work and light shelves made with bricks is observed.  
Fish tail terracotta tile roofing.



New Cathedral has two steps in its roof form.  
The two steps are separated by a series of timber railings and louvers.

Catholic churches have spires/ turrets on their roof  
Here we can see the same along with balcony like detailing



Porch has features similar to Kerala Houses with Mangalore Tile roof



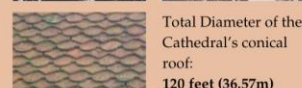
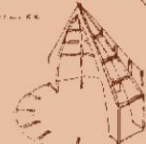
Central conical roof has been covered in copper plates similar to traditional roofing of Kerala Temples.

DIVYASTAMBHA:  
A tower that is decorated with lights is often seen in Temple architecture. here it has been introduced as Bell tower.  
Jhaali work on facade similar to Baker's work.



#### STRUCTURAL DETAILS:

Granite and brickwalls of old cathedral were load bearing walls. It could bear the weight of the roof.  
Jackwood and Bamboo was used for timber roofing system.



Fish tail tile roof

Total Diameter of the Cathedral's conical roof:  
120 feet (36.57m)

The timber roofing system was directly placed on the load bearing walls, without the aid of pendentives or drum.

They were assembled as individual trusses that met at the cone's tip



RCC structure with pendentives supporting the timber roof just like a dome

#### INTERIORS:



OLD CATHEDRAL

Random Rubble masonry wall

Stained Glass Windows

Lancet Arch

Openings in walls made with laying bricks such that it creates light shelves

Stained glass windows

Timber treatment to columns

Timber decor such as balusters

Biblical paintings

Pendentives

Blind Arches

Dentils

Brackets.



NEW CATHEDRAL



# BACHELOR OF ARCHITECTURE

Undergraduate Program

Bachelor of Architecture  
Undergraduate Program

---

Year

5

Architecture

# ARC 5102 THESIS

## SAMVAADA

### COURSE OBJECTIVES:

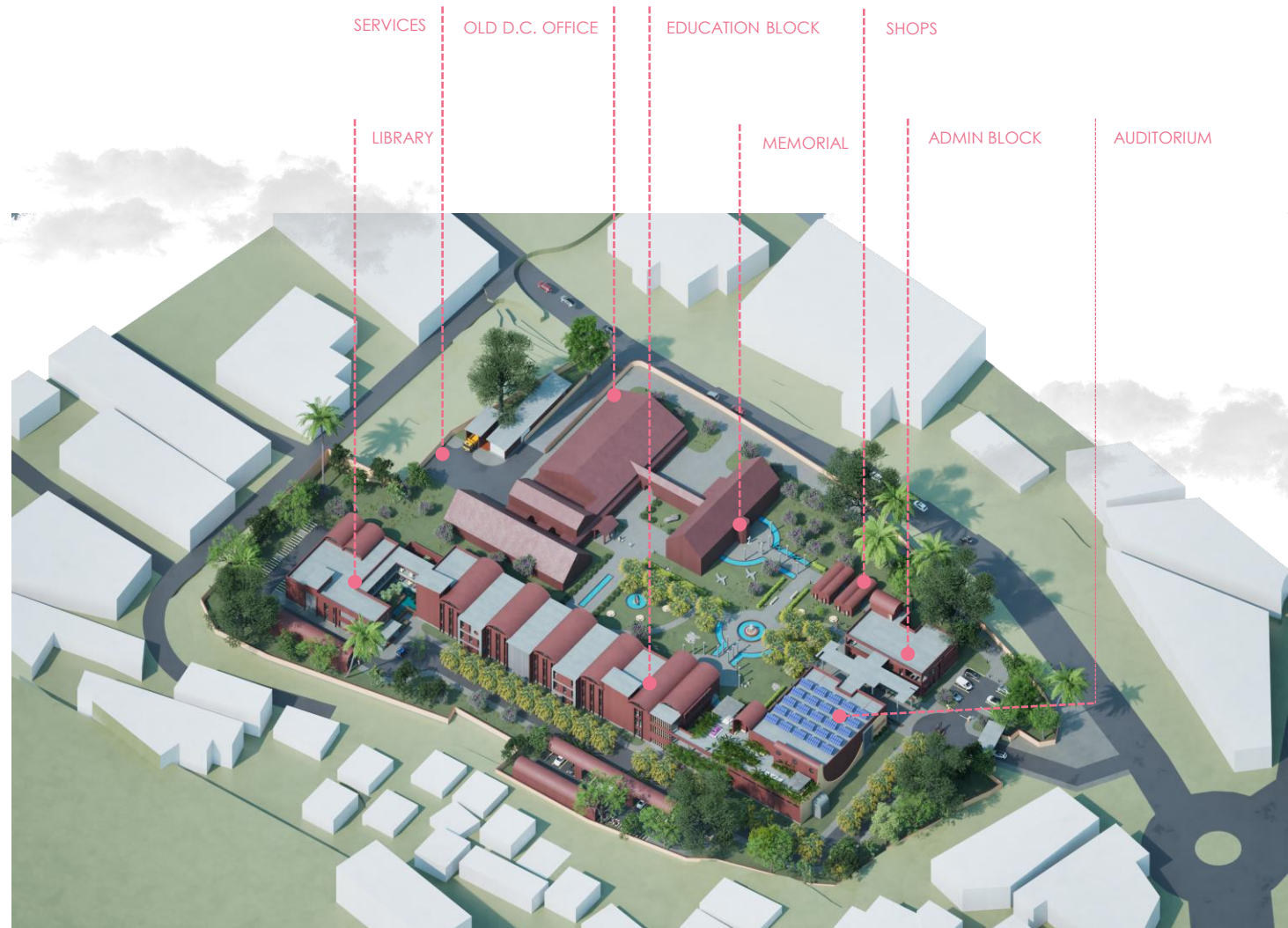
The thesis course enables students to independently explore architectural problems through critical research and design. It fosters innovation, contextual sensitivity, and professional competence. Emphasis is placed on sustainable, ethical solutions rooted in real-world issues. Students are trained to communicate their ideas effectively through drawings, models, and presentations.

### PROJECT BRIEF:

This thesis proposes the adaptive reuse of the 400-year-old Old D.C. Office in Mangalore into a vibrant cultural hub. The project aims to conserve the site's architectural heritage while introducing new, context-sensitive interventions. It includes spaces for exhibitions, performances, education, and public engagement. The design integrates sustainable practices and encourages community-driven cultural tourism. Overall, it seeks to celebrate Mangalore's legacy through inclusive, functional, and meaningful design.



### AERIAL VIEW





- |                    |                    |                   |                           |
|--------------------|--------------------|-------------------|---------------------------|
| 1. Entrance        | 5. O.A.T.          | 9. Memorial       | 13. Admin Block           |
| 2. Parking         | 6. Old D.C. Office | 10. Service Road  | 14. Visitors Court        |
| 3. Auditorium      | 7. Café            | 11. Services      | 15. Student Teacher Court |
| 4. Education Block | 8. Store           | 12. Library Block |                           |

### PROJECT BRIEF:

The inspiration for this project stemmed from witnessing the rich cultural fabric and architectural legacy of Mangalore being overlooked amidst urban growth. A visit to the Old D.C. Office during Heritage Week sparked the vision to revive the space as a vibrant cultural landmark through adaptive reuse.



View of the Roofline of the EDU Building



View of the Site Entrance



View of the Old D.C. Office



View of the Site Entrance



Site Section A-A'

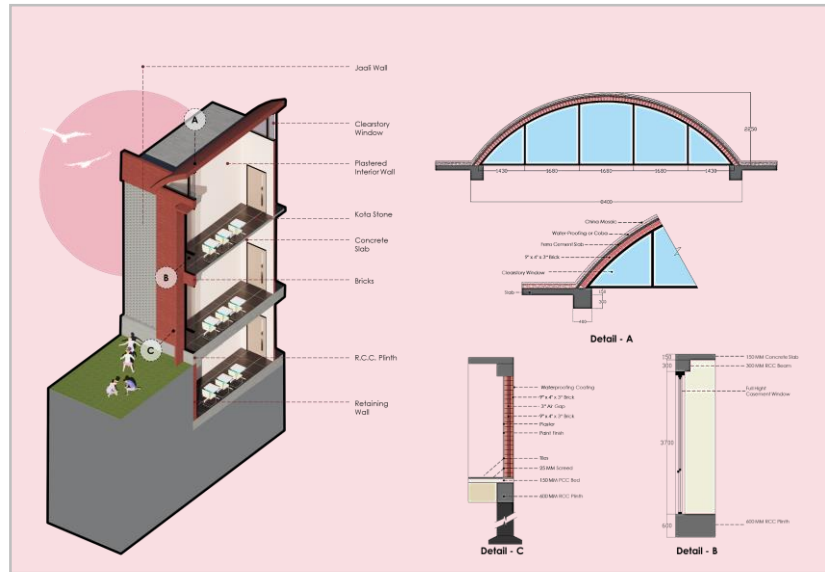
# ARC 5102 THESIS

## SAMVAADA

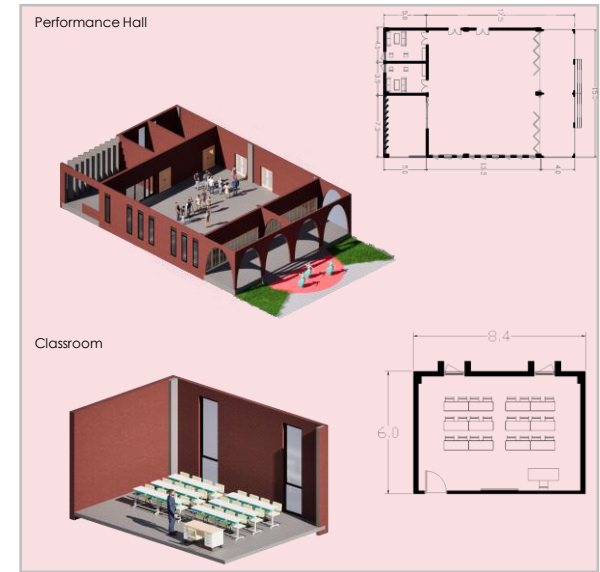
### MATERIALS & CONSTRUCTION TECHNIQUES:

The project employs traditional materials like laterite stone, Mangalore tiles, timber, and lime plaster to retain the site's historic character. New additions are constructed using RCC frames with exposed concrete and locally sourced bricks, ensuring structural integrity while maintaining aesthetic continuity.

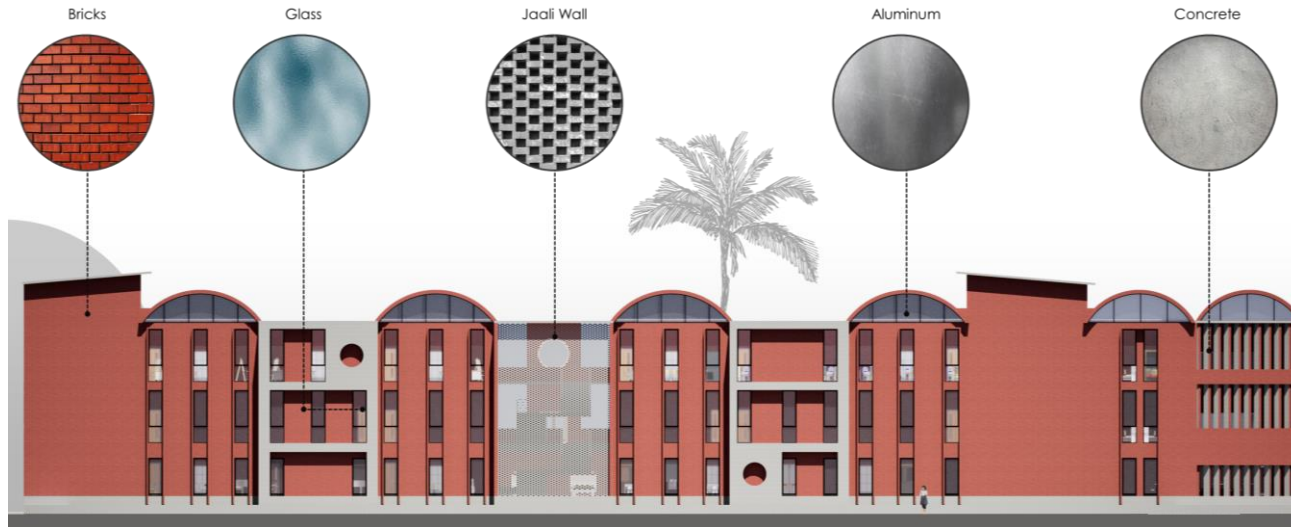
Jaali walls and vaulted roofs are incorporated for passive ventilation and climatic responsiveness. Sustainable techniques like rat trap bond masonry and recycled timber elements are used to balance heritage with modern efficiency.



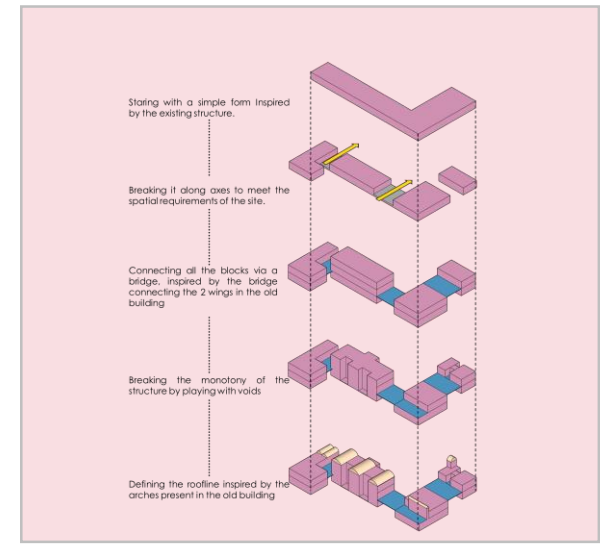
Wall Section & Details



Modules



East Elevation of the Academic Block



Form Development

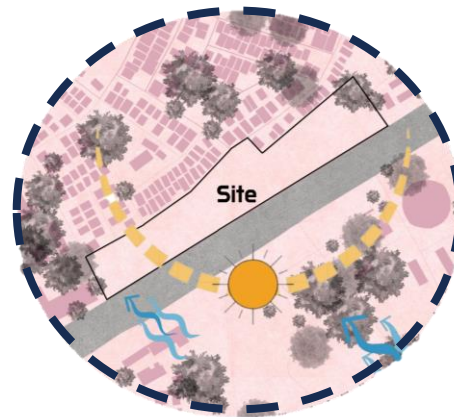
# ARC 5102 THESIS

## SHILA SAMRUDHI BHAWAN- MIXED USE BUILDING

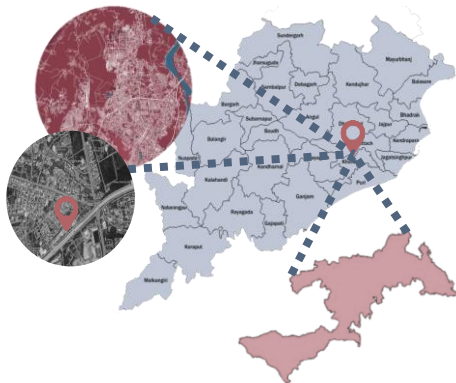
**COURSE OBJECTIVES:** To enable students to explore and present their projects based on individual interests. To develop and illustrate the proposed solution for the chosen architectural design problem in coordination with the assigned guide. To effectively communicate and represent design solutions at various stages through sketches, conceptual drawings, detailed design and technical drawings, models, and reports

**PROJECT BRIEF:**

Odisha Mining Corporation (OMC) is developing its new headquarters on a six-acre site along the Chennai-Kolkata highway. One-third of the land is for office use, with the rest dedicated to commercial and public recreational spaces. The project, featuring a 500-meter frontage, aims to foster operational growth while offering co-working spaces and amenities, creating a multifunctional urban hub for community engagement.

