



Bharati Vidyapeeth  
**COLLEGE OF ARCHITECTURE**

Affiliated to the University of Mumbai



Founder  
**Dr. Patangrao Kadam**  
M.A., LL.B., Ph.D.

Belpada Complex, Opp. Kharghar Rly. Station,  
Sec 7, C. B. D. Belapur, Navi Mumbai- 400 614 - India

Principal  
**Prof. Satish Dhale**  
(G. D. D., P. G. D., B.A., M. Sc. (D.), M. Arch.)

Ref. No. BV / COA / N.M. /

Date

**Key Indicator – 1.2**  
**Academic Flexibility**

*1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years*



  
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Sr. No.	Contents
	Description
	List of Certificate Programs offered during the last five years (AY 2022-2023 to AY 2018-2019)

AY 2022-2023	
Courses	Coordinators
NPTEL Courses	
AY 2020-2021	
Courses in Collaboration with Acedge	
Courses	Coordinators
<b>Course 1 - Certificate Course on Architectural thinking, representation, narration</b>	Prof. Shomika Sarkar Prof. Ashwini Bapat Prof. Sinduree Iyengar
<b>Course2 - Certificate Course on Conception and Perception of Space-Elements of Space Making and Spatial Narratives</b>	Prof. Kamakshi Vaidya Prof. Shraddha Kapadia Prof. Mayuri Deshmukh
<b>Course 3 - Certificate Course on Disaster Relief Shelters</b>	Prof. Tejawini H.M. Prof. Priyanka Sinha Prof. Suvarna Thakre
<b>Course 4 - Certificate Course on Habitation Aaj Kal</b>	Prof. Pritam Dey Prof. Nikhil Shah
<b>Course 5 - Certificate Course on Impact of COVID 19 on Public Spaces</b>	Prof. Ruta Pawar Prof. Harshada Katkar



  
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	Prof. Neha Pradhan
<b>Course 6 - Certificate Course on Industrial Heritage in India</b>	Prof. Aastha Khare Prof. Madhura Naik Prof. Ajinkya Vekhande
<b>Course 7 - Certificate Course on Landscape and Site Development</b>	Prof. Sonu Bothe Prof. Himika Lakhanpuria Prof. Kirti Lonerkar
<b>Course 8 - Certificate Course on Smart City- A Paradigm Shift post pandemic</b>	Prof. Shipla Zabak Prof. Sumitra Kadam
<b>Course 9 - Certificate Course on Zonal Built Heritage</b>	Prof. Harshada Ponshe Prof. Renuka Wazalwar Prof. Swapna Deshpande
<b>AY 2019-2020</b>	
<b>Courses</b>	<b>Coordinators</b>
<b>Course 1 - Certificate Course on AutoCAD</b>	CADD Centre Prof. Tejaswini H.M.
<b>Course 2 - Certificate Course on Building with Natural Materials</b>	Design Jatra Prof. Tejaswini H.M. Prof. Sumitra Kadam
<b>Course 3 - Certificate Course on Performance of Building Envelope</b>	Prof. Varsha Annadate Prof. Vinita Deshmukh
<b>Course 4 - Certificate Course on Parametric Modelling</b>	Mr. Sai Srimanth (Parakraft) Prof. Madhura Naik
<b>Course 5 - Certificate Course on Mitti- Folk arts and Crafts</b>	Prof. Renuka Wazalwar



  
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AY 2018-2019	
Courses	Coordinators
Course 1- Certificate Course on Earth Architecture, Auroville	Ar. Shubha Mishra Prof. Tejaswini H.M.
Course 2- Certificate Course on Biomimicry and Tensegrity	Ar. Chetan Shivaprasad Ar. Shreya Sen Prof. Tejaswini H.M. Prof. Sumitra Kadam
Course 3 - Certificate Course on Mitti- Folk arts and Crafts	Prof. Renuka Wazalwar Prof. Trupti Kamat Mrs. Shoma Banerjee
Course 4 - Certificate Course on Building Skin for High-rise Smart Facade: Collaborative Design Approach	Prof. Varsha Annadate Prof. Vinita Deshmukh
Course 5 - Certificate Course on Mind Mapping and Design Thinking	Prof. Kamakshi Vaidya Prof. Dipanwita Chakraborty
Course 6 - Certificate Course on Parametric Design Thinking	Prof. Madhura Naik Ar. Nigar Khan Ar. Ameena Sheikh



  
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# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**KETAKI BHOLE**  
for successfully completing the course

