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DESIGN

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STRUCTURES

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CONSTRUCTION V

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WORKING DRAWING I

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THEORY OF ARCHITECTURE

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BUILDING SERVICES

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SPECIFICATION

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COMPUTER APPLICATION

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GREEN ARCHITECTURE

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A.P.T

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**In Charge: - Ar. Vaijayanti Yadav**

**Class Coordinators**

**Section A- Vaijayanti Yadav**

**Section B- Ar. Sneha Mandekar Tirale**

**Section C- Ar. Mrinmayee Tiwari**

**Architectural Design**

**Coordinator: Ar. Vaijayanti Yadav**

**Team-** Prof. S.R Marathe, Dr. Neeta Lambe, Ar. Sujata Godbole, Ar. Shobhana Tembhurnikar Ar. Ketki Tidke, Ar. Vaijayanti Yadav, Ar. Mrinmayee Tiwari, Ar. Sneha Mandekar Tirale, Ar. Piyusha Bhandarkar, Ar. Rashmi Thakre, Ar. Nehal Maheshwari

**Construction Technology & Materials –V**

**Team:** - Dr. Pratima Dhoke, Dr. Neeta Lambe, Ar. Shobhana Temburnikar, Ar. Akanksha Agarwala, Ar. Mrinmayee Tiwari, Ar. Sneha Mandekar Tirale

**Structural Design & Systems –V**

**Subject Teachers** Mr.Rupal Wadegaonkar

**Building Services II**

**Subject Teachers** - Ar. Anuradha Bhute, Ar. Mrinmayee Tiwari

**Architectural Graphics-V**

**Team** – Ar. Vishwas Dikhole, Ar. AnuradhaTikkas, Ar. Sanjivaneer Mohgaonkar, Ar. Ketki Tidke, Ar.Anuradha Bhute, Ar. Vaijayanti Yadav, Ar. Nehal Maheshwari, Ar. Madhuri Gehani, Ar. Rashmi Thakre

**Theory of Architecture**

**Subject Teachers** – Ar. Ketki Tidke, Ar. Vaijayanti Yadav

**Specification**

**Subject Teachers** –Ar. Anuradha Bhute, Ar. Sneha Mandekar Tirale

**Elective A-Computer Applications II**

**Subject Teachers** – Ar. Vaijayanti Yadav, Ar. Mrinmayee Tiwari

**Elective B- Appropriate Technology**

**Subject Teachers** – Ar. Shobhana Temburnikar, Ar. Vaijayanti Yadav

**Elective B: Landscape Design Studio**

**Subject Teachers:** - Ar. Ketki Tidke, Ar. Sneha Mandekar Tirale

## **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**

- Integrity
- Creativity
- Innovation
- Discovery
- Collaboration
- Respect
- Discipline
- Excellence
- 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 co-ordinators.

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 absentism, 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 programmes organized by the college from time to time.

Attendance for programme of 26<sup>th</sup> January and of 15<sup>th</sup> 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, Archiventure, 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.



## ARCHITECTURAL DESIGN-IV

**Design Co Ordinator:** Ar. Vaijayanti Yadav

**Teacher Incharges-** Prof. S.R. Marathe, Dr. Neeta Lambe, Dr. Pratima Dhoke, Dr. Sujata Godbole, Prof. Shobhana Tembhurnikar, Prof. Ketki Tidke, Prof. Anuradha Bhute. Prof. Mrinmayee Tiwari, Prof. Sneha Mandekar Tirale, Prof. Piyusha Bhandarkar, Prof. Rashmi Thakre, Prof. Nehal Maheshwari

**Dates: Aug: 14,17,18,19,21, 24,25,26,28,31      Sept: 1,2,4,7,8,9,11,14,15,16,18,21,22,23,25,28,29,30**  
**Oct: 5,6,7,9,12,13,14,16,19,20,21,23,26,27,28,30      Nov: 2,3,4,6,9,10,11,13,20,23,24,25,27,30**  
**Dec: 1,2,4,7,8,9,11,14,15,16,18,21,22,23**

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The students at 5<sup>th</sup> semester are at a very crucial stage of their curriculum. Till now, they have learnt the basics of architectural design in their first and second year of architecture. The students are now equipped with the understanding of the varied activities, their inter relationship, circulation within and basics of site development. They are also aware of the aspects of the architecture like climatology, landscaping, and basic building services.

### **Housing for Migrants**

The coronavirus pandemic has caused an unprecedented disruption in the global economy. This disruption has forced businesses and investors to reconsider where and how to invest. Such a shake-up opens an opportunity for India.

Due to pandemic, rural areas and rural lives — especially of 'migrant workers' — have become miserable and attracted attention of all.

In background of this, our PM announced economic package on 12<sup>th</sup> May 2020 related to corona virus pandemic, in which he talked about how to make India self-reliant. *Aatmanirbhar Bharat* (transl. self-reliant India) is the vision of the honorable Prime Minister of India Narendra Modi of making India a self-reliant nation.

In Aatmanirbhar Bharat Program importance is given more to Rural infrastructure, Agricultural infrastructure and MSME. This program includes provision for affordable housing, housing for migrant labours, small scale industries based on agro-processing, infrastructure in the form of services etc. Architects can play a crucial role in making PM's vision a great success.

Therefore, our design theme for this session is Aatmanirbhar.

Rural areas of India in general are in great distress today because of continued apathy and neglect from the policy makers and scholars. Farm sector, non-farm sector, basic infrastructure such as roads, electricity, water, irrigation facilities; development of agro-processing industries etc. have been left falling for prioritization.



Not only the physical infrastructure, but also social infrastructures such as education and health have remained ignored. This general neglect of the rural areas also has its impact on the rural housing sector. Rural Housing has been assigned a low priority in comparison to urban housing.

Resulting the COVID-19 lockdown, almost all industries and different economic activities came to a standstill deteriorating the conditions of daily wage workers, most of which are migrants. With no availability of livelihood this led to worsening conditions, reverse migration started with all migrants returning to their native villages by any means available. We have to rehabilitate these workers by giving them job opportunities in rural areas for those who do not want to go back. This will give rise to various economic activities in rural areas. This people will require space for living in villages as their own houses are very small to accommodate their family. Keeping this in mind 5<sup>th</sup> semester were asked to design a housing for migrants.

**Architectural Challenge:** To understand the concept of Affordable housing at village level and various construction techniques used for affordable housing.

