



WES
SMT. MANDRAMABAI MUNDLE
COLLEGE OF ARCHITECTURE

BUILDING SERVICES-II

ARCHITECTURAL DESIGN-V

ARCHITECTURAL GRAPHICS-VI

ESTIMATING AND COSTING

COMPUTER APPLICATION IN

ESTIMATING AND COSTING

ADVANCED SPATIAL ANALYSIS

STRUCTURAL DESIGN AND SYSTEM-VI

ARCHITECTURAL APPRICIATION

DESIGN OF HUMAN SETTLEMENTS

CONSTRUCTION TECHNOLOGY

AND MATERIALS-VI

**SIXTH
SEMESTER**

**ACADEMIC
BOOKLET**

Session: Sixth Semester 2019

– 2020

Index

Introduction

Policy for

Students

Sixth Semester Faculty

Teaching Program

- 1. Architectural Design-V**
- 2. Construction Technology & Materials –VI**
- 3. Structural Design & Systems –VI**
- 4. Building Services –II**
- 5. Architectural Graphics-VI**
- 6. Design of Human Settlements**
- 7. Estimating and Costing**
- 8. Elective a- Computer Application in Estimation**
- 9. Elective b –Advanced Spatial Analysis**
- 10. Elective b- Environmental Psychology**
- 11. Elective b- Man-Environment**

Relationship

Year In Charge: -

Ar. Vaijayanti Yadav

Class Coordinators

Section A- Ar. Vaijayanti Yadav

Section B-Ar. Sneha Tirale

Section C- Ar. Anuradha Bhute

Architectural Design -V

Coordinator:-

Ar. Vaijayanti Yadav

Team- Prof. S.R. Marathe, Dr. Pratima Dhoke, Ar. Sanjivani Mohgaonkar, Dr. Neeta Lambe, Prof. Anuradha Tikkas, Prof. Ketki Tidke, Prof. Shobhana T., Ar. Anuradha Bhute, Ar. Mrinmayee Tiwari, Ar. Sneha Tirale

Construction Technology & Materials –VI

Team:- Prof. Pratima Dhoke, Dr. Neeta Lambe, Prof. Shobhana T, Prof. Akanksha Agarwala, Ar. MrinmayeeTiwari, Ar. Sneha Tirale

Structural Design & Systems–VI

Subject Teachers Mr.Rupal Wadegaonkar

Building Services II

Subject Teachers –Prof. Gurunath Modak, Ar. Rashmi Tijare, Ar. MrinmayeeTiwari

Architectural Graphics-VI

Subject Teachers – Prof. Vishwas Dikhole, Prof. AnuradhaTikkas, Prof. Sanjivani M, Prof. Ketki Tidke, Ar. Anuradha Bhute, Ar. MrinmayeeTiwari, Ar. Vaijayanti Yadav

Design of Human Settlement

Subject Teachers – Dr. Roopal Deshpande, Ar. Anuradha Bhute

Estimating and Costing

Subject Teachers Prof. V. Dikhole, Ar. Medha Pophale, Ar. Isha Pawar

Elective A-Computer Application Subject Teachers – Ar. Vaijayanti Yadav, Ar. Namrata Gourkhede, Ar. Medha Pophale

Elective B- Advanced Spatial Analysis

Subject Teachers – Ar. Ketki Tidke and Ar. Vaijayanti Yadav

Elective B: Environmental Psychology

Subject Teachers- Prof. Shobhana T, Ar. Sneha Tirale

Elective B: Man-Environment Relationship

Subject Teachers -Prof. Akanksha Agarwala, Ar. Sneha Bodhankar

INTRODUCTION

Vision

The vision limits to the present situation or at best for the near future. We should mention that we equip students to venture into the future.

Our vision is to reach global standards by deliberate modernization without losing the essential characteristics of our tradition. Being a women's college we find it more pertinent to imbibe both these qualities very consciously in our girl students.

We wish to produce socially responsible architects with sensitivity towards social issues of immediate contexts, national concerns and global effects and positive and creative approach towards life.

Mission

To create an educational environment in which students are prepared to meet the challenges of a fast developing and changing world.

Hence the students are equipped with:

- Up to date knowledge
- Analytical and practical skills
- Creative approach towards everything that they undertake
- Attitude to be sensitive towards national, social and environmental issues

While addressing the global challenges we believe strongly in anchoring ourselves to the immediate context. We accept gratefully our role in preserving and enhancing Vidarbha and Nagpur- the place, its people and architecture.

Core Values

- | | | |
|-------------------------------------|--|-------------------------------------|
| <input type="checkbox"/> Integrity | <input type="checkbox"/> Creativity | <input type="checkbox"/> Innovation |
| <input type="checkbox"/> Discovery | <input type="checkbox"/> Collaboration | <input type="checkbox"/> Respect |
| <input type="checkbox"/> Discipline | <input type="checkbox"/> Excellence | <input type="checkbox"/> Diversity |

Objectives

- To develop among students academic and Professional competency.
- To foster value-based, creative and critical learning

- To hone skills of living in a technological, globalized and ecologically aware environment
- To develop culture of commitment to excellence

Code of Conduct

Punctuality- It is mandatory for students to be punctual in the college and shall have to be present every day at 8.45 a.m. Every student is expected to attend the morning assembly. Attendance of the students will be taken at the time of assembly by respective class coordinators.

The attendance will also be taken at the beginning of the classes in the afternoon after lunch break. The record of attendance shall be displayed at the end of each month for students. Every student is expected to go through the displayed attendance and request rectification of the record within 8 days by talking to the class teacher if her attendance has been wrongly recorded.

In case of absentees, student shall bring a letter of absence duly signed by her parents/guardian. However, a student having less than 75% attendance will face disciplinary action and will not be permitted to appear for University Examination.

Dress Code – Salwar suit/ Jeans /Leggings with long Kurti.