## Soft Skill Development

with a consolidated score of **56** %

Online Assignments	17.21/25	Proctored Exam	39/75
--------------------	----------	----------------	-------

Total number of candidates certified in this course: **10421**

Jan-Mar 2023  
(8 week course)

Prof. Debjani Chakraborty  
Coordinator, NPTEL  
IIT Kharagpur



Indian Institute of Technology Kharagpur





Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**CHANDANA PRAGADA**  
for successfully completing the course

## Introduction to History of Architecture in India

with a consolidated score of **62** %

Online Assignments	17.5/25	Proctored Exam	44.25/75
--------------------	---------	----------------	----------

Total number of candidates certified in this course: **229**

**Prof. M. S. Santhanam**  
Dean, International Relations and Outreach  
IISER Pune

Jan-Feb 2023  
(4 week course)

**Prof. Andrew Thangaraj**  
NPTEL, Coordinator  
IIT Madras



IISER - Indian Institute of Science Education  
and Research Pune





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## Criteria 1 - Curricular Aspects

### Key Indicator - 1.2 Academic Flexibility

#### Academic Year 2020-21

Courses in Collaboration with Acedge
Course 1 - Certificate Course on Architectural thinking, representation, narration
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## Courses in collaboration with Acedge in AY 2020-21

In the academic year 2020-21, which was marked by the unprecedented challenges of the COVID-19 pandemic, the institute took a proactive and innovative approach to address the potential gaps in students' learning journeys. To ensure that students continued to receive valuable and meaningful education even amidst the disruptions caused by the pandemic, the institute established a collaboration with ACEDGE, a prominent e-learning platform specializing in supplemental courses.

Recognizing the significance of providing holistic learning experiences, the institute introduced these course electives in collaboration with ACEDGE. These courses were carefully designed to complement the core curriculum and offer students an opportunity to delve into additional areas of interest or skill development. By doing so, the institute aimed to prevent any compromise in the quality of education that students received, despite the challenges posed by the pandemic.

Through virtual classrooms, pre-recorded lectures, interactive assignments, and engaging multimedia content, students were able to explore diverse subjects. These courses were tailored by the faculty members and resource person and experts were identified for the same.

This initiative empowered students to actively engage in self-directed learning and acquire additional skills that could enhance their personal and professional growth.

In conclusion, the institute's collaboration with ACEDGE for add-on courses during the COVID-19 pandemic exemplified their commitment to providing comprehensive and uninterrupted learning opportunities. This partnership showcased the resilience of education systems and the potential of e-learning platforms to create a positive impact, even during the most challenging of times.



  
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**Email from Acedge**

Fwd: Association for the Elective between ACEDGE and BVCOA



**Ritu Deshmukh**  
to me

PDF View Add to Favorites Print Close

----- Forwarded message -----  
From: **Sonam Ambe** <sonam@acedge.com>  
Date: Wed, May 13, 2020, 7:47 AM  
Subject: Association for the Elective between ACEDGE and BVCOA  
To: Ritu Deshmukh <ritudeshmukh@bharati.com>

Dear Ritu,

We thank BVCOA for approaching ACEDGE to facilitate Online lectures and Design workshops for your students. We formally accept the association and would request you to approve of the scope of work as mentioned in the PDF attached.

Please reply to this email after reading the document for a formal confirmation.

Warm regards,

**Sonam Ambe**  
B. Arch. Sr.J. College of Architecture, M.Phil(Gold), Institute Silver Medal 2013, IIT Bombay  
Executive, ACEDGE  
Content and Course Developer  
+91 9821057626

On behalf of ACEDGE



  
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? *ethos* !!  
www.ethos.in



## E-Learning and Engagements

**An association between ACEDGE &  
BVCOA for Courses and Design  
Workshops**

8.05.2020



  
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## Background:

BVCOA approached ACEDGE to facilitate Online courses, electives and Design workshops for their students. ACEDGE and BVCOA joined hands and decided the following scope of work and payment schedule.