**Aim:** To understand various housing issues and complexity in layout generation.

#### **Learning objectives**

1. To make students aware of the reasons of migration and reverse migration and its impact on development & to understand the development guidelines given by Government under various housing schemes.
2. To understand the various issues at village level and identification of possible design intervention in terms of housing.
3. To understand the various aspects of designing housing layout.
4. To study the various construction techniques for affordable housing.

#### **Scope of work**

1. Identification of issues and challenges of the housing for migrants
2. Design and detailing of unit designs.
3. Detailing cost-effective housing in terms of materials, construction techniques, flexibility, multifunctional spaces etc
4. Housing layout w.r.t. development guidelines with required infrastructural details.

#### **Site:**

The sites for housing have been identified from the 3-villages which were taken up for studies. Villages are Waroda, Ridhora and Borkhedi, all these villages are within the range of 30 to 35 Km from Nagpur. The sites identified for housing are in range of 8-9 acres. Students have to design housing for migrants. Total no of dwelling units to be designed will be 150., out of which A will be 25%, B will be 35% and C will be 40%. Area of A will be 35 to 40 sq.m, B will be 45 to 50 sq.m and C will be 60 to 75 sq.m.

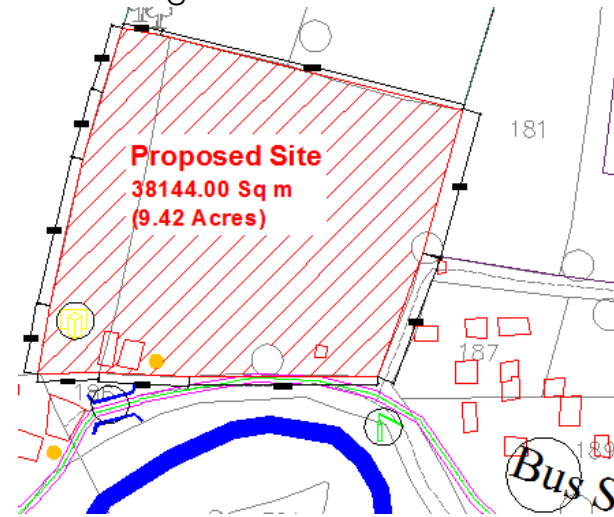
Section wise sites are allotted to the students. Section A will work on Waroda Village Site, Section B will work on Ridhora Site and Section C will work on Borkhedi Site. The context of the site varies from village to village and hence site potential and site challenges would vary accordingly. All three sites are of approximately of same areas.

## Information about Villages:

### Waroda:

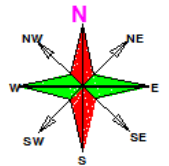
The village has been identified for the rural development project for the following reasons:

- It lies within a radius of 30 kms of Nagpur city, and also 4 kms taluka town of Kalmeshwar, making it easily approachable.
- Has a very small population of 1694 and comes under Waroda
- The village is divided into three hamlets with the central an old settlement evolved in 2003. 50% houses are pucca, 48%
- 85% of the occupation is agriculture, 10% are self-employed/business, 5% are working in the cities.
- No migration is observed, with maximum hindu population. economic status of the people is at a satisfactory level, with below poverty line.
- Crops cultivated are cotton and soyabean, along with oranges, sweet lime, tur and chana dal.
- Lack of awareness is seen in all spheres of life, which has led to neglect and stunted growth of the village.
- One primary health centre has been provided but it is not equipped with the water & sanitation facilities.
- Educational facility upto 12<sup>th</sup> std in science, arts and commerce has been provided. An aanganwadi has been provided which needs upgraded facilities and renovation along with infrastructural facilities.
- A Gram panchayat office has been provided in between the three hamlets.
- A bus stand has been provided near the Saoner-Nagpur state highway, which is about 2 kms from the village.



away from the Gram Panchayat. hamlet being are kuccha.

The 10%



**Borkhedi:**

Borkhedi is a large village located in Nagpur Rural Taluka of Nagpur district, Maharashtra with total 556 families residing. The Borkhedi village has population of 2436 of which 1231 are males while 1205 are females as per Population Census 2011.

Borkhedi village is administrated by Sarpanch (Head of Village) who is elected representative of village. The village enjoys a strategic location in all modes of transport including roadways, railways, and airways.

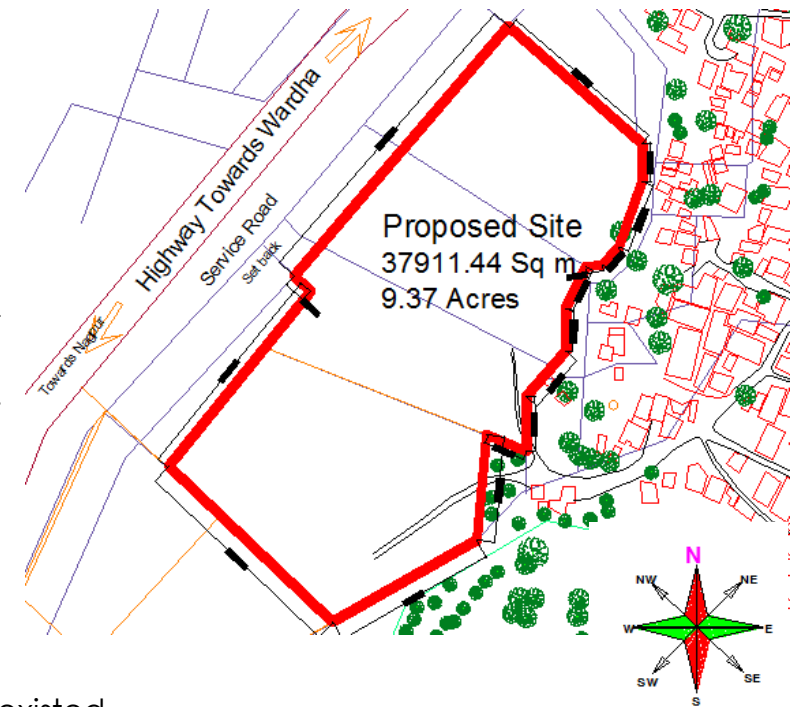
The climate of the village is characterized by Composite climate. May is the hottest month of the year with mean daily maximum temperature going up to 46° C with mean daily minimum temperature as 10° C. The total normal rainfall is about 1064 mm. The maximum precipitation is received in the months from June to September. Borkhedi is well connected by Public and private bus service and by railways.