Extracurricular activities- Credits are allotted to each activity and students are required to attend the activities to earn

these credits. Every student has to attend the programs organized by the college from time to time.

Attendance for program of 26th January and of 15th August is mandatory for every student and the dress code a white Salwar Suits/Leggings with Long Kurti.

Study tours- Every year study tours are arranged for students of different years as per their curriculum requirements. Active participation in Study Tour is necessary.

Academic Performance

Submission schedule of all the subjects of a semester will be displayed at the beginning of the session. Students must follow the submission schedules given by respective subject teachers. No late submissions will be accepted after the scheduled date.

Midterm assessment

A midterm assessment will be conducted to assess the progress of a student. It is mandatory for all the students to appear for this assessment.

Student Council

The Student Council will be formulated for the main purpose of empowering the students. Having a formal setup of a Student Council enables students to organize and conduct certain activities, co-ordinate publications like 'Her Space', and properly convey any concerns students may have to the college administration and teaching faculty.

The student council also takes the lead in organizing and coordinating many events in the academic year – like daily assembly, Republic day and Independence Day celebrations, NASA, Teachers Day, Archi venture, Women's day celebration and all other major events conducted by the college.

The structure of the council is such that students from all years find representation in it. The team is headed by fourth year students with representative from first, second and third year. Third year students take over the reins when fourth year students go for their training in the 8th semester. Final year students act as mentors to the council.

The organization set up for student council will comprise of President, Vice-president, Secretary, Vice-secretary, Treasurer In addition, there are Class Representatives from first and second year – one representative from each of the three sections in a year.

NASA rules and regulation: As per out policy, the students are allowed only to participate in Zonal or Annual NASA.

Semester -6

Sr. No.	Sub. Code	Sub. Name	Category	Board	Load Per Week					Credits					Paper/ Sessional	Duration in Hours	Max. Marks	Total Marks	Min. Pass. Marks
					L	T	D	S/P	Total	L	T	D	S/P	Total					
1	6S-A-1	Architectural Design V	DC	AR	2	0	0	5	7	2	0	0	5	7	Sessional Viva-voce		150 50	200	100
2	6S-A-2	Construction Technology & Materials VI	DC	AR	2	0	4	0	6	2	0	4	0	6	Sessional Paper	3	50 100	50 100	25 40
3	6S-A-3	Structural Design & Systems-VI	ES	AR	2	1	0	0	3	2	1	0	0	3	Sessional Paper	3	30 70	100	40
4	6S-A-4	Building services -III	DC	AR	1	1	0	0	2	1	1	0	0	2	Sessional Paper	3	30 70	100	40
5	6S-A-5	Architectural Graphics VI (working Drawing)	DC	AR	1	0	1	0	2	1	0	1	0	2	Sessional Viva-voce		50 50	50 50	50
6	6S-A-6	Design of Human Settlement	DC	AR	1	0	0	1	2	1	0	0	1	2	Sessional Paper	3	30 70	100	40
7	6S-A-7	Estimate & Costing	DC	AR	1	0	1	0	2	1	0	1	0	2	Sessional		50	50	25
8	6S-AA-1	Elective a	DE	AR	1	0	2	0	3	1	0	2	0	3	Sessional		100	100	50
9	6S-AA-2	Elective b	DE	AR	1	0	2	0	3	1	0	2	0	3	Sessional		100	100	50
TOTAL					12	2	10	6	30	12	2	10	6	30			1000	1000	460

Total Paper-4, sessionals- 6, viva voce-2 (Passing heads- 12)

Elective a - Project Management/Data Management Techniques/Computer Applications in Estimating & Costing/ Architect's Office & Site Practices

Elective b - Advanced Spatial Analysis/Environmental Psychology/Man-Environment Relationship/ Architectural Appreciation

ARCHITECTURAL DESIGN- V

Design Coordinator: Prof. Vaijayanti Yadav

Design Team:

Section A: - Prof. Sanjeevani Mohagaonkar, Dr. Sujata Godbole, Prof. Shobhana Tembhurnikar, Prof. Vaijayanti Yadav

Section B: - Dr. Pratima Dhoke, Prof. Ketki Tidke, Prof. Namrata Gourkhede, Prof. Sneha Mandekar

Section C: - Dr. Neeta Lambe, Prof. Anuradha Tikkas, Prof. Anuradha Bhute. Prof. Mrinmayee Tiwari

Course outcomes:

CO1 Dealing with Building Services and Form oriented Design

CO2 Application of Building byelaws & regulations & town planning norms applicable in the city.

CO3 Understanding the calculations involved during the process of design evolution. Addressing site context & integrating it with the proposed design.

CO4 Architectural expressions- organization, flexibility & functionality of spaces, circulation, zoning, scale, proportions, massing, etc.

CO5 Use of materials & the innovative methods & technology used for various purposes.

CO6 Application of Building services i.e staircases, lifts, fire escape staircase, ducts, shafts, toilets, HVAC, automation systems, electrical, plumbing, etc.

Considerations of Site services- entrance/exits, fire escape, parking, site drainage, water storage, security, etc.

Minor Project: - **Theme Restro**

Duration: **1st and 2nd Week of Feb**

Introduction

Welcome to 6th Semester...You did well in the 5th semester to work on a much bigger design layout etc. We will deal with the complex problem incorporating services etc later. But for now, we will let our creativity a free rein. We are giving you complex freedom to choose a site anywhere on a hill, in a cave, on flat land besides the water, on the water below the water or even in an abandoned mine. To design a thematic luxury restaurant. The idea is not to follow the normal path of research, precedent studies etc. but to draw on the information you gathered from your experience and observations. No doubt you have seen films and super luxury restaurants with music, dim lights or jazzy acts, if not actually experienced such places. We will not be bogged down by the usual practical problems such as deliveries, flow of functions etc. Instead, we will concentrate on form and the ambiance. The presentation will be of your choice but must clearly depict what you are thinking.