## ACEDGE's Scope of work

1. Create landing pages for enrollment for 9 course electives and 2 design workshops.
2. Create payment portal, coupon code for enrollment.
3. Share lectures from ACEDGE backend relevant to BVCOA's studio profile
4. Invite speakers along with BVCOA as guest speakers for the course electives
5. On suggestion of BVCOA, ACEDGE will make payment to speakers invited by ACEDGE at Rs 2000/- per talk with a maximum of 5 speakers per course elective. Any additional fee will be paid by BVCOA to the speaker if they recommend higher honorarium.
6. Upload recording in the dashboard as the faculty shares the same
7. Share progress report as sought by the faculty
8. Only host sessions with guest speakers and upload the recording on the Dashboard

## BVCOA's Scope of work

1. Curate the course elective, select the speakers, share details for invitation
2. Appoint a webinar coordinator to communicate with ACEDGE coordinator
3. Conduct the course elective on personal Zoom and share the recording through the drive for ACEDGE to upload. ACEDGE will host the lectures with guest speakers.
4. Record and note student attendance for every session
5. Invite speakers for short trials one day before the live session
6. Connect with speakers to discuss the pedagogical strategies

## FEEES

ACEDGE will charge a lump sum of Rs 2,50,000 for this association. Additional taxes to be considered. Students will pay at Rs 1180/- per enrollment or they can choose to pay at college. ACEDGE will collate the total amount received from direct payment and deduct the same from the total fee. We will raise an invoice of the balance amount.

**ACEDGE**  
AN ETHOS OF LEARNING



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## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2020-21**

**Course 1- Certificate Course on Architectural Thinking, Representation and Narration**



  
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An initiative by:  
Bharati Vidyapeeth College of Architecture,  
Navi Mumbai  
In Collaboration with ACEDGE

online  
**Course**  
on  
Architectural  
thinking  
representation  
narration

duration : 18th may - 3rd June

let us  
**defeat**  
corona virus

co-ordinators :



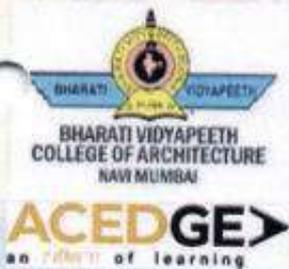
**shomika sarkar**  
Asst. Professor,  
M/Arch theory and design



**sinduree iyengar**  
Asst. Professor,  
PGDM NICMAR, M.A. Sociology



**ashwini bapat**  
Asst. Professor,  
M/Arch theory and design



  
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Report on online course

**'Architectural Thinking, Representation and Narration'**

Duration - 18<sup>th</sup> May to 3<sup>rd</sup> June 2020

Timing - 2:00 pm to 4:30 pm

Course coordinators- Ar. Shomika Sarkar, Asst. Prof.

Ar. Ashwini Bapat, Asst. Prof.

Ar. Sindhuree Iyengar

Number of students participated: 38

The course "Architecture Thinking, Representation, and Narration" that was conducted during May 2020, aimed to provide students with a deep understanding of architectural design thinking, visual representation techniques, and the power of narrative in architectural communication.

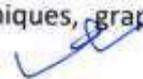
**Course Overview:**

The course "Architecture Thinking, Representation, and Narration" was designed as a 13 day program for 2<sup>nd</sup> and 3<sup>rd</sup> year students pursuing studies in architecture. The primary objectives of the course was to develop students' critical thinking skills, enhance their proficiency in various architectural representation methods, and explore the role of storytelling in communicating architectural concepts.

**Course Structure:**

The course was structured into 8 modules each focusing on a specific aspect of architectural thinking, representation, and narration. The modules included topics such as architectural design thinking, spatial representation techniques, graphic



  
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design principles, narrative techniques, and creativity in architectural design. The course content was delivered through a combination of lectures, interactive discussions, hands-on exercises, and design assignments

**Outcomes and Achievements:**

Throughout the course, the students demonstrated commendable growth and development in their understanding and application of architectural thinking, representation, and narration.

The following outcomes were observed:

- **Conceptual Thinking:** Students displayed an enhanced ability to think critically and approach architectural design problems from multiple perspectives. They developed a creative mindset and demonstrated an improved understanding of design thinking principles.
- **Proficiency in Representation:** The students acquired proficiency in various forms of architectural representation, including drawings, diagrams, models, and digital media. Their skills in visual communication were evident through their thoughtfully crafted and visually engaging design presentations.
- **Narrative Skills:** Students explored the power of narrative in architectural communication and effectively incorporated storytelling techniques. They demonstrated an understanding of the sociocultural and contextual dimensions of architectural narratives.
- **Collaborative Skills:** The students actively participated in group discussions, critiques, and collaborative assignments. They effectively communicated and integrated diverse perspectives, fostering a culture of teamwork and interdisciplinary collaboration.
- **Creative Problem-Solving:** Students embraced creativity and imagination in their architectural design processes. They approached the challenges and assignments with innovative solutions and demonstrated an ability to think beyond conventional boundaries.
- **Professional Growth:** Throughout the course, students exhibited a heightened level of professionalism in their work. They developed presentation skills,



  
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received and provided constructive feedback, and showcased a strong work ethic in meeting submission deadlines.