**Amenities in village are as follows:**

**Health Sector:** One Primary Health Centre (PHC) and one Maternity and child welfare centre (MCW) existed in this village.

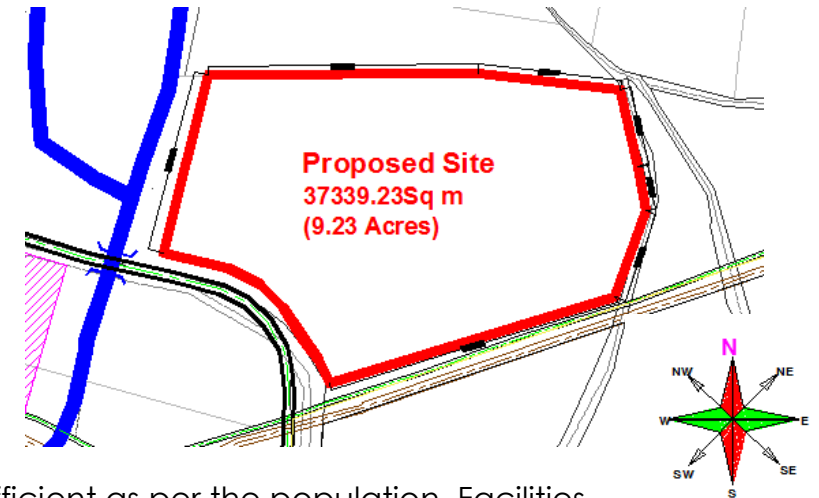
**Education:** In Village 3 Pre-Primary, 1 Primary, 2 Middle & 2 Secondary Schools are existed.

**Other Amenities:** Anganwadi centre, PDS centre, ASHA and Public Library.



## Ridhora:

Ridhora Village is in Katol Taluka in Nagpur District of Maharashtra State, India. It is a part of Vidarbha Region, known for production of oranges. It is located 60 kms from Nagpur and 4 kms from Katol. The main road of the village crosses state highway no. 247. Ridhora has its own railway station which connects directly to New Delhi. The village has a population of 4314 with 52% males and 48% females and around 75% of the population is literate. 90% of the villagers practice agriculture with a workforce participation of 57% and some of them have an annual income as low as Rs. 21000. The agriculture produce is sold in Nagpur market, where they are not getting satisfactory rates and they have no storage facilities in the village to hoard their produce. The village has municipal water supply and 99.5% of household have toilet and remaining 55 have access to public toilets. It has good mobile, internet and DTH connectivity. It has education and health facility in good and functional condition but are insufficient as per the population. Facilities like shopping centre, community hall, parks, playgrounds, theatre are absent in the city. There are only 60% pucca houses with a dwelling unit size of 4, indicating out-migration of younger generation for employment opportunities.



## Design Stages:

**Stage I: Introduction** (Understanding of the theme Atmanirbhar and related issues)

**Stage II: Literature study** (Understanding various Govt. Schemes for Rural development and housing, Environmental Sustainability)

**Stage III: Precedent study and Data collection** (study of Climate, topography, Regional Study: Infrastructural Study 1. Physical 2. Social 3. Economic)

**Stage IV: Context studies and conceptualization** (Understanding context, and ideation for design intervention)

**Stage V: Architectural Interventions** (Design intervention in terms of Housing layout with required utilities and detailing of units with materials and construction techniques etc.)

**Stage VI: Architectural Detailing** (To study site level services, building level services and infrastructural services, materials, construction techniques etc. required to support design interventions.)

DATE	MODULE	TASKS	STUDIO DISCUSSION	EXPECTEDWORK
3 <sup>rd</sup> Week of Aug 2020	<b>Module 1: Introduction</b> 1)Understanding of the theme 'Aatmanirbhar Bharat'	Migration, Reverse migration and housing	<ul style="list-style-type: none"> <li>• Understanding of the process of migration and reverse migration.</li> <li>• Problem of housing for migrants.</li> <li>• This is carried out with BSM people.</li> </ul>	<ul style="list-style-type: none"> <li>• Essay</li> </ul>
Month of Sep 2020	2)Understanding of various Government Schemes	<ul style="list-style-type: none"> <li>• Government schemes of Housing</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the issues and challenges of housing for migrants. Discussion on implemented projects</li> <li>• Understanding of Guidelines and Government schemes</li> <li>• Meaning of cost effectiveness, low cost, sustainable housing, materials, construction technologies etc</li> </ul>	Submission I Power Point Presentation

			<ul style="list-style-type: none"> <li>Possible architectural interventions in villages under consideration – unit designs, layout.</li> </ul>	
	<b>Module 2:</b> Precedent Study and Data collection	<ul style="list-style-type: none"> <li>Precedent Studies based on: - Govt. Schemes, architects work on villages, Construction Techniques.</li> <li>Data Collection</li> </ul>	Discussion	Power Point Presentation
Some students Work on the identified Villages for the masterplan in vertical grouping				
Month of Sep to Third Week of Oct 2020	<b>Module 3:</b> Context studies (Village study) and conceptualization Village study 1) Issue Identification 2) Site Survey & Analysis	<ul style="list-style-type: none"> <li>Socio Economic survey</li> <li>Physical survey: - with the help of Local people</li> <li>Built up survey</li> <li>Analysis of the survey.</li> <li>Creative Exercise Module to Composition</li> </ul>	Inferences  Discussion on Composition	Power Point Presentation A2 Size sheet
4th week of October- First Week of Nov 2020	<b>Module 4:</b> Architectural Design intervention	Stage 1: Detailing of house Types, A, B, & C Identification of House types such as A Type –35-40 Sq m (approx.) B Type –45-50 Sq m (approx.) Type –60-75 Sq m (approx.) Stage 2:	Discussion on House types - row houses, semi-detached & detached houses.	A2 size sheet Study Models of Units