Aim: To design a Theme Restro at identified site.

Learning Objectives:

1. To explore and experiment with the various forms to go with the identified theme.
2. To make students understand the possibilities for construction techniques and materials for the selected form of the typology.
3. To explore different site context and topography suitable for the theme.
4. To make students understand to work with a typology on identified theme.

Site:

You are free to choose site at any appropriate location for your identified theme or you can take hypothetical site context.

Design Program

Students are free to choose their design programme, activities related to theme restaurant for 50 people sitting capacity.

Submission Requirements:

- 1.Exploration regarding identified theme for restaurant and architectural challenges involved in design.
2. Site identification and analysis for the selection.
3. Concept evolution or idea generation.
4. Schematic explanation of entire scheme with innovative presentation technique.

Major Project: - **Premium Hotel**

Duration: - **8 Weeks**

Introduction

Tourism industry plays an important in overall development of city as it brings improvement of construction and local infrastructure. Tourism not only contributes towards more economic activities but also generates more employment, revenues and plays a significant role in development.

As such, the hospitality industry is important not only to societies—but to economies, customers and employees. The travel and tourism sector currently accounts for 10.4% of global GDP. The processes of hotel development and hotel design have become increasingly market- driven. New hotel designs are increasingly affected by strategic design objectives that are derived from market analyses and feasibility studies, which study and compare the opportunities and weakness between different hotel market segments. Economic trends and cycles, and changes in political, technological, social-economic and other uncontrollable factors, all have a significant impact on the level and nature of hotel demand. The designer or architect plays an important role in the development of new and redevelopment of existing hotels. The ultimate aim is to commonly maximise the developers return on financial investments. It requires the careful balancing of the needs of hotel owners and operators, and most importantly the hotel guests

On a global map, Nagpur is creating its own bench mark in terms of Tourism industry. Tourism of Nagpur is growing as it is having various National Parks/ Wildlife Sanctuaries, cultural heritage, adventure walks. Tadoba Andheri Tiger Reserve, Pench National Park, Nagzira- Navegaon Tiger Reserve, Melghat Tiger Reserve, Bor Tiger Reserve, Umred, Pauni, Karhandla. Gorewada Lake is situated on the north-west corner of Nagpur city. It is created with a dam 2,350 feet long. In 1912, Gorewada Lake was developed by the water works department as the primary drinking water source for Nagpur's 1.01 lakh population. Bordered by thick forest, Gorewada Lake and its surrounding is the habitat for avian species and some wild life. Balasaheb Thackeray Gorewada International Zoological Park is also situated in the nearby vicinity of site.

Nagpur is well connected with all major cities of India by roadways and railways, and also has an international airport. The city is growing in layers with respect to tourism industry and various cultural heritage spread over various routes which are connecting the Nagpur City. Gorewada area is

also developing at the faster pace with International Zoological park and Jungle Safari. The selected site is on the edge of Gorewada lake to relish the beauty of nature.

Keeping this in mind, in this semester we have identified Hotel as a building typology for Major Design Project. Considering the developmental scenario of the city and city surroundings, we have identified proposed site near Gorewada Lake/Dam for the project. This premium Hotel project would add to the existing and proposed facilities for the tourist coming to Nagpur for varied reasons.

Aim

To make students understand the concept of user centric design intervention as a part of development of the region.

Learning Objectives-

1. To understand the varied categories of Hotel as a building typology and architectural challenges associated with it.
2. To understand the complexities involved in terms of circulation, facilities, services, user aspirations etc.
3. To respond logically to the site context keeping in mind the targeted user group.

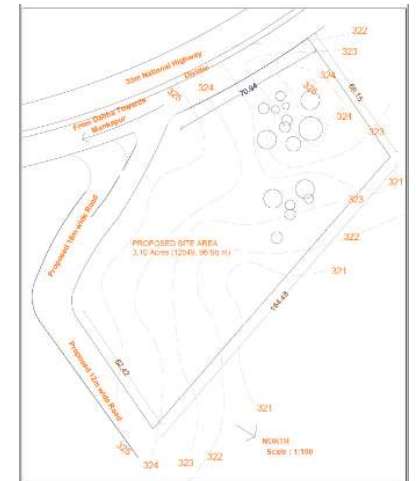
Scope of the Premium Hotel Project

The site identified is near Gorewada Lake and in the range of 2.5-3 acres (10,000 to 13,000 sq.m) approx. of land. The hotel will be with 50-60 rooms along with other allied spaces. Students need to follow rules and regulations given for such building typology. (refer National Building Code). Max built up area should be 5000-7000 sqm with Ground floor footprint can be between 1000-1200 sqm. The rest of the area can be for future expansion.

Design program should be framed according to the scope given (50--60 rooms). Apart from guest rooms, all other activity areas shall be identified keeping in mind the site context, type/category of guests, facilities identified and services required.

Identified Site

The identified site is located near the Gorewada Lake on the Gorewada ring road situated on the north-west corner of Nagpur city. The total site area is 3.10 Acres (12549.96 Sq m) The site is having contoured interval of 5m.