**Student Feedback:**

Student feedback regarding the online course was largely positive. The interactive nature of the online lectures and design assignments facilitated a stimulating learning environment. Students appreciated the approach of the course content and the relevance of the skills acquired for future architectural practices

**Recommendations for Future Enhancements**

1. Incorporate more live case studies to further illustrate the application of architectural thinking, representation, and narration
2. Provide additional resources and references, including books, articles, and online platforms, to support students' further exploration of the subject matter.
3. Organize more guest lectures by industry professionals or practitioners who can share their experiences and insights on architectural representation and storytelling. d. Encourage students to engage in field visits or participate in architectural events to gain practical exposure to diverse architectural narratives and representation techniques.

**Conclusion:**

The course "Architecture Thinking, Representation, and Narration" has proven to be an engaging and valuable learning experience for students. It has successfully equipped them with essential skills in critical thinking, visual representation, and storytelling, which are crucial for effective architectural communication. The online course has received positive feedback from students, demonstrating its relevance and impact on their educational journey.



  
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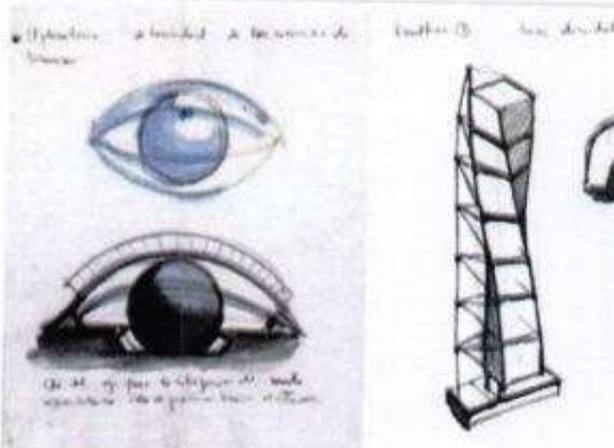
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Press **Esc** to exit full screen

## Santiago Calatrava



ARCHITECTURE THINKING REPRESENTATION AND NARRATION BYCOA,  
MAR 2022 - ASHWINI BANSI

4:04

shomika

Ruchita Patil

Bhupesh Khade



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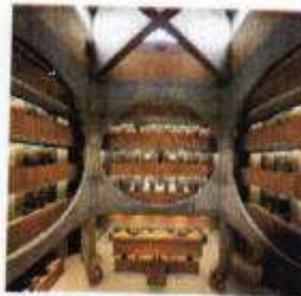
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Students Outcome:



### THREE LUMINESCENT DONUTS

The Phillips Exeter Academy Library was commissioned to Architect Louis Kahn in the year 1965, and opened in the year 1971. The building speaks volumes about Kahn's architectural philosophy, that is to create an unpretentious, yet handsome space that gives itself to light and silence, that is not only used as an utility but is "felt". The building has an almost cubical exterior (4 brick plate-walls) that encloses three spaces, or as he put it, "buildings inside buildings". Kahn called these circular spaces "doughnuts", where the outer one housed the reading carrels, the middle doughnut acted as the heavy books stack, and the inner circular space became an atrium, almost sacred, like a sanctuary. The idea was to create a sanctum sanctorum of knowledge, bathed by light and in the words of Kahn, "darkless" silence. He compared the Library to the Acropolis, in a way explaining its importance and sanctity. The heat and lighting systems of the building were almost natural and organic, a perfect example of coexisting with natural resource, rather than exploitation and usage of artificial (and often expensive, as well as unsustainable) alternatives. The usage of Light as a principle or architecture was perfectly achieved by Kahn, and as he rightly put it in his beautiful words, "As soon as I see a plan which tries to sell me spaces without light, I simply reject it with such ease, because I know that it is wrong"



  
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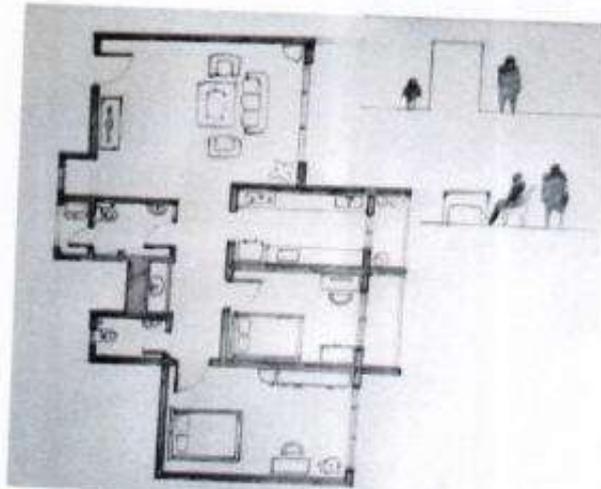
Founder :  
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**Prof. Satish Dhale**  
(G.D.DID, P.G.DID, IIA, M.Sc.ID, M.Arch)