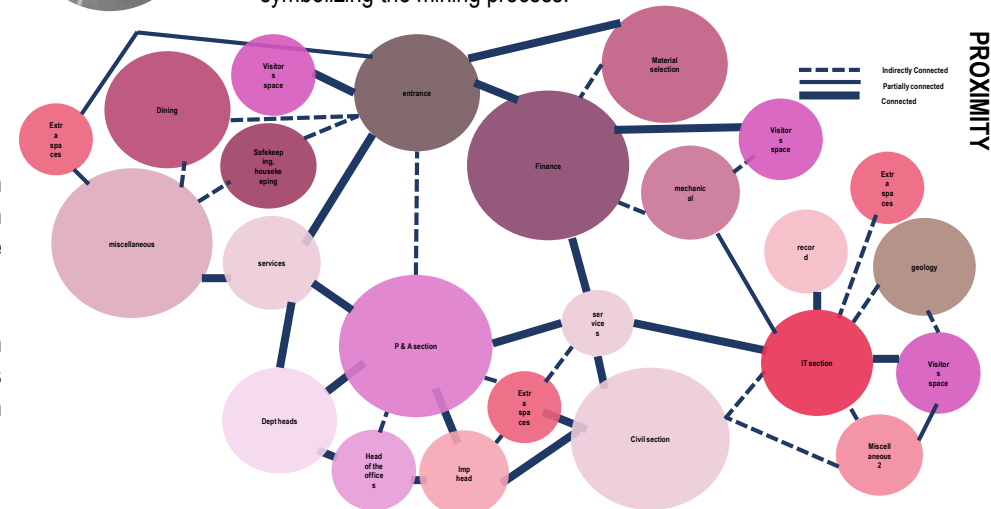


The design of the government mining office is inspired by coal mines, featuring stepped terraces, tunnels, and a central focal space. It reflects the spatial hierarchy of mines, ensuring an organized and efficient office layout while symbolizing the mining process.



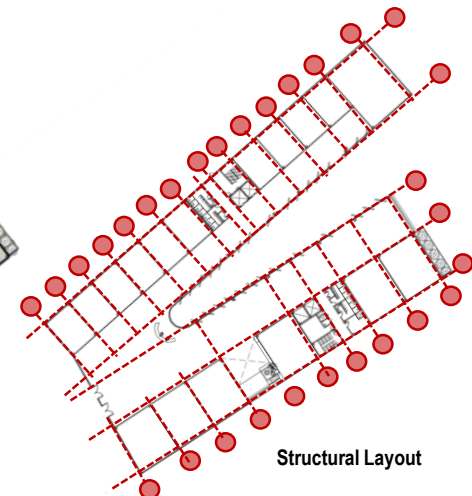
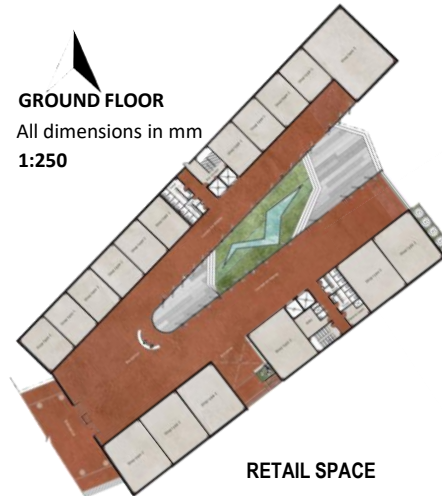
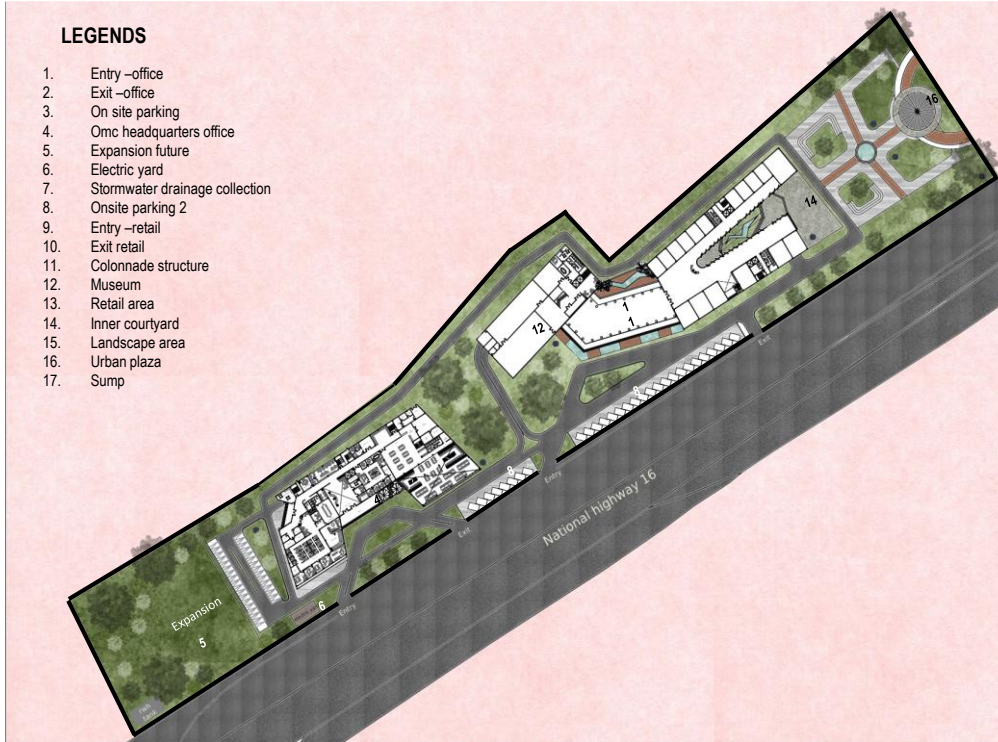
**SITE ANALYSIS**

Located along NH16, the site offers high visibility and access, adjacent to Crown Hotel and surrounded by mixed-use areas. With a tropical savanna climate, the cleared plot is ready for development. High footfall is driven by urban growth and cultural activity. Peak-hour traffic is managed by a footbridge, but pedestrian paths need improvement.



# ARC 5102 THESIS

## ANCIENT CIVILIZATIONS



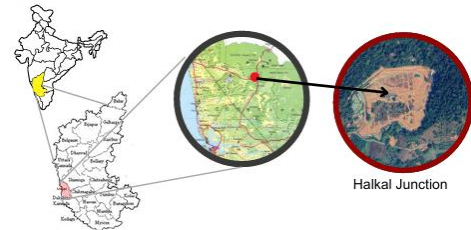
# ARC 5102 THESIS

## EKATVA LEARNING CENTRE FOR AUTISM

### PROJECT BRIEF:

Ekatva is a therapeutic learning center for autistic children aged 5–18, integrating inclusive education, therapy, and nature-based experiences. Located in Halkal, Udipi, the 8.5-acre campus blends architecture and landscape to create a sensory-safe, culturally rooted, and accessible environment.

GPS Coordinates 13°49'38"N 74°48'07"E

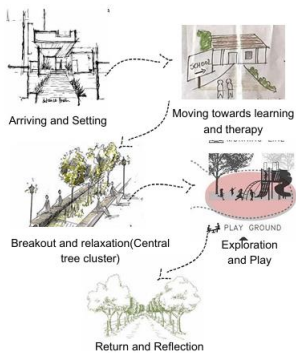


### CONCEPT:

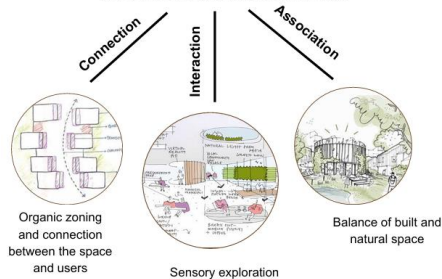
**“Samsarga” – meaning connection and interaction – is the soul of Ekatva.** Inspired by vernacular architecture, natural topography, and autism-responsive design, the center evolves as an organic cluster of therapeutic and learning spaces.



### EXPERIENTIAL JOURNEY OF SITE

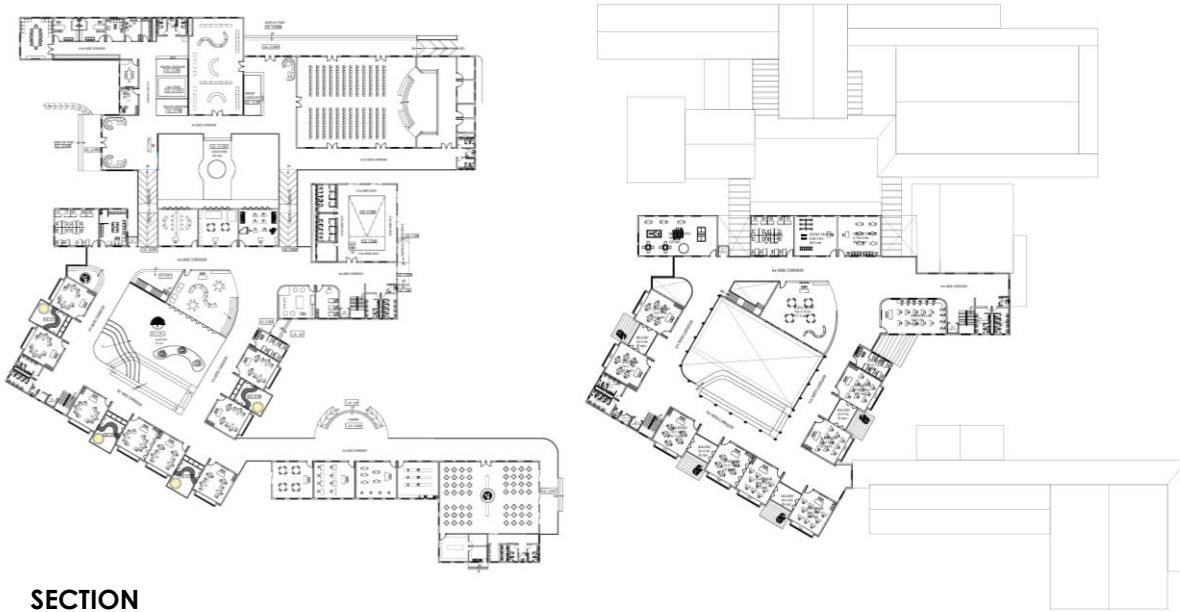


### ARCHITECTURAL INTERPRETATION



# ARC 5102 THESIS

## EKATVA LEARNING CENTRE FOR AUTISM



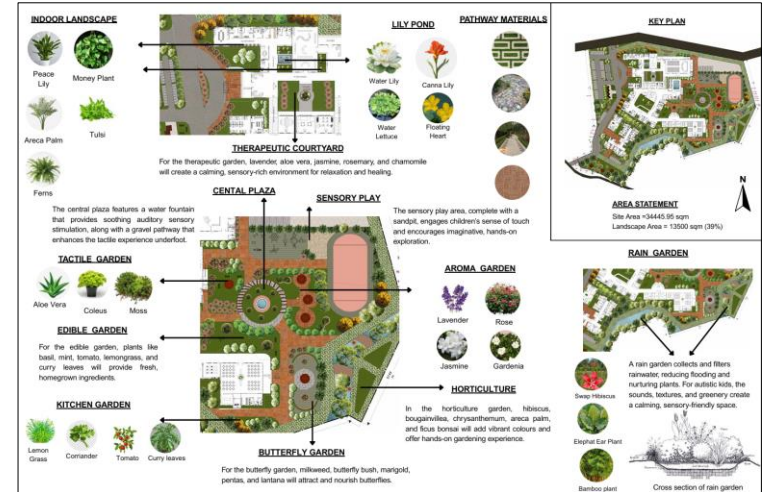
SECTION



ELEVATIONS



Ekatva fosters healing through connection—merging sensory-responsive architecture with nature to support the unique journeys of autistic children.