		<ul style="list-style-type: none"> <li>Design Programme formation</li> </ul>	Discussion regarding design programme & concepts related to environmental sustainability	
<b>REVIEW I</b> 4-6 <sup>th</sup> Nov 2020: - Village Inference, Site Analysis, Design Program, Unit design options , ( Grades to be given ) 9 <sup>th</sup> Nov. 2020: Unit design and cluster design submission Submission Requirement: All the sheets: Village Inference, Site Analysis, Design Program, Unit design options, Cluster formation, Cluster sections				
mid Nov2020	<b>Module 4:</b> Architectural Design intervention	<ul style="list-style-type: none"> <li>Concept Evolution and Zoning</li> <li>Final Cluster Formation</li> <li>No. of households to be accommodated = 150 Nos. their percentage is as follows:</li> </ul> No. of households to be accommodated = 150 Nos. A: -25% B: -35% C: -40%	Discussion on meaningful options of cluster formation.	A2 Size Sheet
<b>Review II</b> <b>20th Nov 2020:</b> Concept Evolution /zoning, Cluster layout (Grades will be given)				
Nov- 3 <sup>rd</sup> week of NOV. to 1 <sup>st</sup> week of Dec 2020	<b>Module 4:</b> Architectural Design intervention	<b>Housing Layout</b> to be designed using zoning, row houses, semi-detached & detached houses, hierarchy of roads, hierarchy of open spaces and amenities.	Discussions regarding Site Plans	Alternatives of Site plan

**Review IV-Internal**  
**4<sup>th</sup> DEC. 2020 (Layout)**  
 Submission Requirement:  
 All the layout options

Second Week of Dec 2020	<b>Module 5: Architectural Detailing</b>	Presentation & Detail drawings of <ul style="list-style-type: none"> <li>• Site Plan</li> <li>• Housing Layout</li> <li>• House types</li> <li>• Plans of Amenities</li> <li>• Services Plan</li> <li>• Elevations, Sections &amp; Views</li> <li>• Detailing of materials &amp; Construction techniques</li> <li>• Detailing of amenities &amp; services</li> <li>• 3D Model</li> </ul>		Detail Drawings to be produced in A1 Sheets
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**Pre Final Submission: 15<sup>th</sup> Dec 020 (final layout)-External**

- Submission Layout :
- Final Site plan, Site Section
  - Housing Layout
  - House types with Elevations, Sections & Views
  - Detailing of materials & Construction techniques
  - Plans of Amenities
  - Services Plan
  - Detailing of amenities & services
  - 3D Model



Mid Dec- third week of Dec 2020	<b>Module 6: Architectural Detailing</b>	<ul style="list-style-type: none"> <li>• Corrections to be incorporated to the final drawings</li> </ul>		Final A1 Sheets to be produced
<p><b>Final Submission – 24<sup>th</sup> Dec. ( full portfolio)</b></p> <p>Submission Requirements:</p> <ul style="list-style-type: none"> <li>• Village inference <ul style="list-style-type: none"> <li>• Site analysis</li> <li>• Design Program</li> <li>• Concept evolution</li> </ul> </li> <li>• Unit designs- Plan, elevation, sections, 3D views</li> <li>• Group of units/cluster - Plan, elevation, sections, 3D views <ul style="list-style-type: none"> <li>• Detailing of materials &amp; Construction techniques <ul style="list-style-type: none"> <li>• Plans of Amenities</li> <li>• Services Plan</li> </ul> </li> <li>• Detailing of amenities &amp; services <ul style="list-style-type: none"> <li>• 3D Model</li> </ul> </li> </ul> </li> </ul>				

Design approach will be Environmental Sustainability and Building technology Along with contemporary Architecture.

#### Evaluation scheme

<b>Attendance (20 marks)</b>	<b>Minor project (20 marks)</b>		<b>Major Project (50 marks)</b>			<b>External Jury (10 marks)</b>	<b>Total Marks 100</b>
	<b>Review 1</b>	<b>Final submission</b>	<b>Review 1</b>	<b>Review 2</b>	<b>Final submission</b>		
<b>20</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>30</b>	<b>10</b>	<b>100</b>

## **CONSTRUCTION TECHNOLOGY & MATERIALS**

**Subject Co-ordinator:** - Ar. Mrinmayee Tiwari

**Teacher Incharges :** - Dr. Pratima Dhoke, Dr. Neeta Lambe, Ar. Shobhana Tembhurnikar, Ar. Akanksha Agarwala,  
Ar. Mrinmayee Tiwari, Ar. Sneha Mandekar

**July:** 2, 4, 9, 11, 16, 18, 23, 25, 30 **Aug:** 6, 8, 13, 20, 22 **Sept:** 3, 5, 12, 17, 19, 24, 26 **Oct:** 1, 3, 10, 15, 17

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### **Objectives/ Course outcomes**

1. Understanding the concepts of Suspended Ceiling Design considerations, methods of construction & materials Various products available in market, various techniques used for water proofing of various structural members.
2. To study the design considerations for Expansion Joints materials, methods of construction
3. To learn Design of foundations as per the soil conditions. Study of Types of piles w.r.t to material, method of construction
4. Understanding of Earthquake & Earthquake Resistant Building Design.
5. Use of Different type of paints & varnishes
6. R.C.C roofing systems, North light roofing, Skylights in R.C.C Coffered /Grid slabs, Flat & Flat plate slabs, lift slab

TOPICS	OBJECTIVES	DATE/TIME REQUIRED	SKETCH BOOK	SITE VISIT/MARKET SURVEY	AUDIO VISUAL	INTERACTIVE TEACHING	EXPECTED OUTPUT/Date of submission
<b>Unit-II Expansion Joints 9, 16 July 2020</b>	<p>To study the design considerations for Expansion Joints</p> <p>To study materials and methods of constructing-expansion joints in building.(Framed structure and load bearing)</p>	<b>6 hours</b> <b>4 hr-</b> introduction to the topic. 2 hrs.- sketches	Sketches of details seen from book	Site visit to three different locations for showing the expansion joint methods for different building elements. (will be decided as per availability)	Explaining basic concepts, materials adopted and constructional details	Clarifying the queries if any.	Sketch book, tutorials and test
<b>Unit-III Types of foundation  23 July 2020</b>	<p>To study soil conditions and suitability of foundations on particular type of soil.</p> <p>To study different types of foundation like Steel grillage footing, R.C.C. strip, raft and cellular</p>	<b>6 hours</b>	Sketching types of foundation depending upon the soil conditions, load distribution etc.	Visit to Geotech lab, Nagpur. Visit to three different sites with different types of foundation. (will be decided as per availability)	Audio visual presentation explaining in detail types of foundation. Criteria for selection of foundation type as per the soil condition and the load behavior of the structure.	Clarifying the queries	Sketch book, tutorials and models

	foundation. Machine Foundation etc and their suitability as per the soil conditions.						
<b>Pile foundation</b> 30 July 2020	To study the types of piles with respect to material, method of construction like Piles in Timber, Steel and R.C. C. (Pre-cast and Cast-in situ) R.C.C. Under- rimmed piles, pile caps etc.	<b>3 hours</b>		Site visit to be finalized as per availability.	Power point presentation for understanding the decision to recommend pile foundation on site. Understanding the methods of construction. Types of pile foundations	Discussion on site visit experience and clarifying the queries if any.	Sketch book and tutorials
<b>Submission on 29<sup>th</sup> August</b>							
<b>Unit-IV Earthquake</b> 6, 13 August 2020	To study the earthquake zones in India. To understand the terminologies related to Earthquakes and its effects on buildings.	<b>6 hours</b>	Study of earthquake incidences and their effects on bldgs., Sketches		Audio visual presentation explaining in detail the various seismic zones in India, reasons & behavior of earth during earthquake, its	Clarifying the queries	Sketches and notes.