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Example 1



Example 2



Example 3



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**ACADEMIC YEAR: 2020 - 2021**

**This Certificate is awarded to**

*Sahoo Shakti*

in recognition of their successful completion of  
**"Architectural Thinking, Representation and Narration"**

conducted from

**18th May 2020 - 3rd June 2020**

at

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



  
**Prof. Ritu Deshmukh**  
**Principal**



  
**Principal**  
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**ACADEMIC YEAR: 2020 - 2021**

**This Certificate is awarded to**

*Tandon Khushi*

in recognition of their successful completion of  
**"Architectural Thinking, Representation and Narration"**

conducted from

**18th May 2020 - 3rd June 2020**

at

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*R. Deshmukh*

**Prof. Ritu Deshmukh  
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## 1.2 Academic Flexibility

1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years

AY 2020-21

Course 2- Certificate Course on **Conception and Perception of Space- Elements of Space-making**



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Online

Course  
on  
**Elements of  
Space Making &  
Spatial Narratives**

duration : 16th may- 30th may  
web platform :

### what is it about?

Architecture is easy to understand when we simply break down the space in elemental form and try to understand the attributes of each of these elements, be it tangible or intangible, through their spatial properties. And quality architecture is the balanced composition of these elements. The composition further evokes emotions, gives ideas, creates mystery and amuses, thus making the architecture experiential. The workshop would deal with the understanding of these elements through their organization, embellishment and many other qualities with the help of various case studies. The workshop will also help the students articulate narratives which will further help bridge the gap between conception and perception.

#### webinar co-ordinators :



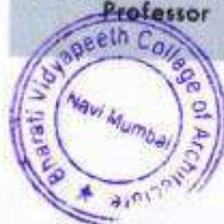
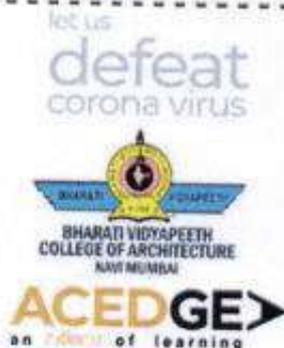
Ar. Kamakshi Vaidya  
Professor



Ar. Shradha Kapadia  
Asso. Professor



Ar. Mayuri Deshmukh  
Asst. Professor



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## Report on the Online Course

### "Conception and Perception of Space"

#### Course Details:

**Course Name:** Conception and Perception of Space

#### Course Coordinators:

**Ar. Kamakshi Vaidya, Prof., BVCOA**

**Ar. Shraddha Kapadia, Asso. Prof., BVCOA**

**Ar. Mayuri Deshmukh, Asst. Prof., BVCOA**

**Duration:** 16th May 2020 to 30th May 2020

**Timing -** 2:00 pm to 4:30 pm

**No. of students participated - 21**

#### Introduction:

The online course "Conception and Perception of Space" was offered by the Department of Architecture during May 2020. The primary objective of the course was to provide students with a deep understanding of the conception and perception of space, as well as the essential elements involved in creating meaningful and transformative architectural environments. This report aims to evaluate the effectiveness and outcomes of the online course.

#### Course Content and Structure:

The course covered a wide range of topics, including the theoretical foundations of spatial perception, the influence of cultural and social factors on space, the role of sensory perception in architecture, through deciphering the key elements of space making. The content was well-organized and delivered through a combination of lectures, discussions, online case studies, and assignments on online (zoom) platform. The course structure effectively facilitated the progressive learning and integration of concepts.

**Teaching Methodology:** The coordinators employed various teaching methodologies to engage the students and promote active learning. These included interactive lectures, group discussions, exercises that involved model making and guest lectures by experts in the field. The coordinators encouraged critical thinking, creativity, and reflection, fostering a conducive learning environment.