# MASTERS OF URBAN DESIGN AND DEVELOPMENT

Postgraduate Program

Masters of Urban Design and Development  
Postgraduate Program

---

Year

1

Architecture

## DESIGN PROPOSAL

### COURSE OBJECTIVES:

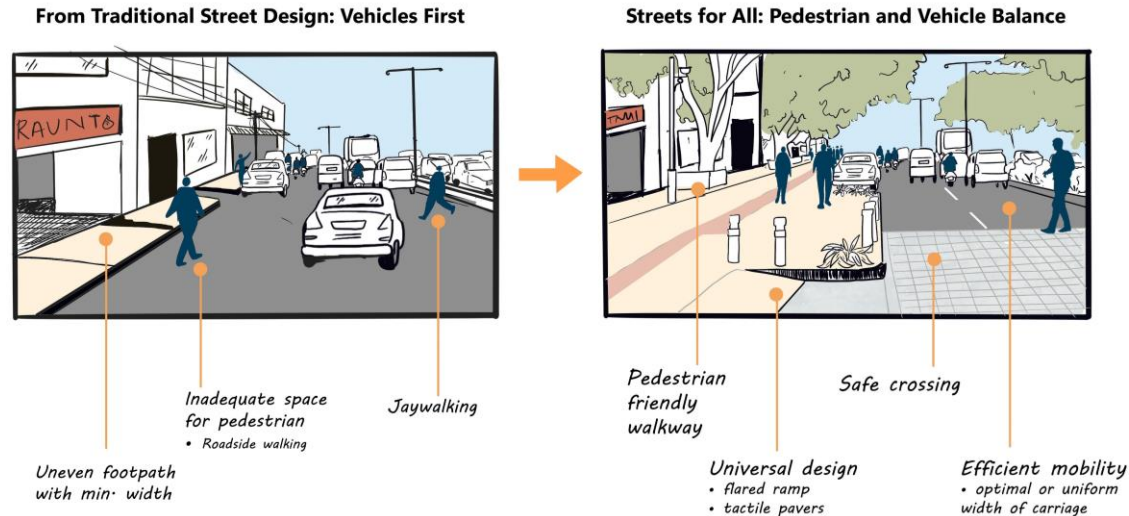
The studio serves as an introduction to the realm of urban design. The objective is to introduce the complexities of the design process and to create an understanding of the role of various physical, social, economic and infrastructure components and decision-making processes and the contribution to related disciplines associated with the making of the city

### PROJECT BRIEF:

The studio began with preliminary study of the city – Udupi . Analyzing the city with primary and secondary sources through the lens of history, morphology, socio - culture, economics, statistical data's and stakeholder perspectives. After synthesizing the data, issues were identified and a vision for the city was developed, further leading to group missions and individual thematic proposals

## THE PARADIGM SHIFT

From streets primarily designed for vehicles to streets that accommodate both pedestrians and vehicles



## CONCEPT OF “STREETS FOR ALL”

### VISION

Strengthening the cultural identity and enhance the quality of life through inclusive and sustainable development



### MISSION

Enhance accessibility: improving public infrastructure to accommodate people of varying needs and abilities

### PLACES FOR PEOPLE

Inclusive with universal design



### SAFETY

Safe from conflicts between pedestrian and vehicles



### CONNECTIVITY

People should move efficiently and conveniently



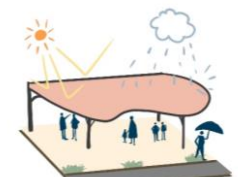
### LIVELY

Vibrant spaces



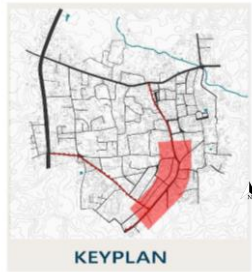
### ADAPTABLE

Design to adapt to different climatic conditions



# UDD 6501 URBAN DESIGN DEVELOPMENT LAB- I

## DESIGN PROPOSAL

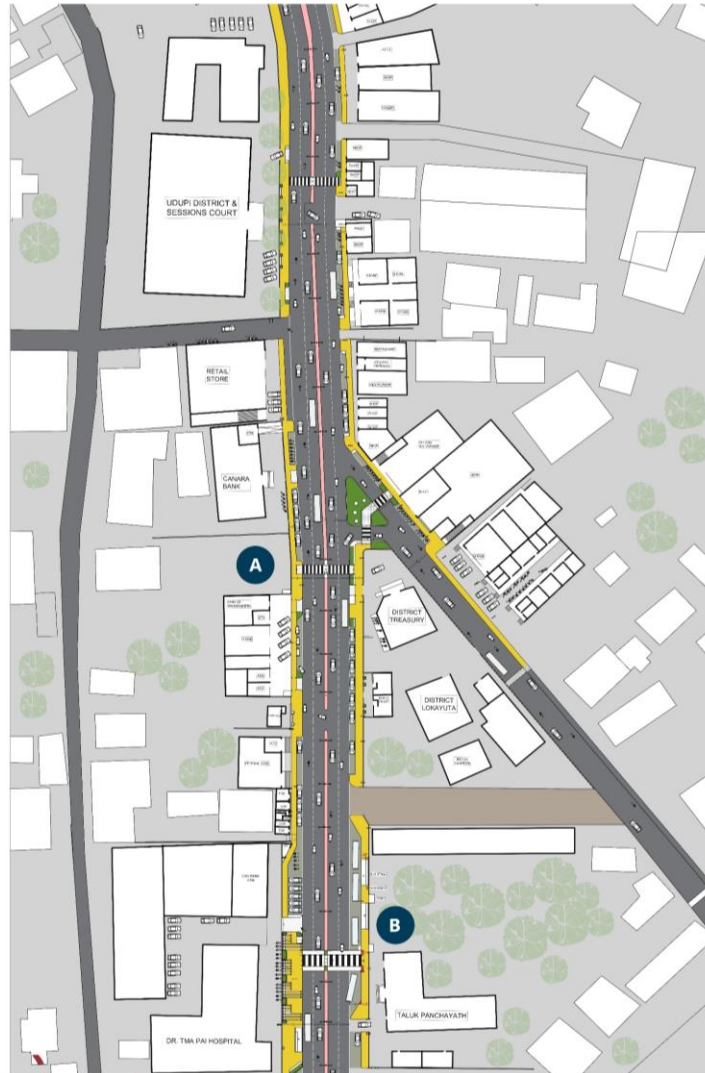


**DESIGN DEMONSTRATION :**  
 This stretch of road (Court Road, Udupi) has been chosen based on

- Connectivity**
- Mixed land use**
- Multiple destination points ( Magnet points )**
- Morphology**
- Activities**
- Diverse users**

**DESIGN PROPOSAL : PLAN**

SCALE 1:500



**PROPOSED PLAN**



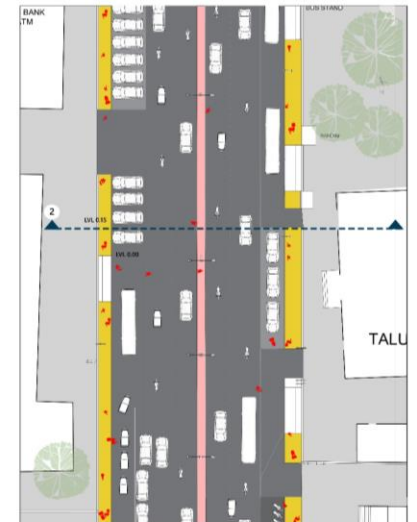
**A** Lion Circle Junction

**EXISTING PLAN**

SCALE 1:200

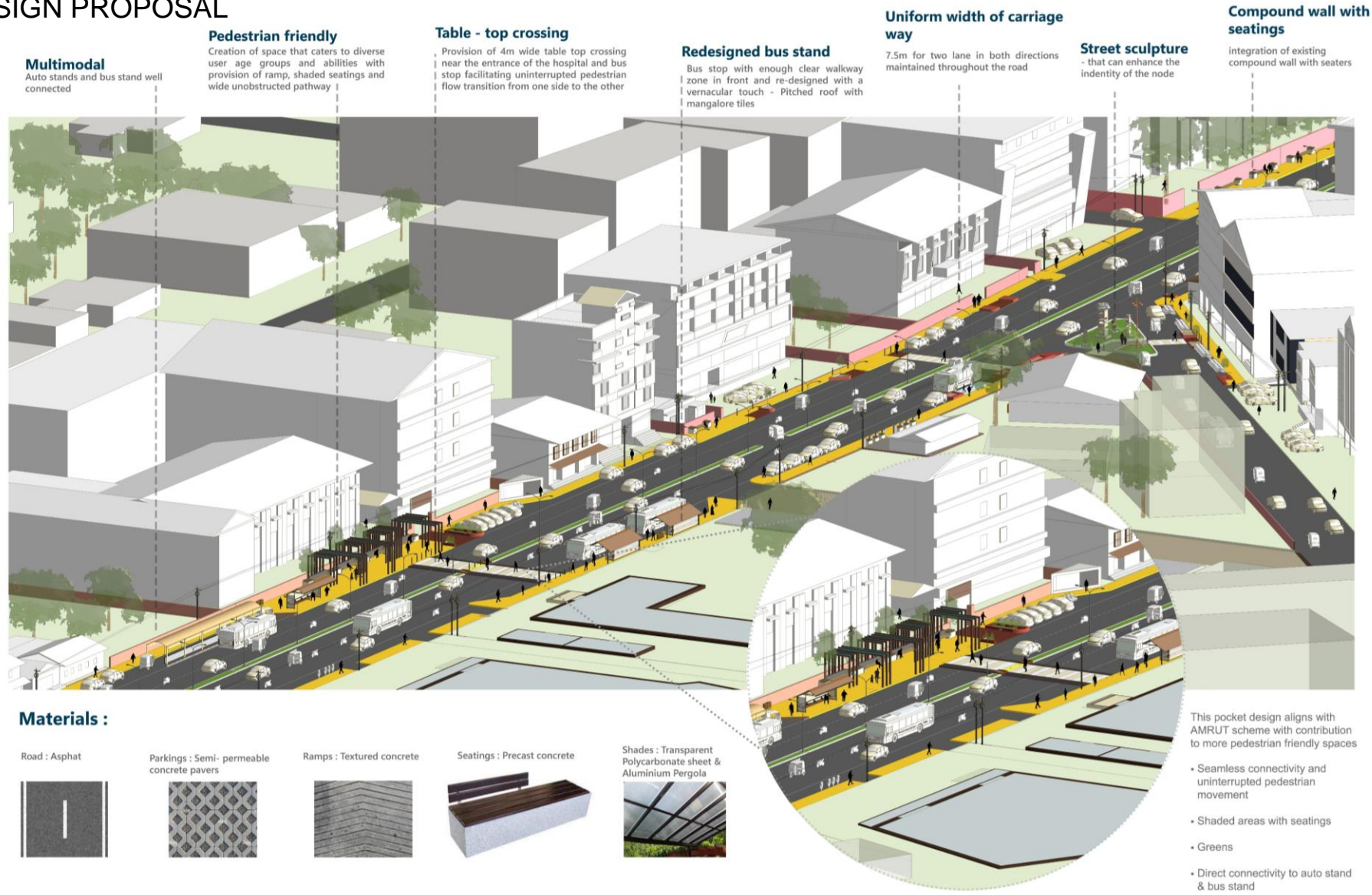


**B** Dr. TMA PAI Hospital Area



# UDD 6501 URBAN DESIGN DEVELOPMENT LAB- I

## DESIGN PROPOSAL



**Multimodal**  
Auto stands and bus stand well connected

**Pedestrian friendly**  
Creation of space that caters to diverse user age groups and abilities with provision of ramp, shaded seatings and wide unobstructed pathway

**Table - top crossing**  
Provision of 4m wide table top crossing near the entrance of the hospital and bus stop facilitating uninterrupted pedestrian flow transition from one side to the other

**Redesigned bus stand**  
Bus stop with enough clear walkway zone in front and re-designed with a vernacular touch - Pitched roof with mangalore tiles

**Uniform width of carriage way**  
7.5m for two lane in both directions maintained throughout the road

**Street sculpture**  
- that can enhance the identity of the node

**Compound wall with seatings**  
Integration of existing compound wall with seaters

**Materials :**

- Road : Asphalt
- Parkings : Semi- permeable concrete pavers
- Ramps : Textured concrete
- Seatings : Precast concrete
- Shades : Transparent Polycarbonate sheet & Aluminium Pergola

- This pocket design aligns with AMRUT scheme with contribution to more pedestrian friendly spaces
- Seamless connectivity and uninterrupted pedestrian movement
  - Shaded areas with seatings
  - Greens
  - Direct connectivity to auto stand & bus stand

# UDD 6502 URBAN DESIGN DEVELOPMENT LAB-II

## DESIGN PROPOSAL

### COURSE OBJECTIVES:

The objective of this studio is to study and propose design demonstrations in a city that is growing in contemporary times and embedded in cultural heritage and demonstrate interventions through urban design proposals.

**•Data Analysis:** Analyze primary and secondary data to address urban issues.

**•Issue Prioritization:** Identify and rank urban challenges using multi-criteria analysis.

**•Strategic Design:** Develop context-based, sustainable strategies and guidelines.

**•Planning & Proposals:** Create master plans and site-specific design solutions.

### PROJECT BRIEF:

Bijapura Colony Mulki, originally developed in the 1990s as a slum, has evolved significantly but remains perceived as an EWS or slum area. Situated near Mulki's industrial zone, it faces pressures from urban expansion. This study examines its land use, housing, and infrastructure, while analyzing the impacts of nearby industry, zoning conflicts, pollution, and socio-economic issues. It also explores urban design strategies to enhance livability alongside industrial growth.

### VISION FOR BIJAPURA

## BORDERLESS COMMUNITY

Bijapura's borderless community envisions an inclusive neighborhood where affordable housing, shared public spaces, and vibrant local economies seamlessly integrate diverse social groups, fostering equity and collective well-being



**PHYSICAL ACCESSIBILITY**  
 · Seamless movement for all  
 · Permeable public spaces allowing free connectivity between different zones.



**SOCIAL INCLUSIVITY**  
 · Affordable housing for diverse social groups  
 · Enhance social interactions and community living



**SUSTAINABLE ENVIRONMENT**  
 · Focuses on shared green spaces,



**ECONOMIC INTEGRATION**  
 Creating shared workspaces and employment opportunities

#### SDGs



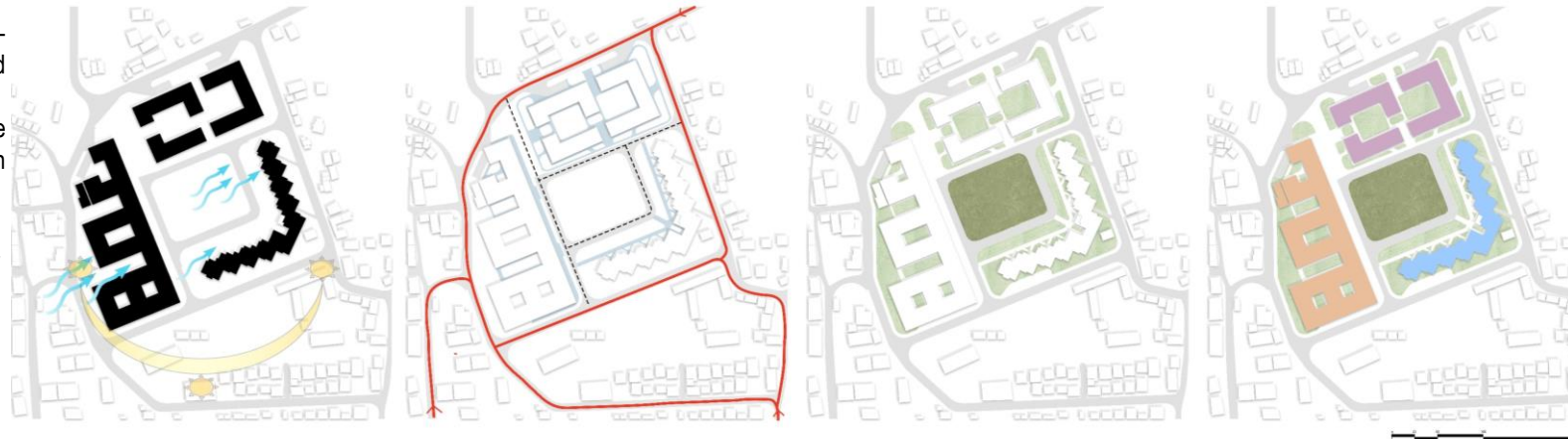
### MASTERPLAN LAYERS

Built and unbuilt

Road hierarchy

Green spaces

Residential Blocks



■ Built  
 ■ Unbuilt  
 ■ Roads

**25%**

GROUND BUILT-UP COVERAGE

— Primary Road - 12m  
 - - - Secondary Streets - 9m (Pedestrianised)  
 — Block Pathways - 4-2m

**20%**

PRIMARY ROADS

■ Public open space  
 ■ Semi public open space

**55%**

OPEN SPACES

■ Block I  
 ■ Block II  
 ■ Block III

**3 NO.**

RESIDENTIAL BLOCKS

# UDD 6502 URBAN DESIGN DEVELOPMENT LAB-II

## DESIGN PROPOSAL



### MASTER PLAN :

The master plan emphasizes project redevelopment aligned with guidelines tailored for this type of transformation—shifting from ground-oriented to vertical community development. The project adopts a phased development approach, with a strong focus on community engagement and inclusive growth.