Studio Modalities (Tentative..... may change as per University schedule)

Module and Stages	Inputs	Expected Output	Time duration
Module A: Basic understanding of the Types of Hotel			
Stage A1 Understanding of Hotel types, Rating systems, rules and regulations (NBC), standards required to be followed	Discussion and Input in the form of Introduction and exposing them to various Hotels	A2 sheets	3 rd Week of Feb
Stage A2 Precedent Study and Inferences	Discussions in Studio	Analysis-A2 sheets	4 th Week of Feb
REVIEW I – 1st Week of March			
Module B: Conceptualization and schematic Development of the Premium Hotel			
Stage B1 Study of the site context, site analysis and site potential	Discussion in studio – Input regarding site by Teachers	A2 Sheets and Site Model	1 st Week of March
Stage B2 Formulation of Design Program based on the Module A understanding and Stage B1	Discussion in Studio followed by Input by teachers	A2 Sheets – Detailed Design Program with Area Allocation	2 nd week of March
Stage B3 Creative Exercise and Concept Generation	Form- Deform- Reform	Model	2 nd Week of March
REVIEW II – 3rd Week of March			
Module C: Architectural Detailing of the Premium Hotel			
Stage C1 Detailed site plan	Detailed Discussions about the Site Plan	A1 Sheets with detailed Landscaping to be shown on Site Plan	3 rd Week of March
REVIEW IV- 4th Week of March			

Stage C2 Architectural Floor plans of all levels	Discussion in Studio	A1 Sheets	4 th Week of March
REVIEW V- 1st Week of March			
Stage C3 Elevations, Sections, views, details to explain the scheme.	Discussion in Studio	A1 Sheets	1 st Week of April
Stage C4 Detailing of Services	Discussion in Studio and Input from Teachers	A1 Sheets with detailed Services to be shown on Plan / Section	2 nd and 3 rd Week of April
Stage C5 Views, Model to explain the designed architectural solution.	Discussion in Studio	A1 Sheets	4 th Week of April
Final Submission – 4th Week of April			

Evaluation Scheme

Attendance	Study Tour	Major Project (80)				Total	Minor Project (40)			Total	Total sessional marks
		Review 1	Review 2	Pre-final submission	Jury & Final submission		Review 1	Pre-final submission	Jury & Final submission		
20	10	10	10	20	40	80	10	10	20	40	150

CONSTRUCTION TECHNOLOGY & MATERIALS VI

Subject Coordinator – **Ar. Mrinmayee Tiwari**

Team- Dr. Pratima Dhoke, Dr. Neeta Lambe, Ar. Shobhana T, Ar. Aakanksha Agarwala, Ar. Mrinmayee Tiwari, Ar. Sneha Mandekar

Course outcomes:

The students will be able to

CO 1 Understand Architectural design consideration while constructing High rise buildings and their structural behaviour.

CO 2 Understand the construction principles & techniques of flat slabs, coffered slabs/ grid, lift slabs and flat plate slabs.

CO 3 Know the various types of cladding materials available in market and its applications.

CO 4 Know the various characteristics and construction techniques of bamboo, soil and ferro cement in constructing domes and vaults.

TOPICS	OBJECTIVES	TIME REQ D.	SKETCH BOOK	MODEL MAKING	SITE VISIT/ MARKET SURVEY	CREATIVE EXERCISE	AUDIO VISUAL	INTERACTIVE TEACHING	EXPECTED OUTPUT /Date of submission
Unit-IV Bamboo, Soil, Ferro- cement, Vault, domes	To study the specific characteristics, joinery details, behaviour of materials.	20 hours	Sketching for bamboo joinery details	Hand on activity with bamboo	Site visit to Shivaji Park, Nagpur for detail study of bamboo library.	As done in model making activity	Explaining species available in India, building species, natural, chemical, industrial treatment for seasoning, physical properties such as strength, dimensions, stress. behaviour etc. various prototypes for each building elements including various joints. Advantages and limitations. Type of soil based on composition, field and laboratory Test, Stabilizers along with need,	Site visit to Bamboo Training Centre at Chandrapur.	Tutorials, sketches, test

							walls- Adobe walls, wattle & Daub, Rammed earth walls, CSEB walls etc., Vaults- Nubian Vault, Guna vault, domes-Nubian dome. Advantages and limitations. Introduction to Ferro- cement, Design criteria such as span to material, span to thickness, prefab to cast-in-situ etc., construction details for walls, vaults and domes, advantages and limitations		
Unit-III Cladding Materials	To understand the cladding materials likes Tiles, Mud tiles, Glass, Timber, Aluminium Composite panels (ACP) Design considerations, methods of construction and fixing	12 hours in class + site visit and market survey	Creative exercise-generating options for different typologies (material specific elevation treatment)	Fixing details	Yet to be decided	As on sketch book	Various types of materials available in market & their application and techniques used for detailing.	site visit	Sketches, assignment/market survey report, test

	techniques used.								
Unit-I High Rise Construction	To study architectural design considerations while designing and constructing High rise buildings	15 hours	Understanding high-rise, factors affecting design, materials of const. and the decisions taken for derivation of forms for high rise.	Designing two models - with bulky material and skeleton structure (under design exercise) Decisions taken after knowing the quality of soil, climatic aspect, etc.	Site visit for understanding architects' approach for high rise structure Under study tour.		Audio visual presentation explaining in detail the structural behavior of high rise buildings with respect to wind pressure, deflection etc.	Clarifying the queries	Model, report of assignment, test
Unit-II Advance R.C.C Structures	To understand the construction principles and techniques of flat slabs, coffered slabs/ grid	24 hours	Sketches for understanding the behaviour and details related to R.C.C						Plates on Flat slab, orthogrid slab and diagrid slab

	slabs, lift slabs, flat plate slabs		Structure s						
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Assignment

Sketch book	Model	Site Visit	Tutorials	Market Surveys(material)
Quality of Sketches	Scale & Proportion	Que. Regarding visit	No. of questions	Format for surveys
Proportion	Material			

Evaluation scheme		
Sr.No	Topics	%
1	Attendance	20
2	Plates, Models, Sketch book, tutorials	20
3	Site visit/ Market surveys	10
4	Test	40
5	Viva	10

BUILDING SERVICES - II

Subject In charge's- **Ar. Gurunath Modak, Ar. Rashmi Tijare, Ar. MrinmayeeTiwari**

This semester is quite crucial as regards to services. This time we will be studying about services in commercial, industrial and institutional buildings. The aim of this semester Building Services is to acquaint you with the complex services to be provided in multi-storey or high-rise buildings.