  
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## Learning Outcomes:

Based on the assessment of student performance and feedback, the course has achieved the following learning outcomes:

- **Understanding of Spatial Perception:** Students developed a comprehensive understanding of the factors influencing spatial perception, including philosophical, cultural, and sensory aspects. They were able to analyze and interpret how one perceives and experiences architectural spaces.
- **Critical Thinking and Analysis:** The course encouraged students to think critically about the relationship between space and perception. They demonstrated the ability to analyze existing architectural spaces, evaluate their effectiveness, and propose design interventions based on a deep understanding of human experiences and needs.
- **Communication and Presentation Skills:** Through various individual assignments, students enhanced their communication and presentation skills, effectively articulating their design concepts and ideas. They demonstrated proficiency in visually communicating spatial experiences through drawings, diagrams, and models.

## Feedback and Suggestions:

The course received positive feedback from the students, who appreciated the relevance and applicability of the content. However, certain areas for improvement were identified, including:

- Incorporating live case studies on the lockdown opens and real-world examples to further illustrate the concepts discussed.
- Providing additional opportunities for hands-on exercises post lockdown
- Ensuring a balance between theoretical concepts and practical design exercises throughout the course.
- Encouraging more student interaction and peer-to-peer learning through collaborative projects and group discussions.

## Conclusion:

In conclusion, the online course "Conception and Perception of Space" effectively provided students with a strong foundation in understanding and designing architectural spaces through deciphering the elements of space-making. The content, teaching methodology, and learning outcomes were aligned with the course objectives. The feedback and suggestions will be taken into consideration for future iterations of the online course to enhance the overall learning experience.



  
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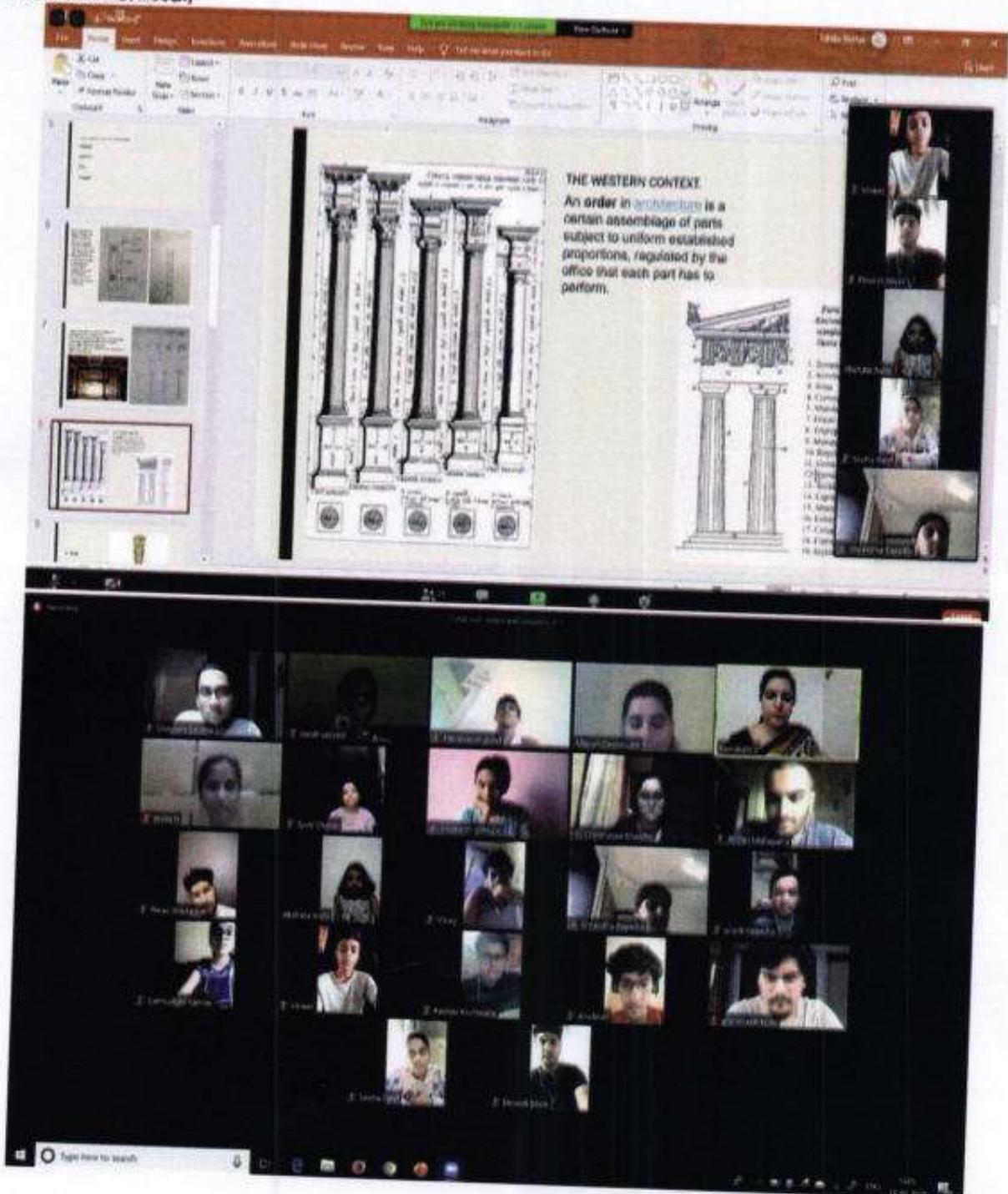
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**Students Outcomes:**