**Type Of Project** : Housing Project

**Site Area** : 15. 5 Acres (62,450 sq.m)

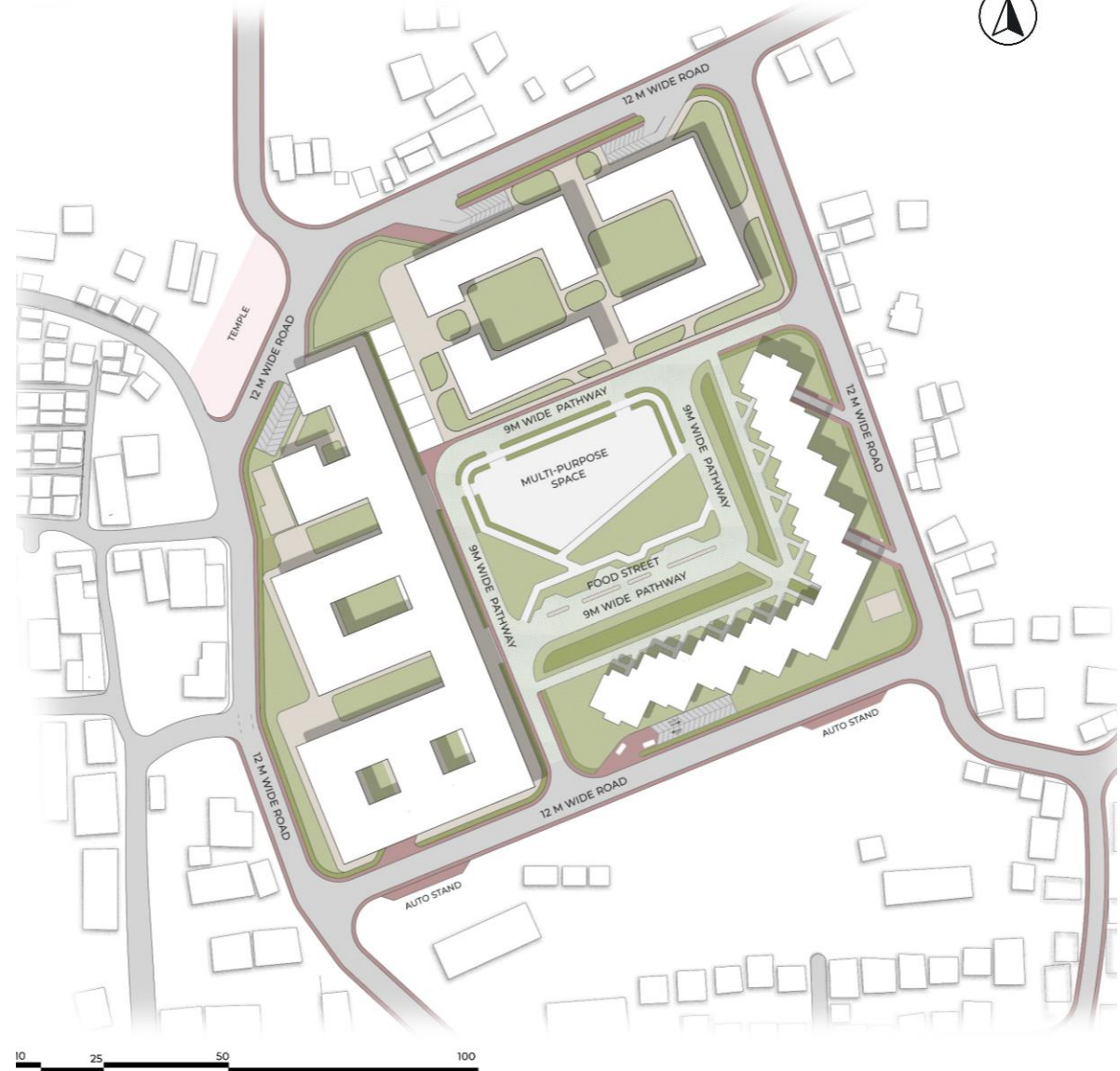
**Phases of project** : 3 Phases

**Total build up area** : 1,39,000 sq.m

**Total ground cover** : 35,000sq.m (25% of site area )

**Total Green cover space** : 40% of site area

### KEY PLAN :



## DESIGN PROPOSAL

Building blocks designed with stepped terraces, staggered floors, and integrated community balconies.

Open courtyards and plaza prioritizing softscape, tree cover, and permeable landscape

Bioswale

Porous and walkable neighbourhood



## DESIGN DEMONSTRATION

### PHASE II

#### BLOCK II & CENTRAL PUBLIC PLAZA

TOTAL AREA : 23280 sqm

TOTAL UNITS : 420

NO. OF 50SQM UNITS : 278

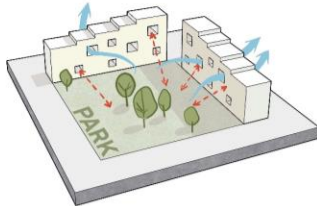
NO. OF 70 SQM UNITS : 114

NO. OF 100 SQM UNITS : 28

GROUND COVERAGE : 3645sqm

BUILT-UP AREA : 34296sqm

MAJOR PUBLIC PLAZA : 6046 sqm



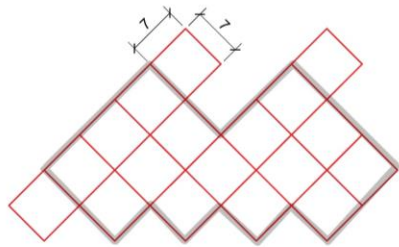
Block II has been oriented strategically to maximize views into the central plaza which also provides shade to enhance the comfort of the spaces. This approach makes the transition from built environment to its surrounding more fluid and inviting, additionally fostering a sense of natural surveillance all throughout the day.

Keyplan



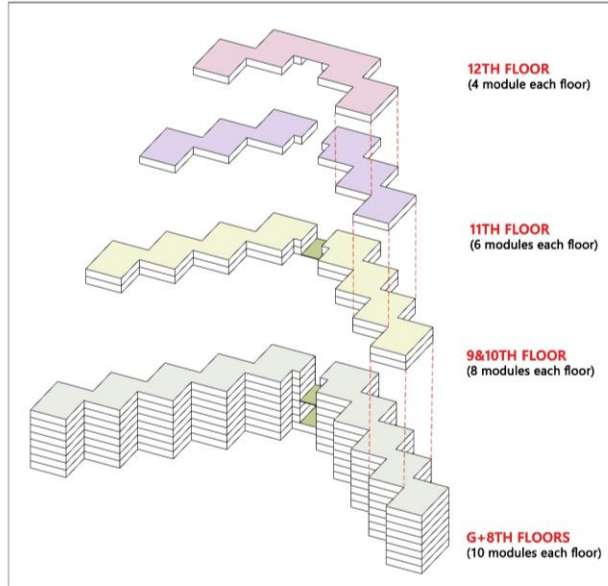
## DESIGN DEMONSTRATION

### MODULE GRID



Following a Grid of 7'x7' to achieve the unit sizes per requirement and tilted at 45° to achieve the form which enables a seamless interplay of solids and voids

### BLOCK II FORM

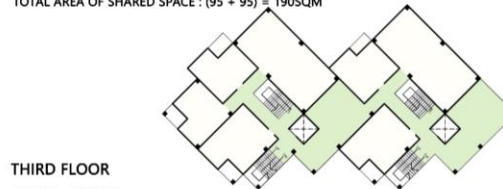


### MODULAR FLOOR PLANS

SHARED SPACE:  



**FOURTH FLOOR**  
 50 SQM : 7 UNITS  
 70 SQM : 2 UNITS  
 TOTAL AREA OF SHARED SPACE : (95 + 95) = 190SQM



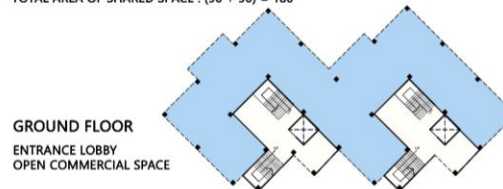
**THIRD FLOOR**  
 50 SQM : 6 UNITS  
 70 SQM : 2 UNITS  
 TOTAL AREA OF SHARED SPACE : (100 + 100) = 200SQM



**SECOND FLOOR**  
 50 SQM : 7 UNITS  
 70 SQM : 2 UNITS  
 TOTAL AREA OF SHARED SPACE : (112 + 112) = 224SQM



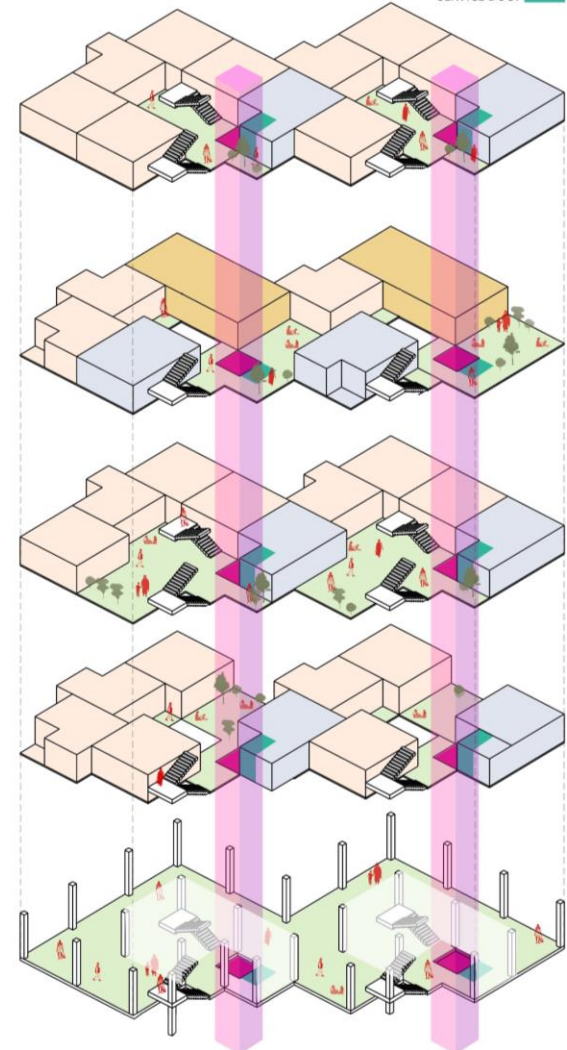
**FIRST FLOOR**  
 50 SQM : 9 UNITS  
 70 SQM : 2 UNITS  
 TOTAL AREA OF SHARED SPACE : (90 + 90) = 180



**GROUND FLOOR**  
 ENTRANCE LOBBY  
 OPEN COMMERCIAL SPACE

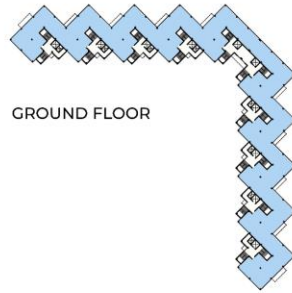
### 3D VIEWS

50SQM UNITS 70SQM UNITS 100SQM UNITS ELEVATOR SERVICE DUCT

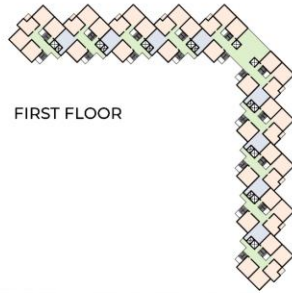


## DESIGN DEMONSTRATION

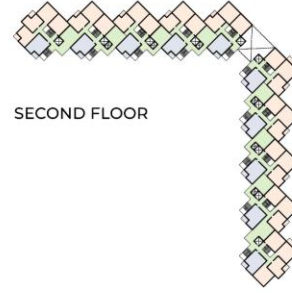
### FLOOR PLANS



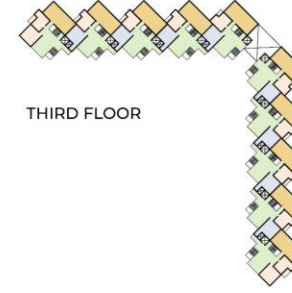
GROUND FLOOR



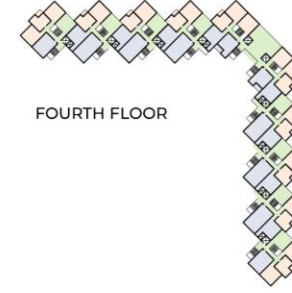
FIRST FLOOR



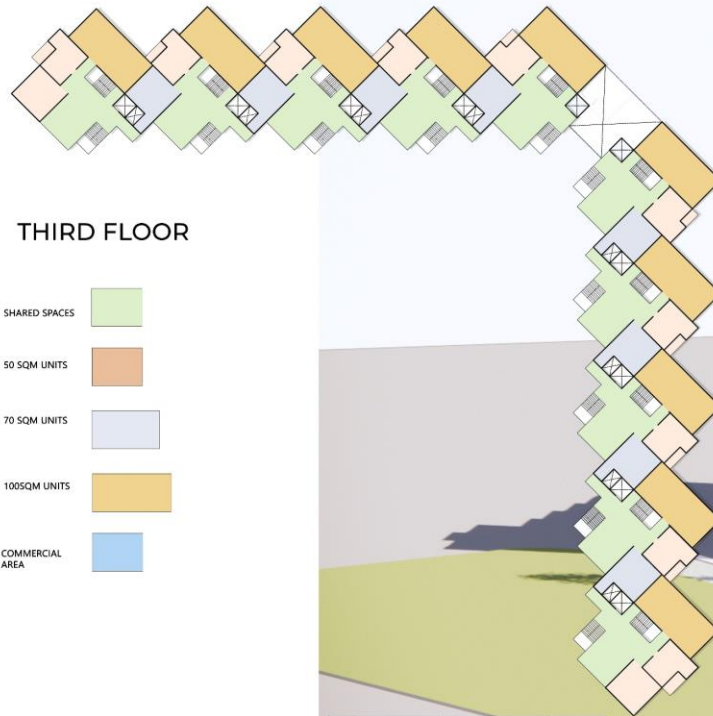
SECOND FLOOR



THIRD FLOOR



FOURTH FLOOR



THIRD FLOOR

- SHARED SPACES
- 50 SQM UNITS
- 70 SQM UNITS
- 100SQM UNITS
- COMMERCIAL AREA

**SHARED SPACES:** These spaces interconnects each floor to foster a sense of community, encourage spontaneous interactions and create a dynamic flow between the private and communal areas



BLOCK MODEL

## DESIGN DEMONSTRATION

### CENTRAL PUBLIC PLAZA

Positioned at the heart of the neighbourhood, designed for seamless accessibility from all surrounding blocks. The space is conceived as a multifunctional urban node, integrating zones for play, leisure, active recreation, quiet contemplation, and vibrant food streets — all curated to foster a lively and inclusive community atmosphere.