	To study Architectural design considerations.				effects on bldgs., Bldg, design considerations.		
<b>Unit-V DPC and Water Proofing</b>	To study Waterproofing with respect to old and new materials. To study methods of water proofing for roofs, slabs, foundations), basements, swimming tanks etc.	<b>31Aug- 1 Sep 6 hours</b> 1 hr- introduction to the topic. 2 hrs.- Site visit 3 hrs.- site visit report Plate	Collecting photographs of effects of dampness in bldgs.	Site visit to explore the application of damp proof compound chemicals during construction Seeing practically various techniques and methods adopted on site by contractors and architects (gained through experience) to keep the construction damp proof and water proof.	Explaining the difference between water proofing and damp proofing Techniques used during construction to avoid water percolation Various materials used from traditional time to present day, etc.	Clarifying queries if any	Plates and Site visit report.
<b>Unit-VI</b>	To study the	<b>12,13,14, 15</b>	Collecting examples	Collecting	Explaining	Discussing on	Market

<b>Plaster and finishes</b>	different type of plaster and finishes	<b>Sep 6 hours +</b> market survey 1 hr- introduction to the topic. 2 hrs.- expert lecture with demonstration. 3 hrs.- report compilation.	from magazines and newspapers.	samples from market	explicitly the applicability of various types of plastering techniques and finishing styles used in construction	the new methods adopted . Discussing on the brochures collected through market survey.	survey and hands on experience report.
<b>Paints and Varnishes</b>	<b>SUBMISSION OF ABOVE TOPICS – 26 SEP 2020</b>						
	To study the different type of paints and varnishes, their composition, properties, preparation  Method of application and suitability on different surfaces.	<b>26 Sep-</b> Introduction to topic <b>3 hours</b> <b>27 Sep</b> Discussing issues like the properties, characteristics, application and availability in detail.	Collecting the data on the use of paints and varnishes for different locations (specific for India)	Collecting samples from market	Types of paints and varnishes available. Basic difference between the two. Change in applicability with respect to context and site requirements.	Discussing issues like the properties, characteristics, application and availability in detail.	Market survey report & tutorial

<p><b>Roofs</b></p>	<p>To study R.C.C roofing systems, North light roofing, Skylights in R.C.C Coffered /Grid slabs, Flat and Flat plate slabs, lift slab etc.</p>	<p><b>28-29 Sep 6 hours</b></p>	<p>Sketching types of roofing with respect to context. Preparing conceptual models to understand the behavior of roof and the load distribution from simple supported to supporter.</p>		<p>Explaining the types of roofs and reason for different forms with respect to place. Structural behavior Materials and techniques adopted in construction field</p>	<p>Discussion on behavior of roof with reference to the material specification and technique.</p>	<p>Sheet</p>
<p><b>Unit-I False ceiling</b></p>	<p>To understand the concepts of Suspended Ceiling</p> <p>Design considerations, methods of construction &amp; materials used concealed lighting A.C. ducts inlets and outlets, patent systems like Gypboard, Luxalon ceilings etc.</p>	<p><b>8 hours</b> class + site visit and market survey 2 hours- introduction- presentation on onsite work</p>	<p>Creative exercise- generating options for false ceiling design for a commercial activity. Unit of fixing details with materials</p>	<p>Options for false ceiling design.</p>	<p>Application of materials and techniques used for false ceiling designs with respect to change in context and variation in typology.</p>	<p>model making and site visit</p>	<p>Sketches, site visit report, conceptual model, market survey and sheet plate.</p>

			Identifying various materials available in market w.r.f fixing angles, suspenders, ceiling covering materials, lighting, A.C ducts etc.		Learning through observation and collection of materials.	Model making and plate on the design problem with ceiling design, materials and fixing details.
<b>FINAL PORTFOLIO SUBMISSION -9<sup>th</sup> November</b>						

### Assignments

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.		%
1	Attendance	20
2	Plates, Models, Sketch book, tutorials	20
3	Site visit	10
4	Test	40
5	Viva	10

1. To understand the techniques, methods and materials used for false ceiling
2. To understand the manifestation of design ideas practically.



## STRUCTURAL DESIGN & SYSTEMS –V

Teacher Incharge: Mr. Rupal Wadegaonkar

June:- 15,19,22,26,29

July:- 3,6,10,13,17,20,24,27,31

Aug:- 3,7

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### Objectives:

1. Study of Structural properties of Concrete & Reinforced Concrete
2. Learning Concepts in RCC Design: Elastic, Ultimate Load, Limit State
3. To study Different Limit states, partial safety factors, permissible stresses.
4. To understand Design of Singly Reinforced RCC Sections. To learn Design of doubly reinforced sections.
5. To learn Design of 'T' and 'L' beam sections.
6. To study Design of shear reinforcement in beams. Studying Design of RCC Sections in Tension. Study of IS 456 – Section III – Design Considerations.

Unit	Dates	Topics
I	15,19,22,26,29 June	Properties of concrete, Concept of R.C. C, Elastic, Ultimate load Theory, Limit State Theory
II	3,6,10 July	Design of singly reinforced concrete, Doubly reinforced Concrete
III	13,17,20,24 July	Design of T beam, L beam
IV	27,31 July 3,7 Aug	Design of shear reinforcements, R.C.C Sections in tension

## BUILDING SERVICES II

Teacher Incharges – Ar. Mrinmayee Tiwari & Ar. Anuradha Bhute

June:-17, 24,25 July: - 1,2,8,10,15,17,22,24,29,31 Aug :-5,7

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The second part of building services approaches with increased complexity and direct relation to design. This is a continued version to previous semester with a larger magnitude wherein you get the information related to large campuses, complexes, high rise buildings and special uses like swimming pools and firefighting. This semester is not only a theory-based subject but you also need to design and handle the services layouts of larger scale projects.