**1. Movie and elements interrelation**

**METROPOLIS (1927)**



**1. Floor**

Datum & Reference - Keeping the floor as datum and so in reference to that there are floors above the datum.

Attributes- Horizontality, Supports & Stability ( As it gives support to floors above it and stability to whole structure.)

**1. Walls**

Walls for enclosing the volume, Walls for subdivision of space.

Attributes- Verticality.

**2. Vernacular Architecture elemental study**



  
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Naga Tribe are hill dwellers and their settlements are highly inaccessible as they are located on hill slopes or the highest possible point along a hill slope.

They usually make the land flat and build their houses.

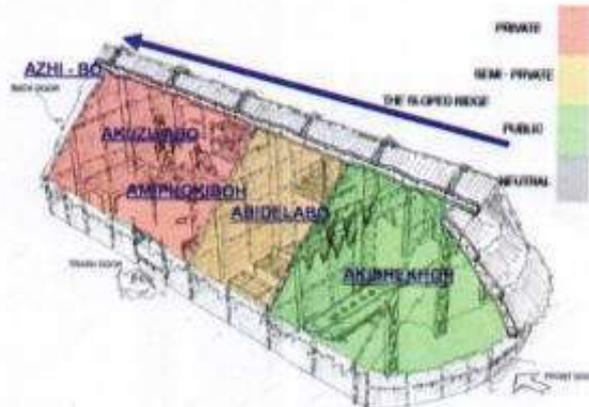
The typical Naga house is an elongated rectangular plan, a short length forming the side.

The houses traditionally faces eastern direction.



5. THE AZHI BO - 'Azhi' liquor, 'Bo' room

This room is located right at the back of the house. Rice beer is stored in the liquor room. At the back of the house is a backdoor which usually leads to small kitchen garden.



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## FLOOR AS MOVEMENT GUIDE



This example is of Mughal Gardens. In this example we can clearly see that the arrangement of green grass & paved area helps for movement.

It clearly demarcates the path to walk on.



The other example is of lounge in modern era.

As we can see the floor, the change in flooring material demarcates the and governs the movement in the space

## FLOOR AS THRESHOLD



In this example of floor as threshold we can see typical Japanese interior using tatami mats.

The floor has level difference. And this creates a threshold.



The other example of modern era house interior having same level difference. Dividing dining area with other area by level way of creating a threshold using level difference.



  
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## DATUM & REFERENCE

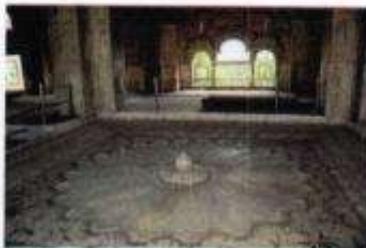


In this example of Delphi, Greece we can see that keeping the real ground as datum the plinth is risen in multiple steps. And keeping the real ground as reference point the other levels are being measured.

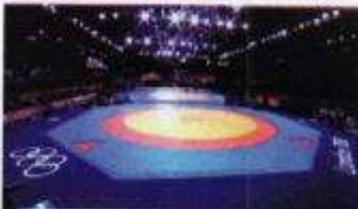


In the other example of Nehru Pavilion, Delhi we can see that keeping a flat surface as datum all the other surfaces are measure in reference to it, either other surfaces are above the datum or below it.

## FLOOR FOR DEFINITION OF SPACE



In this example of Red fort, Delhi we can see that carving of lotus on the marble floor defines the space.



In this example of Wrestling mat we can see that colours on the floor define the space in which wrestling should be carried out.