# UDD 6502 URBAN DESIGN DEVELOPMENT LAB-II

## DESIGN DEMONSTRATION

### PHASE III

TOTAL SITE AREA - 16, 360 SQ.M

GROUND FLOOR BUILT-UP AREA - 6, 000 SQ.M

HEIGHT OF THE BUILDING - G+ 12

The third phase of the project marks a significant milestone in the overall development of Bijapur Colony. As the largest phase in terms of residential capacity, it is designed to accommodate both the projected population growth and a portion of the existing community.

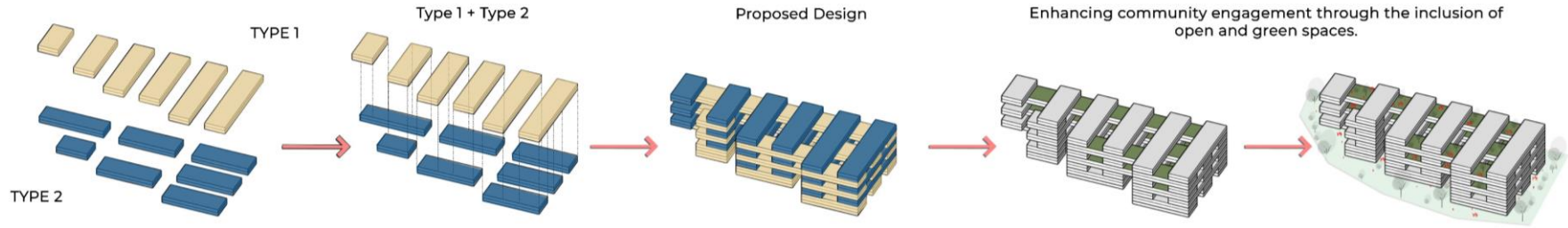
This phase not only addresses the housing demand but also enhances community engagement by fostering a vibrant and inclusive living environment. The design strategically integrates open spaces at multiple levels, promoting social interaction, environmental quality, and a strong sense of place within the neighborhood.

### KEY PLAN



## DESIGN DEMONSTRATION

PHASE 3 - CONCEPT DEVELOPMENT



### GROUND FLOOR PLAN

( For Commerical & Amenties )

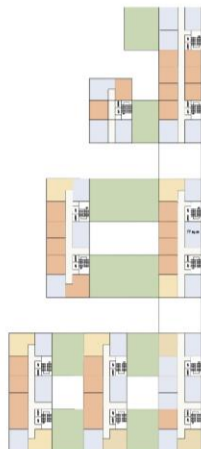


### MODULAR FLOOR PLAN

Total no of Floor : G+ 12

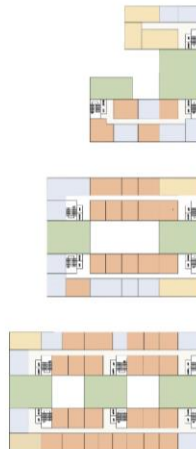
#### TYPE 1

( 1 - 2, 5 - 6, 9 - 10 floors )



#### TYPE 2

( 3 - 4, 7 - 8, 11 - 12 floors )



### 3D VIEW



The proposed typology presents a self-sustaining housing model that combines a mix of residential units with integrated amenities and open spaces distributed across different levels.

Ground-floor commercial spaces are included to activate the street edge and support daily needs, fostering a vibrant and livable community.

This design aims to create a holistic urban living environment that promotes sustainability, social interaction, and convenience.

- Commercial Space
- Entrance Lobby
- Amenities

### TYOLOGIES

No of units as per calculation :



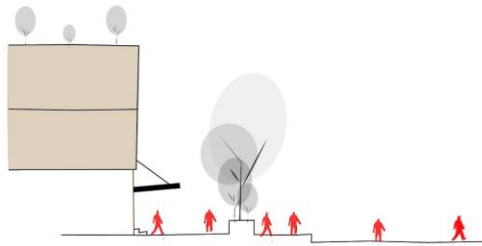
Total no of units : 670 units

## DESIGN DEMONSTRATION

### COMMERCIAL FRONTAGE

The third phase of the project marks a significant milestone in the overall development of Bijapur Colony. As the largest phase in terms of residential capacity, it is designed to accommodate both the projected population growth and a portion of the existing community.

This phase not only addresses the housing demand but also enhances community engagement by fostering a vibrant and inclusive living environment. The design strategically integrates open spaces at multiple levels, promoting social interaction, environmental quality, and a strong sense of place within the neighborhood.



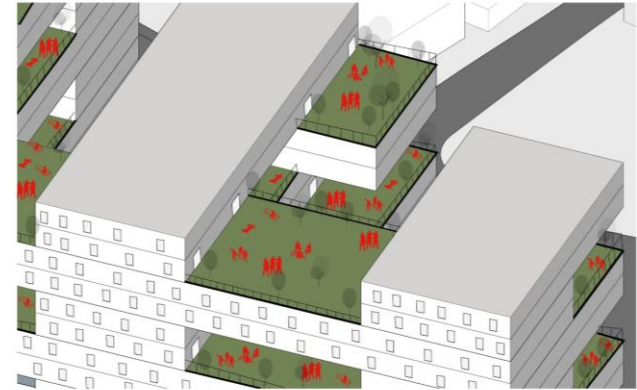
SECTION



KEY PLAN

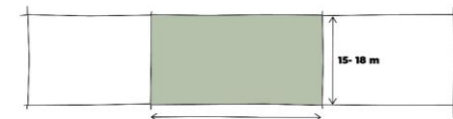


### OPEN SPACES ON TERRACES

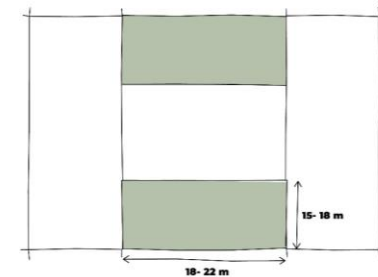


The third phase of the project marks a significant milestone in the overall development of Bijapur Colony. As the largest phase in terms of residential capacity, it is designed to accommodate both the projected population growth and a portion of the existing community.

This phase not only addresses the housing demand but also enhances community engagement by fostering a vibrant and inclusive living environment. The design strategically integrates open spaces at multiple



TYPE 1



## DESIGN PROPOSAL

### COURSE OBJECTIVES:

This course is an introduction to understand the complexity and importance of urban transport in contemporary times

- Understand different attributes of urban transport system
- Interpret and evaluate different concepts and approaches to sustainable transport
- Make use of different data collection and interpretation techniques to understand travel behavior
- Recommend design strategies to make effective transport for all.

### PROJECT BRIEF:

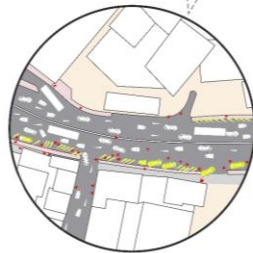
This exercise allows us to evaluate the transport related issues and demonstrate a design-oriented solution in the given context

### DEMONSTRATION AREA:

#### TIGER CIRCLE TO MIT GATE 1

This road stretch is one of the busiest in Manipal, with several major magnet points such as the Kasturba medical hospital, Manipal commercial complex and Canara mall along with bus stand and several smaller but active commercial shops, serving as a crucial link for students, residents and overall users

### EXISTING PLAN



Poor pedestrian infrastructure in some sections, with uneven surface or obstructed footpaths by car parking, forcing the pedestrians to walk on the roadside

Unorganized parking near commercial zones  
Businesses spill over onto the street, further increasing pedestrian-vehicle conflicts.

### PROPOSED PLAN



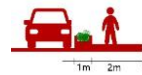
### DESIGN STRATEGIES

Minimum barrier to pedestrian movement :  
Channeling the pedestrian back to footpaths

- Even footpath width of 2m min. with even surface
- 1m planter box between the footpath and the road to avoid encroachment of parked cars into the footpath



- Clearly demarcate parking area
- No parking 20m from junction
- Only parallel parking for cars to be allowed on roadside parking
- Crosswalk with median
- Install speed cameras near pedestrian crossings to prevent over speeding with fine violators to ensure compliance.





# MASTERS OF ARCHITECTURE

Postgraduate Program

Masters of Architecture  
Postgraduate Program

---

Year

2

Architecture

## HASIRE USIRU – REDEFINING URBAN GREENS

The Doddankeundi Lake and adjacent areas have been chosen for their high-density residential and commercial land use. This site offers natural assets like the lake, which can be revived and integrated into a broader green street network, enhancing both the environmental and social landscape. Proximity to IT parks and strong transport links make it a well-connected zone, ripe for a transformation into a more livable, thermally comfortable, and sustainable environment. The high density of residential zones, coupled with natural features, offers opportunities for creating new green corridors that prioritize walkability, thermal comfort, and enhanced public spaces.

**What is the Infrastructure around the area ?**

Due to the wards rapid urbanization, the transport infrastructure is also quite poor. Barely any pedestrian infrastructure exists in this block, with extremely narrow lanes, that get choked for hours during peak traffic time. This traffic node is one of the worst the city bays, as the highway run-ringing through the region connects the city to its major tech parks.

**STRENGTH**  
High connectivity due to proximity to tech parks and highways.

**WEAKNESS**  
Lack of green covers in the area  
Poor pedestrian infrastructure and narrow lanes.

**OPPORTUNITIES**  
Potential for developing pedestrian-friendly streets and sustainable transport options.

**THREATS**  
Continued urbanization may worsen traffic and pedestrian safety issues.

**What are the Geographic conditions & Natural features of the site ?**

Located at an elevation of 920m, the area around the lake has a flat topography and receives 970/Year. Temperatures ranges 18°C & 30°C. Despite this, green cover is severely lacking, with only 0.3 trees per person in a ward of 63,000 people, far below the recommended 10 trees per person.

**STRENGTH**  
The fenced lake help minimize negative impacts.

**WEAKNESS**  
Severe shortage of trees (0.3 trees/person), contributing to rising temperatures.

**OPPORTUNITIES**  
Revitalizing canals as public spaces can enhance greenery and reduce heat stress.

**THREATS**  
Untreated canals and lack of green infrastructure may worsen environmental degradation.

**What are the Functions around the site ?**

This zone consists of residential blocks, commercial areas, and gated communities, with some of the highest land prices due to its proximity to the metro, tech parks, and apartments. It has a high population density, reflecting the area's urban growth and demand for housing.

**STRENGTH**  
High-density residential and commercial areas adjacent to tech parks

**WEAKNESS**  
The density here is very high with 300+ people living per 0.15 Sq.km, 0.3 trees per person

**OPPORTUNITIES**  
Increase green cover per person.  
Proximity to metro and tech parks allows for integrating green corridors to improve thermal comfort.

**PROJECT IMPACT**

**Intervention Implemented**

- Increase Green Infrastructure
- Implement Nature-Based Solutions
- Revive Public Spaces
- Improve Stormwater Management

**Key Outcomes**

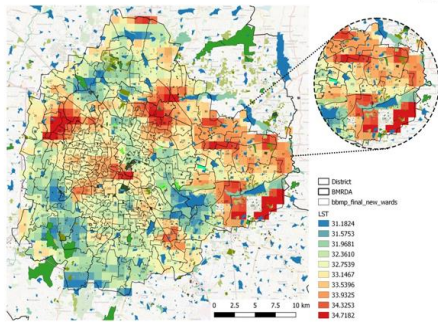
- Cooler, Greener Environment
- Reduced Heat Stress
- Better Air Quality
- Revitalized Ecosystem

**Impact on Community**

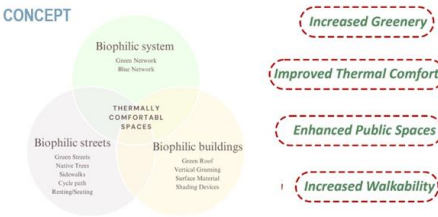
- Improved Public Health and Livability
- Increased use of public spaces
- Enhanced Quality of Life and Comfort
- Increased Social Interactions

**VISION**

The vision for Doddanekundi area is to create a green, sustainable urban oasis that blends nature with urban living, enhancing thermal comfort, and community well-being.



Issues	Consequences	Results
1. Pollution from Waste Disposal	1. Rising Surface	1. Unsanctioned Dumping Grounds
2. Lack of Green Spaces	2. Degraded Air Quality	2. Urban Heat Island Effect
3. Poor Stormwater Management & Concentration	3. Contamination of Lake & Vicar Land	3. Reduced Livability
4. Loss of Vegetation		



**TYPOLOGIES OF GREEN SPACE DENSITY**

**Along Doddanekundi Lake**

**Along Doddanekundi Main Road**

**Along residential local streets**

**EXISTING CONDITION OF THE SITE**

**SECTION ALONG THE LAKE AND THE GOVERNMENTS**

**SECTION ALONG THE DODDANEKUNDI MAIN ROAD**

**BUILT FORM TRANSIT OF DODDANEKUNDI**

**The Urban Oasis: Greening Spaces for Community and Nature** project seeks to transform underutilized spaces around Doddanekundi Lake into vibrant, sustainable urban areas. The proposal focuses on integrating green infrastructure, enhancing biodiversity, and promoting community well-being through nature-based solutions. Drawing inspiration from successful urban green projects like the Bishan-Ang Mo Kio Park in Singapore and Medellin's Green Corridors in Colombia, this initiative emphasizes the critical need for environmental regeneration, especially in high-density urban zones.

**PRIMARY CONTEXT**

**Site**  
13 Acres (1.4 sqkm)

**Project**  
Green Streets  
Reviving Public Spaces  
Canal Regeneration

**Density**  
300 people per 0.15sqm

**Nearest transit point**  
Doddanekundi Metro

**Neighbourhood Layouts**  
Gururaja Layout  
Ferus Habitat  
Kondappa Layout

**Population**  
63000

**Spatial Extent**  
2487 acres

**Tree Count/Person**  
0.3 trees/person

**Identify**  
Determine the critical social, economic, or environmental needs and opportunities in the area of focus.

**Uplift**  
Improve underperforming green infrastructure to better align with local demands or address deficiencies.

**Create**  
Develop new elements that meet local requirements or fill gaps within the existing green infrastructure network.

**Conserve**  
Protect and maintain the crucial components of the green infrastructure that are necessary for sustainability.

**Assess**  
Evaluate if the current green infrastructure elements address these needs effectively for both the present and the future.