### Aim

The aim of the subject is to acquaint you about the importance, installation and working of various services related to campuses and high rise buildings. The scope lies in water services, sanitation, electrical services, storm water drainage and rain water collection and disposal.

### Objective

The objective of the subject is not only to transmit knowledge but to provide a deeper insight into the subject by following various physiological, psychological and sociological bases of education.

1. Knowing Importance, installation & working of various services related to campuses & high-rise buildings. (Assignment)
2. To understand the importance of sustainability which can be achieved by Building Services. (tutorial1)
3. Services for special uses like swimming pools, firefighting. Learning Importance of water & collection of Rain water & different active & passive techniques of RWH (Test)
4. To understand Water services, sanitation, electrical services, storm water drainage & rain water collection & disposal at global level. (Sessional)
5. Calculating quantities of water required for various activities & ways to conserve water for future. Active systems in hot water supply, various piping materials & provision in for multi-story buildings. Understand about the demand & calculate the capacities of storage tank. (Tutorial)

Date/Week	Topic	Learning Objectives	Input	Expected Output
17, 24 June 2020	Rain water harvesting	To spread awareness about the importance of water and collection of Rain water To inform them about different active and passive techniques of RWH	Lecture & Interaction	Tutorial 1

		<p>To accustom them with the space requirements and piping system and capacity of storage tanks used for collection</p> <p>To teach them about the methods of treating and reusing the rain water for various purposes</p>		
25 Jun, 1,2,8,10 July 2020	Electrical services, various wiring systems, calculations and distribution of loads, electric fittings and appliances, detailed layout of electrical services in a residence	<p>To acquaint the students with basic electrical services at domestic level</p> <p>To provide knowledge about the basic wiring systems and their applicability in a residence.</p> <p>To make students able to design an electrical layout for given plan and do the load calculations.</p> <p>To introduce them to the solar energy and solar panels for generating electricity.</p>	Lecture & Demonstrations	Assignment 1 A Sheets 10 Mar
15,17 July 2020	Schematic water distribution system from treatment plants to town, group housing etc. computing demand for group housing scheme and high-rise buildings. Design of storage and distribution system. Detailed layouts of water supply systems	<p>To acquaint students to complex water supply services.</p> <p>To teach them different types of layouts of water supply and their applicability in design.</p> <p>To make them understand the plumbing system for multi-storey buildings and calculations for water demand.</p>	Lecture & Demonstrations	Assignment 1 B Sheets
22 July 2020	Computing special demands of water for swimming pools, air conditioning, firefighting, street washing, fountains and gardens etc.	To make them aware of quantities of water required for various activities and ways to conserve water for future.	Lecture & Demonstrations	Test 1

24 July 2020	Hot water supply in high rise buildings, boilers, furnaces, solar water heaters.	<p>To teach them about the active systems in hot water supply.</p> <p>To introduce them to various piping materials and the impact of hot water on them (Heat radiation and thermal conductivity)</p> <p>To make the understand about the demand and calculate the capacities of storage tank</p> <p>To introduce different terminologies related to hot water supply and their applicability in multi-storey buildings.</p>		Tutorial 2
29, 31 July, 5, 7 Aug 2020	<p>Sewage collection and disposal for large campuses, complexes, high rise buildings etc.</p> <p>Mechanical methods of removing sewage from special areas like basement (shone's ejector).</p>	<p>To acquaint them with sewage treatment process and introduce them the concept of smart city</p> <p>To teach them of latest STPs and their processes developed by different organisations</p> <p>To introduce them to smart neighbourhoods by teaching different disposal methods</p> <p>To educate them about mechanical collection and disposal of sewage from basement</p>	Lecture & Demonstrations	Assignment 1 Sheets
<b>Sessional</b>				

## SPECIFICATION

**Teacher Incharges** - Prof. Anuradha Bhute, Ar. Sneha Mandekar Tirale

**June: 16,17,23,24,30 July: 1,7,8,14,15,21,22,28,29 Aug: 4,5,11,12**

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### Objectives:

1. Learning Art of writing specifications for materials & works. Introduction, importance of specifications in const. activity. To study Types of specifications & its applications. (Test)
2. Method of writing specifications (content, Correct Sequence). To understand and study the Use of IS Codes, PWD Specification (Sessional)
3. Knowing Specifications of basic building materials such as bricks, stones, aggregate, cement, steel, timber and also to Understand Specifications for various Building Construction items and Services in RCC framed structure. (Presentation)
4. To understand the importance of Specification in Working Drawings. (W D Drawings)

DATE	TOPIC	INPUT	EXPECTED OUTPUT	EVALUATION
16/06/20 & 17/06/20	Unit –I Introduction, Definition, Use, Importance of Specification Application	Lecture/ Interaction	Test	<b>10 Marks</b>
<b>Test 1: 10 Marks</b>				
23/06/20 – 21/07/20	Unit-II Specification of basic building materials such as bricks, stone aggregate, cement, steel, timber etc. Specification of materials used in flooring and finishing such as ceramic tiles, marble mosaic tiles, paints and varnishes. Specifications of material used in roofing and roof covering such as tiles, A.C, G.I and Aluminium	Lecture/ Interaction	<b>Assignment 1:</b> Presentations & Market Survey by the students	<b>30 Marks</b>

	sheets etc.			
22/07/20 – 04/08/20	Unit –III Specification for fixtures and fastening, proprietary materials along with manufacturer's specifications, trade names of such materials. Electrical / Power backup, Sanitation / Drainage Hardware, Water Supply	Lecture/ Interaction	<b>Assignment 1:</b> Presentations & Market Survey by the students	
05/08/20 – 12/08/20	Specification for demolition work, temporary construction like sheds, exhibition stalls, gateways.	Lecture/ Interaction	<b>Assignment 1:</b> Presentations & Market Survey by the students	
<b>Assignment 2: Writing Specification for various building items in Working Drawing (20 Marks)</b>				
<b>Sessional (20 Marks)</b>				

### Evaluation Scheme

Attendance	Test 1	Subject contents/ Sessional exam	Assignment 1	Assignment 2	Total
20	10 Marks	20	20	30	100