Course Outcomes:

The student will be able to

CO1 Apprehend architectural considerations to accommodate the communication systems wrt video conferencing, telephone and computer network in a building.

CO2 Understand building automation system, security and surveillance of a building.

CO3 Get knowledge of different categories of fire and smoke.

CO4 Use of Norms & regulations regarding Fire escape, stairways & escape routes, dry & wet risers as per NBC of India.

CO5 Implement various building escape strategies and preventive measures in case of fire.

CO6 Know the basics of mechanical ventilation.

DATE/WEEK/TIME	UNIT	TOPIC	LEARNING OBJECTIVES	METHODOLOGY	EXPECTED OUTPUT
2 hrs	Unit III Fire	Causes of fire in buildings, types of fire, spread of fire, production of smoke and poisonous gases	To study different causes and various categories of fire and smoke generated and their effects on human health and buildings	Class lecture	Students will prepare a document of fire policy for a public building- (yet to be decided)
		Fire safety and preventive measures	To acquaint with various, prevent measures to be considered while designing a fire safe building		
4 hrs	Unit IV Fire safety- Rules and Regulations	Firefighting regulations with respect to NBC	To provide insight into the norms and regulations regarding Fire escape, stairways and escape routes, dry and wet risers as per National Building Code of India	carry out a Mock drill in college (date will be decided as per the availability of authoritative person)	Make a detailed report in A3 size of all NBC rules pertaining to your current design project (Premium Hotel)

		Water demand for firefighting, storage tanks, fire hydrants etc.	To learn the water demand and calculate the size and location of storage tanks to be designed		
6 hrs	Unit V	Fire detection systems-	Introduction to the topic and going for market survey	Roam around the college premises to have a look at the extinguishers installed	
			To Study various Fire detection systems, smoke detectors, heat detectors, fire alarms etc. their specifications and location in buildings		
2 hrs		Fire extinguishing systems	To acquaint with Fire extinguishing systems, Unit fire extinguishers, Chemical and foam extinguishers, their specifications and their handling		
					Working on fire policy (To be completed by the end of class)
SESSIONAL EXAM					
2 hrs	Unit II	Building Automation	To Introduce to building automation systems, their components and application in buildings To learn about the BMS section and its working in buildings	Site visit with class lecture	Sessional exam
4 hrs	Unit I	Communication systems	Video conferencing, Computer networks and trenches and conduits to accommodate the systems. To learn the working and mechanism of Security and Surveillance, location of CCTV cameras, alarms, sensors etc. and their connections in a building	Class lecture, site visit (yet to be decided)	Sessional exam

2 hrs	Unit VI	Ventilation in buildings	To introduce to Natural and mechanical ventilation, Need of mechanical ventilation To acquaint them with Exhaust fans, Axial flow fans, Blowers for industrial ventilation.	Class lecture	Sessional exam
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Evaluation

NBC rules	5 marks
Fire Policy	10 Marks
Sessional exam	15 marks

ARCHITECTURAL GRAPHICS

Subject In charge's: **Prof. Vishwas Dikhole, Prof. Anuradha Tikkas, Prof. Sanjeevani Mohagaonkar, Prof. Ketki Tidke, Ar. Mrinmayee Tiwari, Ar. Anuradha Bhute, Ar. Vaijayanti Yadav**

Course outcomes

The student will be able to

CO1 Making electrical layout with schedules of electrical fixtures for installation.

CO2 drafting terrace level plans showing rainwater drainage on terrace, pipes connected to chambers, designing construction of chambers as per the slope on site, showing connections to solar water heater.

CO3 Toilet layout, showing connections of soil, waste and rainwater drainage system.

CO4 Showing site services, and their connections and its layout on site. Marking water supply layout indicating supply tapping point.

CO5 Introduction to kitchen layout and drafting. Designing and constructing compound wall details along with site development, main gate, landscaping, paving of the setbacks and margins.

S. NO	TOPIC	DATE OF INPUT	PARTICULARS OF TOPIC INPUT	CONTENTS OF SHEET	SUBM DATE	
1	Electric al	1 st , 2 nd , week of March	Introduction to internal and external electrical layout of each floor showing various electrical points, location of distribution board, meter board. The details of every points to be given with respect to distances from wall, centre to centre distances, size of fittings, heights of installation, etc. Preparation of schedules of lights to refer for installation.	1) Furniture layout with detailed electrical layout for every floor. 2) Schedule stating details of every switch board, heights and distances at which the boards have to be fixed.		
	Electric al	3 rd week of March	Corrections of pencil drafted sheets and inputs of the CAD drafting			
2	Toilet Details	4 th week of March	Introduction to toilet layout, provision of cpvc pipes in wc, bathing areas, basin, etc. Laying of pipes through walls, connection to traps, hot/cold mixers/divertors, separation of pipes for solar/geyser, etc. Provision of EWC, IWC, heights, and details with accessories. Connection of water pipelines from terrace till bathrooms,	1) Terrace level plan along with solar tank, O.H.T and their connections 2) Sectional Details along the building height showing the length, dia of pipes along with their inlet and outlet. 3) Section of chamber showing necessary connections and details		

			connection of traps to chamber and main sewer line.			
	Toilet Details	1 st week of April	Corrections of pencil drafted sheets and inputs of the CAD drafting			
3	Plumbing/ Sanitary	3 rd week of April	Introduction to the site services i.e drainage, water supply, sewer connections and its layout on the site. waste water drainage system and water supply system of the entire project. Terrace level plans showing rain water drainage on terrace, pipes connected to chambers, construction of chambers as per the slope on site. Connection of pipes from terrace to various rooms of different floors. Location of sump, water meter, rain water harvesting pit, etc.	1) Site plan showing location of various services 2) Sectional detail of pit and chambers		
	Plumbing/ Sanitary		Corrections of pencil drafted sheets and inputs of the CAD drafting			
4	Kitchen	1 st week of May	Introduction to kitchen layout, showing sink, fridge and dry platform. Design of kitchen ota with cabinets below and above ota. Fixing of chimney along with exhaust. Understanding the fittings and fixtures required for erecting and constructing kitchen. Incorporating electric layout along with p.o.p. Laying of tiles above ota, plumbing layout, etc	1) Plan of kitchen showing position, width, length of ota along with sink, stove, fridge and other gadgets, electrical connections. 2) Elevation/Section showing ota, under ota cabinets, overhead cabinets, fittings & fixtures, etc.		
	Kitchen		Corrections of pencil drafted sheets and inputs of the CAD drafting			