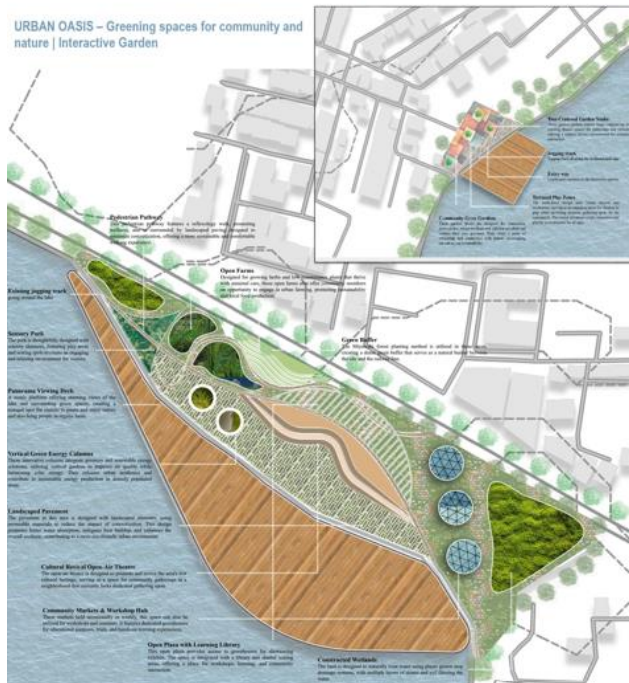
**Target**  
Strategically focus policies, interventions on conserving, connecting, restoring a resilient green infrastructure system.

# ARC 7201 URBAN DESIGN STUDIO

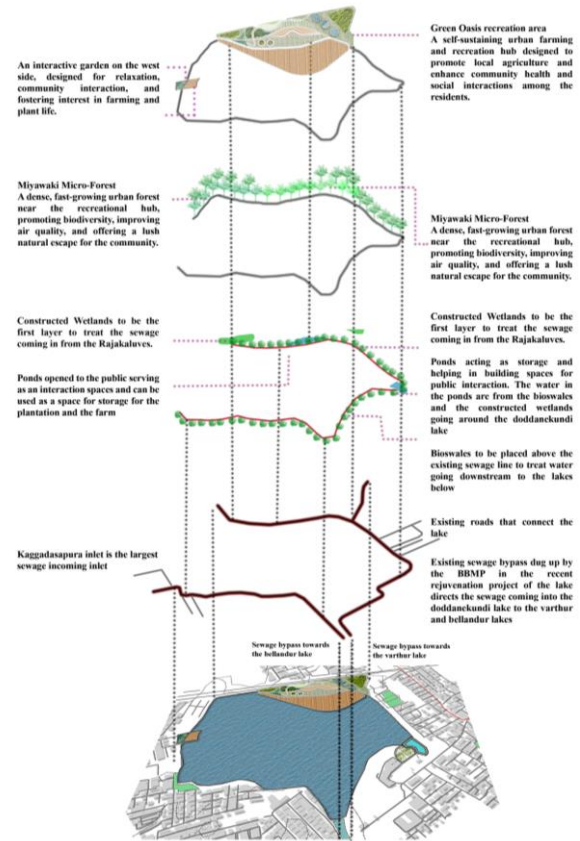
## HASIRE USIRU – REDEFINING URBAN GREENS



URBAN OASIS – Greening spaces for community and nature | Interactive Garden



This isometric view emphasizes the multi-layered and thoughtfully integrated design of the Urban Oasis project. It begins with bioswales, which serve the dual purpose of channeling and filtering sewage, ensuring stormwater management while preventing contamination. Further along, ponds and wetlands work as natural filtration systems, refining water quality and supporting biodiversity. At the project's core is a vibrant green community center, which anchors the design with public spaces enhanced by trees, vegetation, and green infrastructure. The design culminates with an interactive garden that includes multi-level landscaping and sensory features, transforming a once-neglected site into a lively, eco-friendly destination for community engagement. This holistic approach fosters environmental sustainability and community well-being, combining ecological restoration with recreational and social opportunities.



Element	Type of System	Plants Suitable to Grow	Benefits	Sections
Terrace	Green Roof System	Gaijases, Herbs, Vegetables Vegetable Spinnach Herb: Basil Grass: Bermuda Grass	- <b>Thermal Insulation:</b> Reduces heat gain, lowering energy needs for cooling. - <b>Stormwater Management:</b> Absorbs rainwater, reducing runoff. - <b>Biodiversity:</b> Attracts pollinators and supports urban wildlife.	
Sarbaks	Drip Irrigation with Pot/Trays	Climbers, Herbs, Shrubs Climber: Passiflora Herb: Mint Shrub: Lemon	- <b>Noise Reduction:</b> Reduces external noise by acting as a barrier. - <b>Cooling Effect:</b> Lowers ambient temperatures through shade and evapotranspiration. - <b>Local Food:</b> Space for growing vegetables or fruits.	
Compound Wall	Vertical Garden System	Climbers, Ferns, Microplants Climber: Ivy Fern: Boston Fern Microplant: Moss	- <b>Air Quality:</b> Absorbs pollutants and CO <sub>2</sub> , releasing oxygen. - <b>Space Utilization:</b> Adds greenery without taking ground space. - <b>Aesthetic:</b> Improves visual appeal and property value.	
Ducts	Hydroponic System	Microgreens, Leafy Vegetables Microgreen: Amulga Leafy Vegetable: Lettuce	- <b>Space Efficiency:</b> Grows plants in confined areas. - <b>Biodiversity:</b> Supports a variety of plant species. - <b>Air Purification:</b> Plants in ducts can improve air circulation and reduce indoor air pollution.	

Element	Type of System	Plants Suitable to Grow	Benefits	Sections
Staircase Walls	Trellises or Green Walls	Climbing Plants, Mosses Climber: Bougainvillea Moss: Cushion Moss	- <b>Temperature Control:</b> Moderates indoor temperatures. - <b>Noise Absorption:</b> Reduces noise from stairways. - <b>Aesthetic:</b> Adds natural beauty to transitional spaces.	
Balconies & Sit-Outs	Potted Plants, Vertical Gardens	Herbs, Flowers, Shrubs Herb: Basil Flower: Marigold Shrub: Hibiscus	- <b>Community Building:</b> Provides a relaxing green space for social interactions. - <b>Health Benefits:</b> Encourages interaction with nature, boosting mental well-being. - <b>Air Purification:</b> Enhances air quality.	
Parking Lots/Driveways	Bioswales, Permeable Paving with Trees	Small Trees, Grasses Small Tree: Agave, Maple Grass: Fescue Grass	- <b>Flood Control:</b> Reduces runoff and improves groundwater recharge. - <b>Heat Reduction:</b> Lowers heat island effect by providing shade. - <b>Aesthetic:</b> Improves the visual environment around the building.	
Building Facades	Living Wall System	Succession, Vines, Moss Succulent: Aloe Vera Vine: Jasmine Moss: Sphagnum Moss	- <b>Insulation:</b> Provides an extra layer of insulation. - <b>Biodiversity:</b> Supports birds and insects. - <b>Air Quality:</b> Filters pollutants from the air, improving urban air quality.	

## HASIRE USIRU – REDEFINING URBAN GREENS

The U-value (thermal transmittance) measures how well a building material conducts heat. Lower U-values indicate better insulation.

$$U = 1/R_{total}$$

Where R total is the sum of the thermal resistances of each material layer in the wall and roof.

### WALL VALUE

External Brick Cladding (thickness = 100 mm, thermal conductivity (k) = 0.72 W/mK)

Concrete Wall (thickness = 150 mm, k = 1.4W/mK)

Internal Plaster (thickness = 10 mm, k = 0.7W/mK)

Thermal Resistance R:

$$R_{total} = 0.1/0.72 + 0.15/1.4 + 0.01/0.7 = 0.139 + 0.107 + 0.014 = 0.26m^2K/W$$

$$U_{wall} = 1/R_{(Total)} = 1/0.26 = 3.85 W/m^2K$$

### ROOF VALUE

Bitumen Coating (thickness = 10 mm, K = 0.17 W/mK)

Reinforced Concrete (thickness = 150 mm, K = 1.4 W/mK)

Internal Plaster (thickness = 15 mm, K = 0.7 W/mK)

Thermal Resistance R:

$$R_{total} = 0.01/0.17 + 0.15/1.4 + 0.015/0.7 = 0.059 + 0.107 + 0.021 = 0.187m^2K/W$$

$$U_{roof} = 1/R_{(Total)} = 1/0.187 = 5.35 W/m^2K$$

The energy consumption rates for each category in a residential apartment, based on standard building energy data.

$$\text{Total Energy Load} = 50+20+30+10 = 110kWh/m^2/year$$

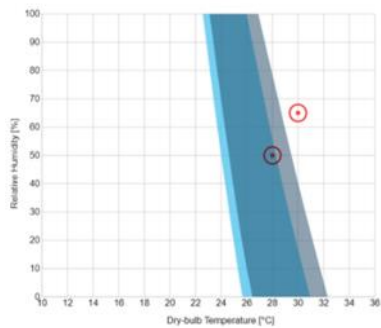
$$\text{Total Energy Consumption (kWh/year)} = 110 kWh/m^2/year \times 7,689.65 m^2 \text{ (building area)}$$

$$\text{Total Energy Consumption} = 845,861.5 kWh/year$$

Therefore, the EPI = 110 kWh/m<sup>2</sup>/year for the apartment complex without any energy-saving measures (without a green roof).

When the Energy Performance Index (EPI) value is almost double the GRIHA benchmark for different building typologies, it means,

• Buildings are consuming significantly more energy than the benchmark, indicating poor energy efficiency in their design, construction, or operation. Higher energy consumption contributes to increased greenhouse gas emissions and environmental degradation, emphasizing the need for sustainable building practices to mitigate climate change.



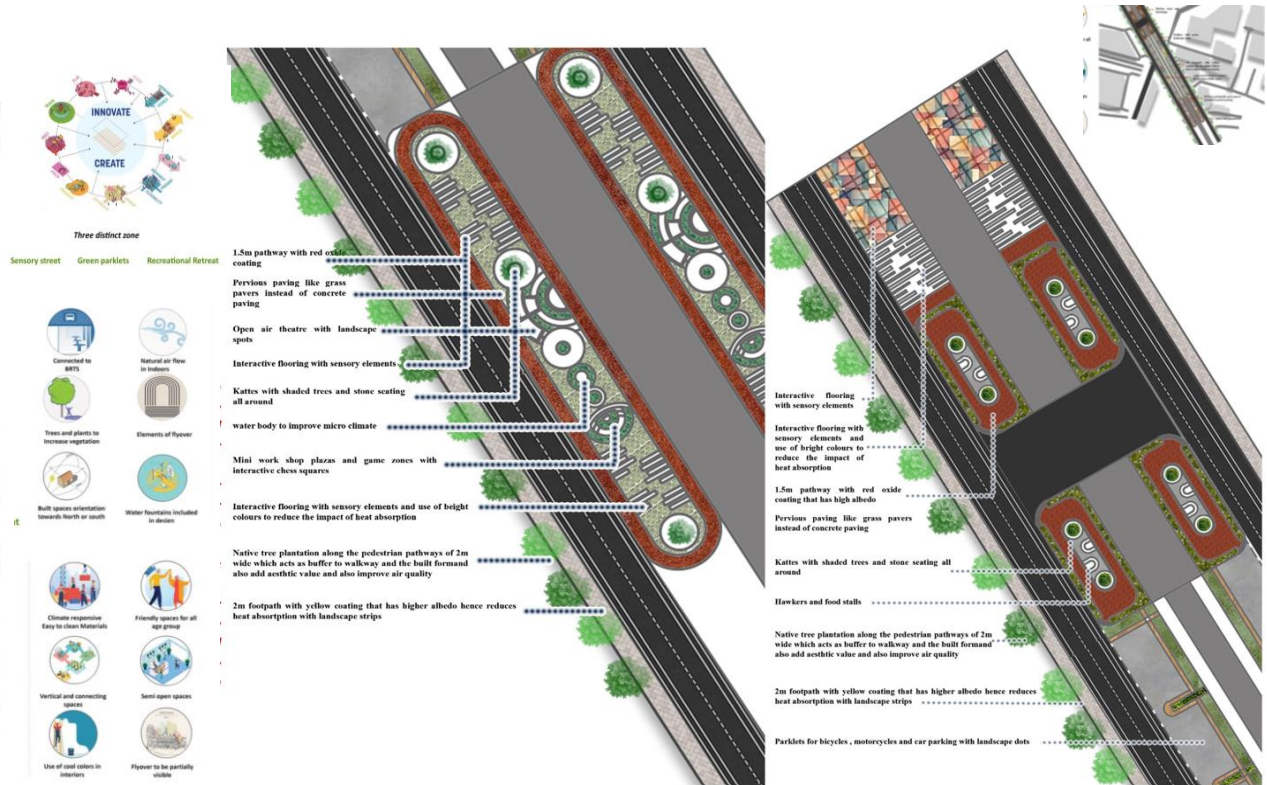
A shaded area on the graph representing the acceptable range of temperature and humidity for human comfort (according to ASHRAE standards). The tool plot points that represent the thermal comfort levels (with or without the green roof).

By comparing the two scenarios (with and without a green roof), the points on the chart show that with the green roof, the temperature will be lower and ideally fall within or closer to the comfort zone, indicating improved thermal comfort.

**Building Analytics** - The energy performance analysis of a residential building, Akme Ballet Apartments, a gated community located near Doddanekundi Lake, Bangalore. The building has a G+7 floor structure with predominantly concrete surfaces, minimal vegetation, and a brick-cladded façade. Given the challenges of rising urban heat and the high cooling demands typical in Bangalore.

### FROM CONCRETE TO COMMUNITY - Breathing life into forgotten spaces

In Bangalore, the proposal to transform unused spaces under flyovers into vibrant community hubs focuses on repurposing what are often neglected and dead spaces into dynamic, multifunctional environments. These spaces will cater to various public needs, from recreation to social interaction. With the area's proximity to major tech parks and its importance as a transit corridor (with more than 1,000 people commuting daily), there is a growing demand for green and recreational spaces that enhance urban living.



## RESTRUCTURING NAMMA BENGALURU'S URBAN FABRIC – A Nature based approach for urban health and well being

### AIM

**"To create livable, inclusive, and ecologically balanced neighborhoods in Bangalore, where urban life is seamlessly connected with nature, fostering healthier and happier communities for a sustainable future"**

### Issues Identification

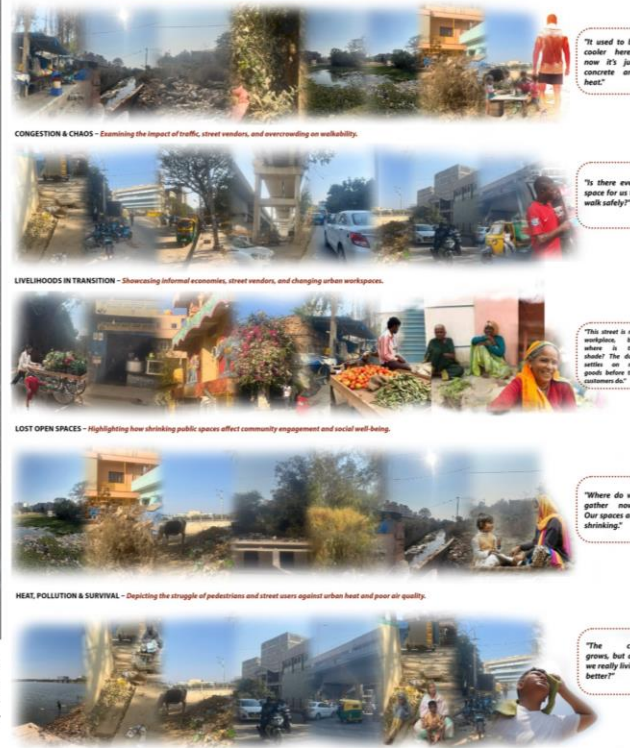


Doddanekundi, on Bangalore's eastern edge, is facing rapid urbanization, resulting in reduced green spaces, poor air quality, waste issues, and limited public amenities. Identified through surveys and data analysis, these challenges impact health, well-being, and urban resilience, highlighting the need for sustainable interventions.