## THEORY OF ARCHITECTURE II

Teacher Incharges : Ar.Ketki Tidke, Ar.Vaijayanti Yadav

June: 25,26

July: 2,3,9,10,16,17,23,24,30,31

Aug : 6,7

### Objectives:

1. Knowing organization of Forms and Spaces.
2. Learning Spatial Organization- influencing factors and their types.
3. Understanding of Spatial relationships
4. Study of Articulation of Forms and Space types.
5. To understand Character and Style in Building.
6. Knowledge of Principles of Composition. Harmony & specific qualities of design.
7. Study of circulation pattern and its relation to organization, functional spaces and activities

Sr. no.	Syllabus content	Topics	Schedule	Prescribed Reading	Schedule	Assignment
1	Organization of Forms and Spaces	Spaces	25,26 June	<ol style="list-style-type: none"><li>1. David Colin (2011) Thinking about architecture- An introduction to architectural theory, Laurance King Publishing, London ( pg. 62-81)</li><li>2. Pierre Von Meiss(1992) elements of Architecture from form to place, Van Nostrand Reinhold , London, (pg</li></ol>	26 June	Write maximum one A4 page (typed and if handwritten 2 A4 pages) response to readings and there will be a group discussion.

				99- 126) 3. K.B. Jain, Thematic Space in Indian Architecture ( 2002), India research Press , New Delhi, ( preface to pg 15)		
2	Character and Style in Building	Elements of space making	2,3,9,10,16 July	1. How to read Buildings A crash course in Architecture The Herbert Press (2008) (pg. 22-48) 2. Yatin Pandya (2014), Elements of space making , Mapin Publishing, Ahmedabad ( pg 14-32 and pg 64-90)	10, 16 July	Analytical study of an interesting space to be presented in max. 4 A4 pages (hand drawn sketches)
3	Evolution of Architectural concept	Concept Generation	17,23,24,30 July		30 July	Choose an architectural example and study  How the concept for the same was evolved. Any number of A2 Sheets.
4	Principles of Composition, Harmony and specific qualities of design to include dominance, punctuating effect, dramatic	Dominance, punctuating effect, dramatic effect, fluidity, climax,	30,31 July & 6,7 Aug	Refer the works of master architects all over world and preferably select a 20 <sup>th</sup> Century building	6,7 Aug	Select an appropriate example of a building. Discuss its design w.r.t planning, form spaces and materials so as to



	effect, fluidity, climax, accentuation and Contrast with building examples.	accentuation and contrast with buildings. Depth, Density of space Etc.				understand any/few aspects Dominance, punctuating effect, dramatic effect, fluidity, climax, accentuation and contrast with buildings Submission on A2 Sheets.
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It's a Sessional subject, so assessment will be purely on the basis of assignments and sessional which will be conducted. The presence and active participation in class work will be given due credit. The timely submissions will only be accepted. Late submissions will not be entertained.

### Evaluation Scheme

Attendance	Sessional	Assignment 1	Assignment 2	Assignment 3	Total
10	10	10	10	10	50

## ELECTIVE A-COMPUTER APPLICATIONS II

**Teacher Incharges** – Ar. Vaijayanti Yadav, Ar. Mrinmayee Tiwari, Ar. Madhuri Gehani

**June:** 23,30

**July:** 6,13,20,27

**Aug:**3,10, 27,24

**Sept:** 1,8,15,22

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### Objective-

To teach students to prepare presentable AutoCAD drawings. Lot of practice sessions will be given to make students capable of generating fast and best quality architectural drawings.

Date	Learning Objective for each topic /Content	Teachers interaction through lectures/ppts/site visit etc	Expected output	Evaluation
23 jun, 30 jun, 6 jul	Introduction about AutoCAD Introduction to working environment. Introduction to status Bar. Navigating through the GUI. Line with dimension & without dimension.	Discussion	House Plan in cad showing all details	30 marks
13, 20, 27 Jul, 3, 10 Aug	Drawing angular lines, Ray, construction line, Multiline. Ortho, Osnap, Osnap setting, Polar, Otrack, Poly line. Poly line edit, Selection Window, Polygon, Undo, Redo, Trim, Rectangle, Helix, Arc, Circle, Donut, Erase, Ellipse, Copy, Mirror, Array – rectangular, polar, path, offset, Move.	Discussion and demonstration using visuals		

Submission 17 <sup>th</sup> August				
17, 24 Aug	Working in Layers		Electrical layout of the house plan showing all layers	30 Marks
1,8 Sep	layout and model			
15, 22 Sep	Scaling the drawing, saving into pdf and printing in different sizes.			
Submission 29 <sup>th</sup> September				

### Evaluation Scheme

Assignments 1	30 marks
Assignment 2	30 marks
Sessional exam	20 marks
Attendance	20 marks

## ELECTIVE B- APPROPRIATE TECHNOLOGY

Teacher Incharges – Ar. Shobhana Tembhurnikar, Ar. Vaijayanti Yadav

June:-22, 29 July:-6,13,20,27 Aug:-3,10,17,24,31

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The term **Appropriate Technology** is used to describe the use of technology and engineering that result in less negative impacts on the environment and society, i.e., technology should be both environmentally sustainable and socially appropriate. Besides being functional and relatively cheap it is durable and employs renewable resources

The study will enrich the knowledge of the student about the alternative /innovative materials and construction techniques appropriate for rural and urban area.

SrNo	Duration	Objective for each topic/ content	Teachers input	Expected output
1	<b>22<sup>nd</sup> June 2020 &amp;29<sup>th</sup>June2020</b>	Introduction to the subject Objectives <ul style="list-style-type: none"><li>• To make student understand the concept of appropriate technology, its relevance in present day context, scope etc.</li><li>• To make students aware of the importance of the subject.</li><li>• To understand the future prospects of the subject.</li></ul>	Lectures and discussions	
2	<b>6<sup>th</sup> ,13<sup>th</sup> July 2020</b>	Study of appropriate building construction techniques and material. Objectives <ul style="list-style-type: none"><li>• To study different appropriate building materials and its properties and construction techniques.</li></ul>	Lectures and ppts	Assignment on the works of Architects