5	Site develop ment	3 rd week of May	Introduction to designing and constructing of compound wall along with main gate, landscaping, paving of the setbacks and margins. Introduction to slope to be incorporated in the site along with design of chambers, pits, sumps, etc.	1) Plan showing the built form along with setbacks, pits, sump, landscape, gate, paved areas, parking, etc 2) Elevation of compound wall, design of gate, planters, fittings & fixtures, etc 3) Section of compound wall showing heights, length and width, etc.		
	Site Develop ment		Corrections of pencil drafted sheets and inputs of the CAD drafting			
6			Checking of all sheets and clarifying the doubts			
7			Pre final submissions of all topics			
8			Final Submissions			

Evaluation Scheme

Attendance	Sessional	Drawings	Total
10	10	30	50 Marks

DESIGN OF HUMAN SETTLEMENTS: TEACHING PROGRAM
 Subject In-charge: **Dr. Roopal Deshpande, Ar. Anuradha Bhute**

Objective:

CO1: To understand the designing and developing of human Settlements (Test)

CO2: To understand development of planning thought from historic to present age. (Test)

CO3: To understand the concepts of planning by various pioneers' planners and designers (Tutorials)

CO4: To Understand 'Architecture' as a part of bigger urban setting with lot of complexities related to socio-economic and legislative realities

Date	Unit to be covered	Inputs on
2hrs	Unit I	Man's role in designing and developing the towns and cities from ancient times through medieval, renaissance and industrial revolution to present day development.
2hrs	Unit II	Town planning in India- Pre historic, Vedic, Pre-British period
1hrs		Town Planning in India- British and post-independence period
2hrs	Unit III	Pioneers and their works- Patric Geddes, E. Howard, Abercrombie, Le-Corbusier
2hrs		C.A. Parry, Clerence Stein, Doxiadis, Kevin Lynch,
2hrs		F.L. Wright, Lewis Mumford, Rob Krier, Victor Gruen
	Tutorial questions to be given	
2hrs	Unit IV	Present concept of planning at various levels, planning as a team work, Role of Architect/Planners in a team, Importance of surveys in the planning process, factors governing the location and growth of towns
2hrs	Unit V	Understanding the process of development plan making, general ideas of implementation, planning agencies, Role of local Planning Authorities.
2hrs	Unit V	Planning legislation and administration, T.P. and Regional Planning acts, Development Control Rules, Zoning regulations, Density, Height, FSI, Structures
3hrs	Unit VI	Introduction to the problem of Urban and rural housing in India, Demand and Supply, General study of Planning considerations of Housing, area development, housing infrastructure such as utilities and services.
2hrs	Tutorial questions to be given	

NOTE-

Sessional marks (30) will be calculated only on the basis of sessional exam.

ESTIMATION AND COSTING

Subject In charge: **Ar. Vishwas Dikhole, Ar. Isha Pawar**

INTRODUCTION:

AIM:

In today's world of finance, economy and building construction industry, the investment in buildings is to the large extent. It is great responsibility of architects to work out the costing of the project at initial stage. So understanding in detail the subject estimation and costing is of prime importance for architects.

The students should be aware of the methodologies involved in working out the BOQ (Bill of Quantities), prevailing rates of materials and labour cost along with probable cost of construction which is known as the estimated cost. The relation between the cost of construction and the specifications should be clearly understood by the students.

OBJECTIVES:

- To make students understand the importance of estimation by understanding the quantities of different items of work of construction and thereby calculating the total costs of work.
- To give students a broader vision to relate the theoretical knowledge and the practical working of the various stages and items involved in construction of work on the site.
- To make students understand the accuracy required in framing a correct estimate, reading the correct dimensions and deriving the reasonable and workable rates as per prevailing market conditions.
- To give introduction to the various units of measurements adopted in working out the estimate
- To give introduction to software's used for different works in offices with their introduction and appropriate use.

NEED AND PURPOSE:

- Practical approach towards construction work.
- Uniformity and accuracy in all items of work of construction.
- Probable cost of construction helps in efficient project execution & financial management.
- Precision in measurements and calculations – leads to perfection in site execution and materials procurements.

SUBJECT CONTENTS:

- Purpose of estimating, types of estimates
- Bill of quantities for single storey structures i.e load bearing and frame structures
- Study of IS-1200
- Estimation of quantities for R.C.C structural members i.e footing, column, beam and slab.
- Abstract of estimate

- Estimation for electrification, water supply and sanitation (residential structures)
- Rate analysis of R.C.C works, brickwork, plaster, flooring, painting, doors & windows
- Brief specifications and current schedule of rates, CSR (PWD)
- Quantification and estimate of M.S. structures.
- Mode of measurements and billing of executed building items.