### TYPICAL STREET LIFE IN DODDANEKUNDI

ENVIRONMENT & THE PEOPLE – Capturing how urban surroundings shape daily life and public interactions.



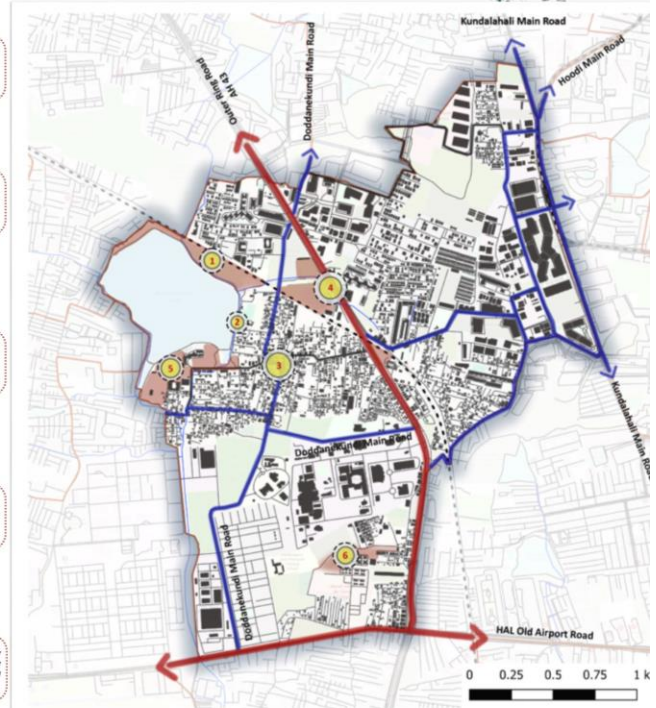
Street analysis was conducted to understand how people are affected by various issues. Images were used to represent each category, highlighting their impact through the overlay of multiple attributes. Based on this, vulnerable areas were identified and selected as the site for proposed interventions.

**Green Infrastructure → Better Air Quality → Reduced Urban Heat Island**

**Effect → More Walkable & Livable Spaces → Improved Mental &**

**Physical Health → Stronger Social & Community Well-Being**

### Site Selection

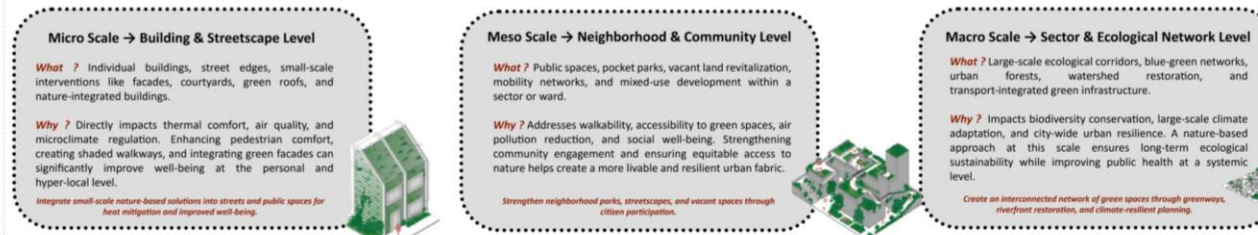


## RESTRUCTURING NAMMA BENGALURU'S URBAN FABRIC – A Nature based approach for urban health and well being

### VISION

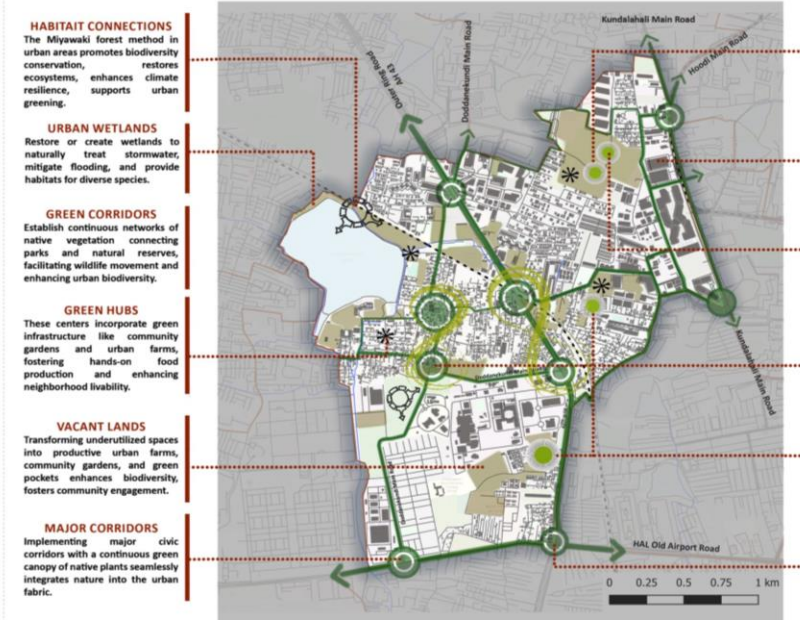
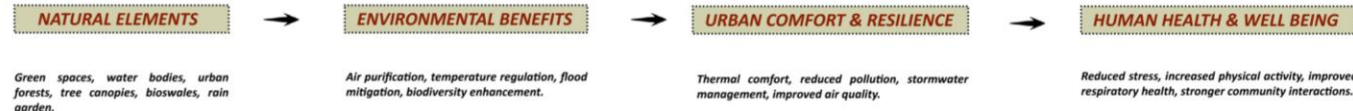
An urban environment seamlessly connected with nature, fostering healthier communities and enhancing well-being through sustainable design.

### Strategies

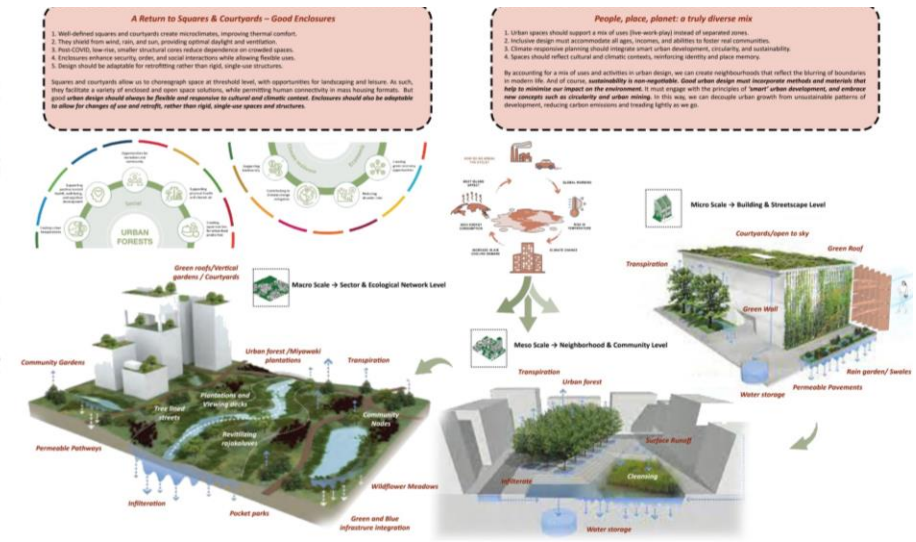


### NATURE - BUILT ENVIRONMENT - HUMAN HEALTH

are interconnected, forming continuous feedback loops where urban design influences nature, and in turn, nature enhances human well-being. This flow represent how integrating natural elements in urban spaces directly impacts well-being, comfort, and livability.



The master plan outlines comprehensive strategies for the entire Daddanekundi area, supported by design principles that guide the interventions. These strategies are illustrated through visuals across three different scales, showcasing what can be done at each level to improve the neighborhood.



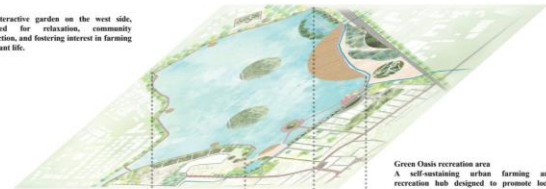
## RESTRUCTURING NAMMA BENGALURU'S URBAN FABRIC – A Nature based approach for urban health and well being

The master plan below illustrates the interventions around the lake edge, structured around five key attributes. An isometric view highlights the layered design approach, showcasing how the lake edge is thoughtfully treated through various design strategies.

### Master Plan

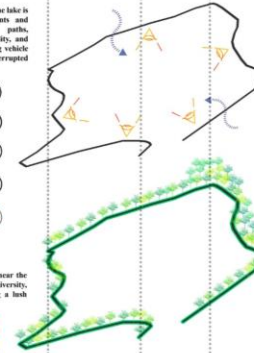


An interactive garden on the west side, designed for relaxation, community interaction, and fostering interest in farming and plant life.



**Green Oasis recreation area**  
A self-sustaining urban farming and recreation hub designed to promote local agriculture and enhance community health and social interactions among the residents.

A continuous jogging track around the lake is designed with permeable pavements and landscape-integrated refreshment paths, ensuring water infiltration, durability, and pedestrian comfort, while restricting vehicle entry for a safe and uninterrupted experience.



Two main access points to the lake and jogging track are enhanced with strategically placed viewpoints, urban elements, and pause points, ensuring an active, engaging, and safe environment.

Dense Miyawaki plantations along the railway track and main road act as a buffer, preventing waste dumping, reducing noise pollution, and transforming the area into a green, sustainable barrier.

**Miyawaki Micro-Forest**  
A dense, fast-growing urban forest near the recreational hub, promoting biodiversity, improving air quality, and offering a lush natural escape for the community.

The existing jogging track is uneven, poorly maintained, and disrupted by waste dumping, with gaps in continuity and unauthorized vehicle access.

Ponds opened to the public serving as an interaction space and can be used as a space for storage for the plantations and the farm.

Kaggalwapura inlet is the largest sewage flowing inlet

Sewage bypass towards the bellandur lake

Sewage bypass towards the varthur lake

Ponds acting as storage and helping in building spaces for public interaction. The water in the ponds are from the bioswales and the rain gardens going around the dudankundi lake.

Bioswales to be placed above the existing sewage line to treat water going downstream to the lakes below, also enhances stormwater management, improves groundwater recharge, and creates a green buffer between the lake and urban fabric.

Mahadevapura inlet

Existing sewage bypass dug up by the BBMP in the recent rejuvenation project of the lake directs the sewage coming into the dudankundi lake to the varthur and bellandur lakes

Existing roads that connect the lake

## RESTRUCTURING NAMMA BENGALURU'S URBAN FABRIC – A Nature based approach for urban health and well being

The selected commercial street stretch has been redesigned with interventions focusing on key nodes and junctions, incorporating climate-responsive street design and tree-lined avenues to improve air quality and comfort. Additionally, an underutilized space near the lake has been adaptively reused to create a multifunctional zone for hawkers and public activities.

### ZONE 1 - LAKEFRONT AND LIVELY STREETS

*Revitalizing public spaces and festival nodes*

The market space is thoughtfully designed to integrate existing hawkers and vendors along the commercial spine and temple precinct while accommodating future informal trade and eateries. Pedestrianization of this zone transforms it into a vibrant cultural hub, allowing the town to extend beyond the temple and embrace its rich heritage. The adaptive reuse of vacant land creates a designated hawkers zone with shaded structures, ensuring comfort and organization. Additionally, the revival of the traditional Ashwaha Katta seating not only reinstates lost cultural elements but also enhances thermal comfort by providing natural shade, improving air quality, and creating a cooler microclimate, fostering community interactions and preserving local identity.

**CULTURAL REVIVAL**    **ENVIRONMENTAL INTEGRATION**  
**PEDESTRIAN PRIORITIZATION**    **SEAMLESS CONNECTIVITY**

The market kiosks are designed as temporary setups, allowing flexibility during Oora Habba, ensuring the Pallike follows its traditional festive route, avoiding the temple for people rituals. The town's central intersection serves as both a seamless traffic node and a cultural focal point during Oora Habba, designed to highlight the area's significance and intrigue visitors unfamiliar with its heritage. A simple yet effective layout enhances visibility and engagement. To accommodate festive celebrations and smaller community gatherings, the central space features modular furniture and temporary shading units that can be rearranged or removed, transforming it into an OAT-style arena. This space also adapts into a vibrant Jatre zone, welcoming hawkers, vendors, and small commercial stalls, reinforcing its role as a dynamic public space.

**ORGANISED COMMERCIAL**    **RAIN GARDENS/SHADES**  
**PERMEABLE PAVEMENT**    **TREE-LINED STREETS**

The commercial spine is envisioned as a vibrant, pedestrian-friendly corridor that balances commercial activity with environmental sensitivity. Shaded seating spaces are introduced at regular intervals, fostering rest and social interaction along the bustling stretch. Designated vending zones are carefully integrated into the pedestrian realm to avoid roadway encroachment, ensuring both safety and functionality. The streets are lined with bioswales and permeable pavements, which effectively manage stormwater runoff and enhance groundwater recharge. These landscape elements also act as cooling buffers, improving microclimatic comfort. Tree-lined avenues provide natural shade, reduce air pollutants, elevate the aesthetic quality of the spine.

**CONNECTORS**

Commercial  
 Photo/Activity zone  
 Cycle Lane  
 Pedestrian/Activity zone  
 Photo/Activity zone  
 Commercial/Activity zone  
 Commercial/Activity zone  
 Residential  
 Commercial/Activity zone  
 Residential  
 Commercial/Activity zone  
 Residential  
 Commercial/Activity zone  
 Residential  
 Commercial/Activity zone  
 Residential

### EXISTING TEMPLE CHOWK SECTION

**PROPOSED TEMPLE CHOWK SECTION**

### EXISTING UTSAVA KOOTA SECTION

**PROPOSED UTSAVA KOOTA SECTION**

### EXISTING COMMERCIAL SPINE SECTION

**PROPOSED COMMERCIAL SPINE SECTION**

### EXISTING MINOR ROAD SECTION

**PROPOSED MINOR ROAD SECTION**

### ZONE 3 - URBAN LUNGS

*Reimagining the built form beyond grey*

Due to its proximity to major tech parks, the Doddankundi area is under high pressure for housing, leading to the development of dense apartment clusters with minimal green spaces. The predominance of concrete surfaces exacerbates rising temperatures, creating a need for sustainable design strategies that integrate green spaces, optimize land use, and reduce surface temperatures. Incorporating features like green ramps, terraces, and rainwater harvesting will be crucial in creating environmentally sustainable housing solutions for the area. These strategies aim to improve livability, reduce surface heat, and increase green cover in high-demand areas, ensuring a balance between urbanization and environmental sustainability.