	<b>20<sup>th</sup> July 2020</b>	<p>Study of Solar Energy in the form of photovoltaic cells and panels, solar water heater etc.</p> <p>Objective</p> <p>To make student understand the use of solar energy in day-to-day life.</p> <p>To make them understand its usability and cost effectiveness.</p>		
3	<b>27<sup>th</sup> July 2020</b>	<p>Study of appropriate technologies in various regions which will include the construction methods adopted, locally available materials, climate etc.</p> <p>Objectives</p> <ul style="list-style-type: none"> <li>To make student understand the traditional construction methodologies adopted in various regions of India...</li> </ul> <p>To make them aware of the various materials used w.r.t its quality, availability, cost and maintenance etc.</p> <p>.</p>	Lectures and ppts	
4	<b>3<sup>rd</sup> Aug 2020</b>	<p>Study of Soil as appropriate building material and its different construction techniques.</p> <p>Objectives</p> <ul style="list-style-type: none"> <li>To study its composition and properties,</li> <li>To understand the suitability of soil for mud walls, Soil Stabilization etc..</li> </ul>	Lectures and ppts	
5.	<b>10<sup>th</sup> Aug 2020</b>	<p>Study of Vaults, Domes using soil cement blocks, compressed mud blocks, Nubian arch roof,</p> <p>Objectives</p> <ul style="list-style-type: none"> <li>To make students aware of the possibilities of constructing innovative forms using soil.</li> </ul>		

6.	<b>17<sup>th</sup> Aug 2020</b>	Study of bamboo as a building material Objectives <ul style="list-style-type: none"> <li>To study the use of bamboo as building material, its properties and varieties available in the country and its construction techniques</li> </ul>	Lectures and ppts.	
7.	<b>24<sup>th</sup> Aug 2020</b>	Presentation on affordable / low-cost housing. Objectives <ul style="list-style-type: none"> <li>Understand the need of low-cost housing</li> <li>To study the different construction materials and techniques for modern low-cost construction built structures, which are socially, economically and environmentally sustainable</li> </ul>	Lectures and ppts	Assignment Low construction techniques to be integrated with the current design project.

### Evaluation Scheme

<b>Attendance</b>	<b>Subject contents/ Sessional exam/ Surprise exams</b>	<b>Assignment 1</b>	<b>Assignment 2</b>
20	20	30	30

## ELECTIVE B: LANDSCAPE DESIGN STUDIO

**Teacher Incharges** – Ar.Ketki Tidke, Ar. Sneha Mandekar Tirale

**June:** -22, 29 **July:** -6,13,20,27 **Aug:**-3,10,17,24,31

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### INTRODUCTION

The landscape design course, provided as part of the 5th semester curriculum, is a continuation of the basic design course and allows basic design concepts to be transferred to landscape design. The elective aims to facilitate an understanding amongst students in order to take site planning decisions. To help them orient and locate group of structures on site, so that the buildings together with the interrelated spaces become one architectural entity. To deal with open space structures. At Kailash in Ellora the connection of art & environment is monumentally evident: landscape becomes architecture & architecture is also sculpture, a temple in honour of a mountain carved into a mountain. In another era–grand concept of Lutyen's central vista of imperial Delhi- many centuries later- Architecture, urban design, town planning, landscape, merge one to the next.

In this semester we also have a landscape competition named **Ar. Sunil Toye Landscape Competition** in which all students participate in groups, design for a live project and the winning group executes their design on the site.

This elective contributes to the following Learning Outcomes:

- Experiment with an approach to landscape architecture based on the expressive capacities of site and their amplification through design
- Adopt an iterative design process encompassing phases of site construction, design ideation, development and resolution
- Apply an informed, ethical position towards social, technical and environmental issues and practices.
- Represent landscape architectural information using a range of disciplinary forms, techniques and conventions
- Communicate ideas professionally
- Create designs that respond to their context in formally or conceptually innovative ways.
- Develop advanced skills for the production, presentation and documentation of work.
- Generate solutions to complex problems through an exploratory and iterative design process.

Date	Learning objective for each topic/ Content	Teacher's interaction through lectures/ ppt/ site visit etc.	Expected output	Evaluation
21 <sup>st</sup> June 2020	General Introduction & Introduction to assignment 1: To identify and study existing site plan of building complex of an architect.	General discussion and orientation	Studio work	30
22 <sup>nd</sup> June 2020 – 24 <sup>th</sup> July 2020	Continuation of assignment 1	Examples from history, contemporary examples for effective site planning	<b>Sheets</b>	
27 <sup>th</sup> July 2020	Continuation of assignment 1		Evolving strategies for own design	
<b>3<sup>rd</sup> Aug 2020</b>	<b>Submission</b>			
3 <sup>rd</sup> Aug 2020	Introduction to Ar. Sunil Toye Landscape Competition	General discussion and orientation	Studio work	30
10 <sup>th</sup> Aug 2020	Landscape Studio	Discussion	Evolving strategies for own design	
17 <sup>th</sup> Aug 2020	Landscape Studio	Working on Ar. Toye Landscape Design competition	Incorporating strategies at <b>building</b> level	
24 <sup>th</sup> Aug 2020	Landscape Studio	Strategies in design	Incorporating strategies at <b>building</b> level	
31 <sup>st</sup> Aug 2020	Landscape Studio		<b>Jury of analysis</b>	
7 <sup>th</sup> Sep 2020	Landscape Studio	Siting and orientation of buildings to study the integration of outdoor spaces and built spaces, Parking lots, broader planting policies for the site.	Incorporating strategies at <b>detailing</b> level	
14 <sup>th</sup> Sep 2020	Landscape Studio	Strategies in design	Incorporating strategies at <b>detailing</b> level	
21 <sup>st</sup> Sep 2020	Landscape Studio	Discussion	Incorporating strategies at	



			<b>detailing</b> level	
28 <sup>th</sup> Sep 202	Landscape Studio	Discussion	Incorporating strategies at <b>detailing</b> level	
5 <sup>th</sup> Oct 2020			<b>Final Submission-0510/2020</b>	

### Evaluation Scheme

<b>Attendance</b>	<b>Sessional exam</b>	<b>Assignment 1</b>	<b>Assignment 2</b>	<b>Total</b>
20	20	30	30	100

#### Format of each class:

- Presentation on related theories and Concepts related to integration of landscape and architectural projects
- Discussions and Interaction with students based on design values and design Concepts.
- Activity introduction, Evaluation and feedback session

#### Bibliography

- Kevin Lynch, Site planning-
- JOHN ORMSBEE SIMONDS (A Manual of Site Planning and Design), Landscape Architecture (Third Edition)
- R.GENE. BROOKS, DAVID.W.LESTAGE, Before Building: Site Planning in the Digital age (Second Edition)