SCHEDULE:

WEEKS	TEACHING PROGRAM	ASSIGNMENT
	Introduction to various types of estimates	Listing of types of estimates, understanding the drawing and its dimensions
	Introduction to bill of quantities for single storey structure (load bearing) Introduction to bill of quantities for single storey structure (load bearing)	Finalization of two room structure and working out the bill of quantities considering the various items i.e. foundation, .23 brickwork, P.C.C and DPC, brick work in super structure etc. Finalization of two room structure and working out the bill of quantities considering the various items i.e lintel,slab , brickwork, plaster, painting, Doors & Windows .etc.
	Introduction to bill of quantities for single storey structure (frame structure)	Finalization of small structure and working out the bill of quantities considering the various items i.e footing, columns, plinth, beams, etc.
	Introduction to bill of quantities for single storey structure (frame structure)	Finalization of two room structure and working out the bill of quantities considering the various items i.e. lintel, R.C.C. Slab,.23 & .115 thick brickwork, plaster, painting, etc.Abstract of estimate
	Introduction to framing of specifications and rate analysis	Considering one small example of a small tenement and understanding its specifications and rates by comparing it to existing market rates. Rate analysis of R.C.C., Brickwork, plaster etc. (SUBMISSION 1)
SESSIONAL EXAM		
	Introduction to billing of M.S. structure.	Working out bill of quantities for M. S. member's, conversion into weight and finally working out cost. (SUBMISSION 2)
	Quantification for various plumbing, sanitary, and electrical. Estimation of interior items like, false ceiling and partition.	Quantification and costing.

Evaluation Scheme

Attendance	Assignment 1	Assignment 2	Sessional	Total
10	15	15	10	50

ELECTIVE A (GRAPHICS SOFTWARES)

Subject Incharge's: **Ar. Vijayanti Yadav, Ar. Namrata Gourkhede, Ar. Medha Pohpale**

Course Outcome

CO1: To prepare presentable drawings, use of commands of software like photoshop.

CO2: To teach students to develop designs through 3D visualization and prepare presentable drawings in Revit.

Date	Unit to be covered	Inputs	Evaluation
18/02/2021 25/02/2021 04/03/2021 18/03/2021	Photoshop	Various commands related to photoshop	Assignment 1
25/03/2021 01/04/2021	Discussion on student's work		
08/04/2021 15/04/2021 22/04/2021	Revit		Assignment 2
29/04/2021	Discussion on student's work		
03/04/2021	FINAL SUBMISSION Assignment 1 – Soft copy to be evaluated. Submission to be done in Email/ MS Teams		20
30/04/2021	Fundamentals- Project Template, Template Path, Unit Level, Model Line, Wall, Duplicate Wall, Modification Commands, Door, Window, Furniture Filter, Floor, Column, Roof	Inputs through LCD Projection and students will explore in the lab	
07/05/2021	Curtain Wall, Curtain Grid, Mullion, Wall sweepWall revel, Opening, Model text, Group	Inputs through LCD Projection and students will explore in the lab Small Assignment	10

	Stairs, Railing, Ramp		
14/05/2021	Extrusion, Revolve, Sweep, Blend, Wall by face Floor by face, Roof by face Topo surface, Sub region, Split surface, Mergesurface, Property line, Building pad, Site component, Parking components Label contours		
21/05/2021	Dimension, Text, Room and area plan, Colorscheme, Section, Call out, 3d crop view, Camera Walkthrough, Schedule Sheets Modify sheets, Material addition, Material modification, Material creation, Revit family creation, Render settings Cloud render, Project submission	Small Assignment	10
	Sessional		20

Evaluation Scheme

Attendance	Sessional exam	Assignment 1- Photoshop	Assignment 2- Revit	Total
20	20	20	40	100

ELECTIVE B: ADVANCED SPATIAL ANALYSIS

Subject In charge: **Prof. Ketki Tidke, Ar. Vaijayanti Yadav**

Course outcomes

CO1: How Characteristics of the spaces need to be created, since space is the core of architecture in order to design it is necessary, to conceive and think about the spatial organization. Decoding the nature of spaces will enable any student or designer to grasp the concept of design be it a traditional one or contemporary one. A qualitative analysis of the spaces, which will be is useful for all architectural students and the designers to know the qualities of spaces.

CO2 : To equip students for professional training for which they need to strengthen the theoretical base as far as design theories & philosophies are concerned. Study of Movement of users or spatial flow or circulation patterns to use the space created for the desired activity.

INTRODUCTION

All architectural students and the designers must be aware about the Characteristics of the spaces need to be created, since space is the core of architecture. In order to design it is necessary, to conceive and think about the spatial organization, decoding its nature and characteristics of the elements which contributes in SPACE MAKING.

This subject basically aims to focus to find out -

- **Man-space relationship And**
- **Man-Man relationship in the space**

Students will be able to evaluate the designs on basis of-

1. **ACTIVITY** (what is the activity to be carried out in that space)
2. **USER** (who is the User/ Is he comfortable while using the space) And
3. **PURPOSE** (is the space created solve the purpose of its creation)

Decoding the nature of spaces will enable any student or designer to grasp the concept of design be it a traditional one or contemporary one.

Syllabus

Need and purpose

The subject thus attempts to carry out –

A QUALITATIVE ANALYSIS OF THE SPACES, which will be is useful for all architectural students and the designers to know the qualities of spaces are governed by –

- 1) **Movement of users or spatial flow or circulation patterns** to use the space created for the **desired activity**.
- 2) The characteristics of the **enclosing elements** (Style, material, technique and construction)

Subject Contents

1. What is Spatial Analysis?
2. Quality of Spaces
3. Concept of Experiencing a space through senses
4. Expression of spaces
5. Enclosures and how does space become an enclosure?