**Includes building typologies that can effectively provide wind and protect from the heat and solar radiation**

**Consists of design on a street level that can positively influence the microclimate**

**SHADING**  
 Building orientation  
 Shading on buildings  
 Street shading devices  
 Shading umbrellas  
 Shaded walkways  
 Mobile shading devices

**VEGETATION**  
 Green roof and facades  
 Green terraces and podiums  
 Vegetation in and around buildings  
 Street trees  
 Infrastructure greenery  
 Microscale greening

**MATERIALS**  
 Cool roof and facades  
 High-reflectance facades  
 Cool and permeable pavements  
 Street solar panels  
 Bright street furniture  
 Shaded bus stops

**GEOMETRY**  
 Building porosity  
 Variation of building heights  
 Sky view factor  
 Building edges  
 Street benches  
 Open underpasses

Design Strategy	Description	Environmental/Social Impact	Illustration
<b>Building Chassis with Green Spaces</b>	Develop building chassis around shared green spaces to reduce concrete surfaces and encourage community interaction.	Reduces heat island effect, improves walkability, and increases social engagement.	
<b>High-Rise Buildings with Green Facades</b>	Incorporate green ramps and stepped gardens in high-rise buildings to utilize vertical spaces for greenery.	Reduces energy consumption for cooling, increases greenery for shade and aesthetics, and offers large areas for large trees.	
<b>Multi-Level Streets for Community Use</b>	Design multi-level terraces and rooftop gardens for office dining, recreation, or commercial activities.	Improves urban biodiversity, reduces surface temperatures, and offers relaxation areas for residents.	
<b>Rainwater &amp; Greywater Harvesting</b>	Implement rainwater harvesting and greywater recycling systems to reduce water consumption in the housing projects.	Reduces dependency on external water supplies, helps irrigate green areas, and supports water conservation efforts.	
<b>Optimized Urban Block Design (UDM)</b>	Form block lengths do not exceed 200m, as per FICCI guidelines, to promote walkability and reduce the need for car travel.	Enhances walkability, reduces emissions, and provides space for green corridors, improving air quality and shading.	
<b>Double-Height Stepped Gardens</b>	Use double-height stepped gardens to increase height trees and maximize green spaces without consuming too much ground space.	Provides thermal insulation, reduces heat, and enhances greenery with large trees on vertical levels.	
<b>Green Roofs and Vertical Gardens</b>	Add green roofs and vertical gardens to buildings to improve insulation and air quality, while providing green space.	Reduces urban heat, improves energy efficiency, and promotes biodiversity.	

## RESTRUCTURING NAMMA BENGALURU'S URBAN FABRIC – A Nature based approach for urban health and well being

Under-flyover spaces are being transformed into functional areas to bridge the gap between people and underutilized vacant spaces. An impact analysis has been conducted to assess how these design interventions influence both the environment and the community.

**ZONE 2 - UNDER FLYOVER VOIDS**  
Reclaiming the forgotten spaces

**Sensory street** 01  
A vibrant zone with bright colors, food stalls, and hawker kiosks. Designed to engage the senses, it creates a lively space for community interaction.  
**Impact:** Encourages social engagement and supports local vendors, making the area active and dynamic.

**Green parklets** 02  
A blend of landscaped parklets and parking spaces. Green pockets provide shade and relaxation spots within the urban setting.  
**Impact:** Softens the urban environment, enhances walkability, and improves air quality.

**Recreational Retreat** 03  
A serene space featuring water bodies, seating areas, and a mini open-air theater for recreation and cultural gatherings.  
**Impact:** Promotes leisure, social events, and improves the overall well-being of the community.

**DESIGN B**

Asphalt walkway with red coating that has higher albedo  
Parklets with green landscape spots  
2m footpath with yellow coating that has higher albedo hence reduces heat absorption  
Native trees plantations  
Hawker zones and food stalls  
Green strip to improve comfort by creating a buffer space  
permeable paving like grass pavers instead of concrete paving

*From Wasted to Wanted: Activating flyover voids into micro-oases of green, connection, and comfort. From Wasted to Wanted: Activating flyover voids into micro-oases of green, connection, and comfort.*

From WASTED TO WANTED: ACTIVATION → GREEN INFRASTRUCTURE → URBAN CONNECT & USAGE → ACTIVITY & INCLUSION → SOCIAL INTERACTION → PUBLIC REALITY

**DESIGN A**

Outer ring road  
Railway Line  
Planters along the edge  
Water element  
Seating with plantations  
Raised platform with seating areas

**IMPACT ANALYSIS**

The proposed model, incorporating increased vegetation, permeable materials, and high-albedo surfaces, shows a temperature reduction of ~2°C in peak summer and ~3°C in post-monsoon months.

While air quality improvement wasn't simulated, research supports that enhanced vegetation and reduced hardscape surfaces help lower particulate matter and urban pollutants, contributing to a healthier environment.

RECOMMENDED STRATEGIES	IMPLEMENTED MEASURES
Tree Cover: 35-40% along streets	Tree Cover Achieved: 30%
Green Cover (Permeable Surfaces): 45%	Permeable Surface Achieved: 42%
Hard Surfaces: Reduced to below 50% using interlocking and porous pavements	Hardscape Reduced To: 58%
Street Elements: Shaded pedestrian pathways, vegetated medians, seating, lighting	Green Interventions: Median planting, pocket parks, shaded bus stops, rain gardens

**Parameter Change/Impact**

- Water Percolation:** +35% increase due to bioswales & porous pavements
- UHI Reduction:** Avg. surface temp dropped by 2.5-3°C
- Thermal Comfort:** Shaded zones increased walking comfort by 40%
- Activity Levels:** +25% increase in public activity & footfall
- Health & Well-being:** Better air quality, more social interactions

**Health Benefits of Walkable Environments:**  
Pedestrian-friendly urban designs encourage physical activity, leading to improved public health outcomes.

**Air Quality Improvement through Pedestrianization:**  
Implementing pedestrian-friendly designs can reduce vehicular emissions, thereby enhancing air quality. For instance, pedestrianization projects in Seoul have led to improved air quality perceptions and increased public satisfaction.

**Environmental Advantages of Urban Trees:**  
Integrating trees into urban spaces offers multiple benefits, including air purification, temperature regulation, and stormwater management. Street trees can improve air quality by filtering pollutants and provide shade that mitigates the urban heat island effect.

**High-Albedo Materials and Urban Heat Island Mitigation:**  
Utilizing high-albedo materials in pedestrian pathways can reduce surface temperatures, thereby mitigating the urban heat island effect and enhancing pedestrian thermal comfort.

**Community Feedback and Surveys:**

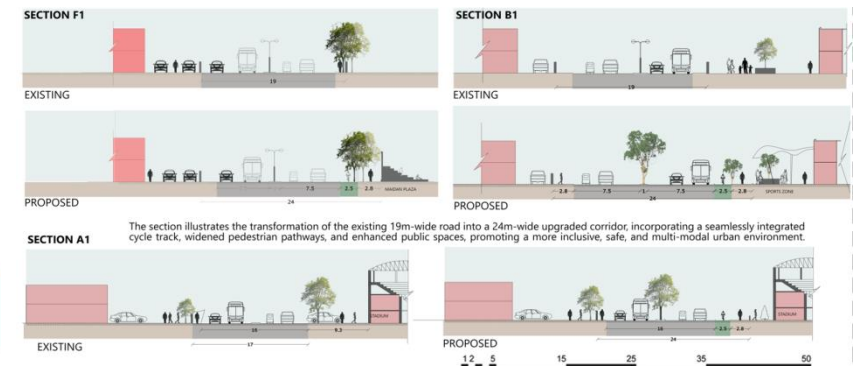
The pie chart illustrates community feedback, emphasizing the need for walkable streets, shaded green spaces, and organized vendor zones all of which are integrated into the design to enhance accessibility, comfort, and cultural identity.



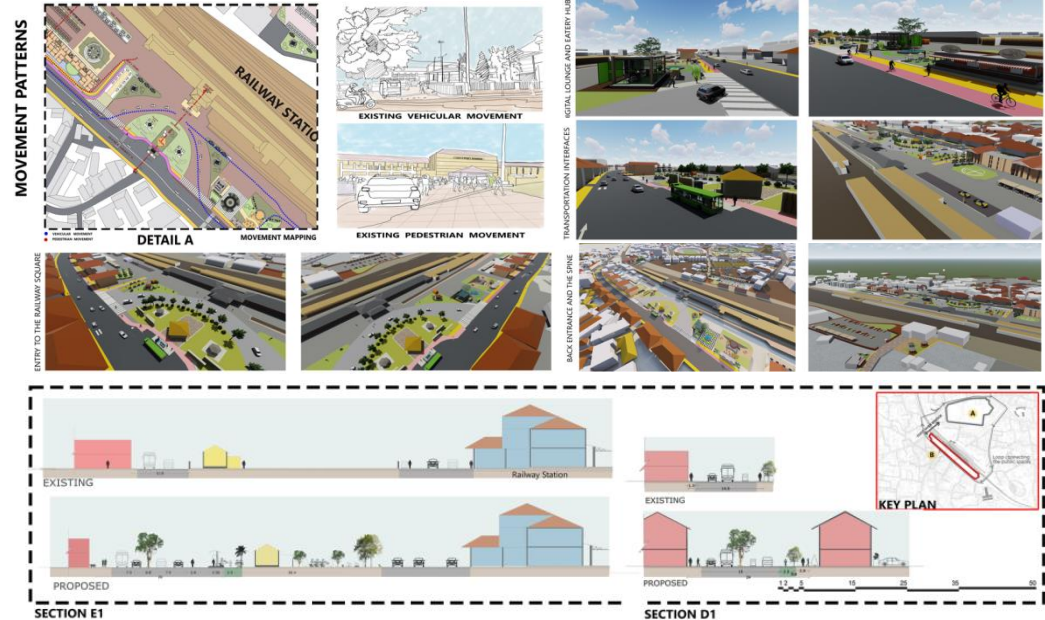
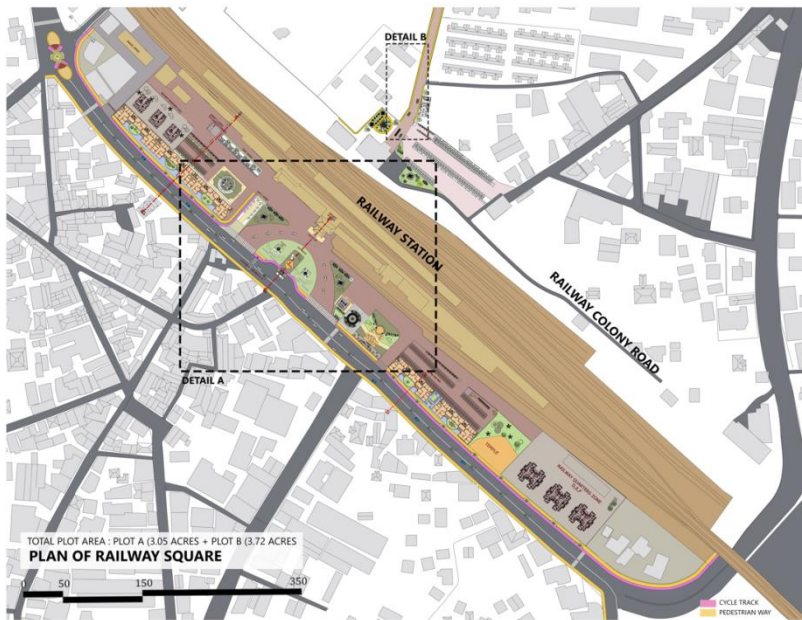
## RESTRUCTURING KANNUR'S URBAN CORE – ENHANCING PUBLIC SPACES TO FOSTER URBAN CONTINUITY

**PROJECT BRIEF:** The project aims to restructure Kannur's urban core by enhancing key public spaces to foster urban continuity. The masterplan envisions a dynamic transformation of Kannur's urban core by revitalizing two pivotal demonstration areas—the Railway Station Area and the Stadium Area (Police Maidan)—and seamlessly connecting them with an upgraded foot overbridge. The proposed interventions aim to enhance physical and visual connectivity between these high-activity zones, improving access, safety, and user experience for both residents and visitors. The Railway Station Area will be restructured to streamline transit functions, declutter public spaces, and improve pedestrian circulation, while the Police Maidan will be reimagined as a multi-functional open space that supports cultural, recreational, and community activities throughout the day.

**MAIDAN PLAZA:** Maidan Plaza brings together the Police Maidan and the area around the stadium to form a large, unified public space for recreation, culture, and community life. Designed with shaded seating, open lawns, and flexible zones for events and markets, it transforms an underutilized area into an active civic hub. The plaza encourages daily use as well as larger public gatherings, strengthening the social and spatial fabric of Kannur's urban core.



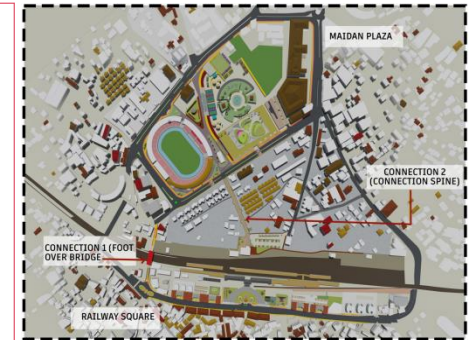
## RESTRUCTURING KANNUR'S URBAN CORE – ENHANCING PUBLIC SPACES TO FOSTER URBAN CONTINUITY



**RAILWAY SQUARE: Railway Square** reimagines the Kannur railway station precinct as a vibrant, transit-oriented public plaza. By organizing pedestrian movement, introducing active frontages with cafés and kiosks, and improving safety through lighting and visibility, the space becomes more than just a transit node—it becomes a social and commercial destination. Railway Square acts as a key arrival point and anchors the urban experience at the city's core.



By deliberately aligning it with major activity zones on either end and enhancing its edges with visual markers, greenery, shaded sitting pockets, and wayfinding elements, the footbridge transforms into more than just infrastructure—it becomes an experience. The second key connector—the road leading from the back entrance (East Gate) of the railway station to the stadium area—has been transformed into a vital urban spine. Formerly neglected, encroached upon, and poorly maintained, this stretch of road now features a more defined edge treatment, clean pedestrian walkways, dedicated waiting areas, and informal vending pockets.



Together, the foot over bridge and the connection spine form a dual system of movement that transforms the railway station from an isolated transit node into a well-connected urban heart.



MANIPAL SCHOOL  
OF ARCHITECTURE AND PLANNING  
MANIPAL  
*(A constituent unit of MAHE, Manipal)*

# KALEIDOSCOPE

**2024-25**

**MSAP**

---

**CONTENT** : as provided by respective students & faculties

**COMPILED BY** : Repository Team, MSAP