Bibliography

Theories and concepts from-

- Elements of Space Making-Yatin Pandya
- Concept to Manifest-K.B Jain
- Letters to Young Architects-Christopher Beninger
- Analyzing Architecture-Simon Unwin
- Graphical Thinking for Architects and Designers-Paul Laseau

Date	Topic/ contents to be covered	Learning Objective for each topic/ content	Teachers' interaction through lectures/ppts/site visit etc	Interactive Sessions on identified topic	Expected output	Weight age
2 nd – 5 th Feb2021	SPACE	Meaning of space and architectural space. Vocabulary Quality of spaces Experience in spaces (open , closed, semi open wrt feelings and senses)	Lecture PPT narrating the term” quality of spaces” supported with Theories. Make separate sketch book for the subject. Which you have to submit.	Activity Identifying Examples from Books Or Surroundings Elaborating through Graphics.	Interaction drawings	
Assignment 1						30 Marks
8 th -15 th Feb 2021	ENCLOSURE	What is an enclosure and how space Becomes an enclosure To understand SPATIAL QUALITIES of building and how does it work as an emotive response to the user.	Lecture/ ppt/ Interaction	ACTIVITY Choose any room of your own house . Analyze it based on Centre, threshold, feeling of exclusion or inclusion, axis etc.	drawings	
Assignment 2						30 Marks
		Class test on identified book			Sessional exam	20marks

Evaluation Scheme

Attendance	Sessional exam/ Surprise exams	Assignment 1	Assignment 2	Total
20	20	30	30	100

ENVIRONMENTAL PSYCHOLOGY

Subject Incharge – Ar. Shobhana Tembhurnikar, Ar. Sneha Mandekar

OBJECTIVES:

CO 1) To enhance the perception / cognition of the environment (built / natural) using various methods.

CO 2) Application of psychology in the design of spaces. (Residences, commercial, educational, historic, public settings)

INTRODUCTION

Environmental psychology explore person–environment relations in

- Cities
- Public places,
- The neighborhood,
- The community,
- On the streets

Environmental psychologists work at three levels of analysis:

(a) **Fundamental psychological processes** like perception of the environment, spatial cognition, and personality as they filter and structure human experience and behavior,

(b) **The management of social space:** personal space, territoriality, crowding, and privacy, and the physical setting aspects of complex everyday behaviors, such as working, learning, living in a residence and community, and

(c) **Human interactions with nature**

The definition by researcher is as follows

Environmental psychology is the study of transactions between individuals and their physical settings (Gifford, 2007a). In these transactions, individuals change their environments, and their behavior and experiences are changed by their environments.

AIM: To impart awareness about the effects of built and natural environment on human behavior

NEED AND PURPOSE

To enhance and increase the **skills of designers** in interior, building sets and better environment and landscape design

The **goal of making a clear foundation of environment design** focal point is to determine a set of defined patterns such as:

- Decision making process in environmental design procedure.
- Built environment and its usage and reaction of people.
- Physical nature of built environment and its results in daily human living spaces.

SUBJECT CONTENTS

To understand the relationship between theory discussions and architectural design

- Environmental Psychology and Architectural Design
- Residential Environmental Psychology
- Workplace Environmental Psychology
- Educational Environmental Psychology
- The Environmental Psychology of Neighborhoods and Cities
- *Causal relationship - (or) - coercive architecture*

Week	Learning Objective for each topic/ content	Teachers' interaction through lectures/ppts/site visit etc	Expected output	Evaluation
2 nd Feb – 4 th Feb 2021	Introduction to subject and the contents Introduction to environmental psychology and its relationship with architecture	Subject Inputs and interaction with students Introductory Small assignment and also discussion on Assign 1	2 sheets of A2 Composition	
5 th Feb 2021	Human Behavior to the space 1. Effects of environment like temperature, light, climate on human behavior (exterior spaces) 2. Effects of colors, materials, texture of spaces on human behavior (interior spaces) 3. Effects of orientation of building on site.	Presentation on Human Behavior or response to analyze a SPACE and site visit on experiencing a space Introduction to Assign 2 related to minor design problem		Assignment 1 Submission on 5th Feb 2021

8 th Feb 2021	History of environmental psychology, and Introduce Gifford theory	Presentation on theory of environmental psychology Discussion on Assgn 2		
11 th Feb 2021	Understanding the expression of the precinct from various perspective(permeability, variety, legibility, robustness, visual appropriateness, richness, personalization)	Inputs regarding to read a PLACE and Provide reading material and introduce techniques how to ANALYZE PLACE and site visit Expertise session	Portfolio preparation	Assignment 2 Will be related to Design Submission on 13th Feb 2021

Evaluation Scheme

Attendance	Sessional exam/ Surprise exams	Assignment 1	Assignment 2	Total
20	20	CO1 (30)	(CO2) 30	100
		Related to Design project – To analyze SPACE through human behavior.	Related to urban design – to analyze the PLACE	

MAN - ENVIRONMENT RELATIONSHIP
Subject Incharge's: **Ar. Aakanksha Agarwala, Ar. Sneha Bodhankar**

Aim

To trace and understand the connection and inter-relation between man, nature and architecture.

COURSE OUTCOME

CO1- Understanding components OF Environment

CO2- Understanding Man – Environment inter-relationship

CO3- Threats to environment with respect to construction and architecture domain

CO4- Understanding architect's role for sustainable development

Unit I- CO1

Understanding Environment – its components

1st ASSIGNMENT SUBMISSION - POSTER - DATE OF SUBMISSION: 2ND FEBRUARY 2021

Unit II – CO2

Man and his relation with Environment

Environment and its influence on Man This

relationship seen throughout history

2nd ASSIGNMENT SUBMISSION – GROUP PRESENTATION- DATE OF SUBMISSION: 8TH FEBRUARY 2021

Unit III – CO3

Threats to the Environment

Environmental degradation

3rd ASSIGNMENT SUBMISSION – POSTER- DATE OF SUBMISSION: 9TH FEBRUARY 2021

Unit IV-CO4

Environment Responsive Architecture around world

Role of Architect to help Environment and Save

Energy

4TH ASSIGNMENT SUBMISSION – PPT-

DATE OF SUBMISSION 15TH FEBRUARY 2021

	ATTENDANCE	TEST	ASSIGNMENT 1 (CO1)	SIGNMENT 2 (CO2)	SIGNMENT 3 (CO3)	SIGNMENT 4 (CO4)	TOTAL MARKS
MARKS	20	20	10	20	10	20	100

Final submission: 22nd February 2021