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**ACADEMIC YEAR: 2020 - 2021**

**This Certificate is awarded to**

*Saxena Shriyans*

**in recognition of their successful completion of  
Conception and Perception of Space**

**conducted from**

**16th May 2020 - 30th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*  
**Prof. Ritu Deshmukh  
Principal**

*[Signature]*  
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**16th May 2020 - 30th May 2020**

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## 1.2 Academic Flexibility

1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years

AY 2020-21

Course 3- Certificate Course on Disaster Relief Shelters



  
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Online

# Course on **disaster relief shelters**

duration: 16<sup>th</sup> may- 30<sup>th</sup> may

let us  
**defeat**  
corona virus

course  
co-ordinator



**ACEDGE**  
an *avenue* of learning



**Suvarna Thakare**  
Assistant Professor



**Tejaswini HM**  
Associate Professor



**Priyanka Tripathi**  
Assistant Professor



  
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Report on  
**'Disaster Relief Shelters'**  
Online Course  
Duration - 16<sup>th</sup> May to 30<sup>th</sup> May 2020  
Timing - 12:30 pm to 3:00 pm

Course coordinators- Ar. Tejaswini H.M., Asso. Prof.  
Ar. Priyanka Sinha, Asso. Prof.  
Ar. Suvarna Thakare, Asst. Prof.

**Number of students participated: 15**

Report on the course "Disaster Relief Shelters" offered during the May 2020 aims to provide an overview of the course, highlight its outcomes and offer recommendations for further improvements.

**Course Overview:**

The course "Disaster Relief Shelters" was designed to educate students about the principles, strategies, and challenges involved in the design and implementation of shelters for disaster-affected populations. The course addressed various aspects, including shelter design principles, materials and construction techniques, site planning, cultural considerations, and sustainability.

**Outcomes:**

- The course successfully introduced students to the fundamental concepts and theories related to disaster relief shelters. Students gained a comprehensive understanding of the unique needs and constraints in providing shelter to affected communities.
- Students acquired knowledge of different shelter typologies during different disasters and design approaches, including transitional shelters, emergency shelters, and long-term housing solutions. They explored various online case studies of successful shelter projects implemented in real-world disaster scenarios.
- The course fostered critical thinking and problem-solving skills by engaging students in group discussions, and assignments.
- The incorporation of online case studies, guest lectures by experts, and engagement with relevant stakeholders enriched their learning experience.



  
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e. Students developed an understanding of the importance of sustainable and resilient shelter design, considering environmental impact, resource efficiency, and community empowerment.

**Student Feedback:**

Student feedback regarding the online course was overwhelmingly positive. They want to explore the practical and applied nature of the course content which was difficult due to the online medium. But, the opportunity to engage industry experts, was greatly appreciated. Students highlighted the relevance and significance of the course in addressing the urgent need for well-designed and efficient disaster relief shelters.

**Recommendations for Future Enhancements:**

1. Organize workshops or practical sessions to allow students to gain hands-on experience with shelter construction techniques and materials.
2. Incorporate more case studies and best practices from a variety of disaster scenarios in India, to expose students to diverse design solutions and cultural considerations.
3. Establish partnerships with local disaster response organizations or non-governmental organizations to provide students with opportunities for practical engagement and internships.
4. Encourage students to contribute to research projects or engage in community outreach initiatives related to disaster relief shelter design.

**Conclusion:**

The online course "Disaster Relief Shelters" has successfully equipped students with the knowledge, skills, and sensitivity required to address the urgent shelter needs of disaster-affected communities. The positive feedback from students reflects the course's relevance and impact on their educational and professional development.



  
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**Students outcome:**



**↑ DESIGN OF DISASTER RELIEF SHELTER ↓**

THE FRAME WORK IS MADE OF PVC PIPES, AND ARE BOLTED TO EACH. THE PANELS ARE PLASTIC PRECAST SHEETS THAT NEEDS TO BOLTED ON SITE. THE COLLASIBLE SHEETS CAN BE OPENED AND CLOSED WHENEVER REQUIRED.

REKSHA SURESH  
3<sup>RD</sup> YEAR

**DESIGN OF DISASTER RELIEF SHELTER.**

An interesting and a unique paper folding technique which enabled me to design a quick and a viable prototype as a 'Disaster relief shelter'.

**Design Issues:**

Typical layout of a shelter + Curved roof to drain water

**Final Prototype**

**Features:**

- Small openings for ventilations.
- Water channel for rain water.
- Human figures for scale.

A Prototype is prepared for an earthquake prone region (say, Krungkyr) using locally available materials and traditional methods to go to offer them a transitional shelter during disaster period.

**Stage I:** Setting up Primary Framework

**Stage II:** Covering the Framework with Durable leaves.

**Stage I:** Setting up base

**Stage II:** Setting up Secondary Framework

**Stage I:** Covering with Mud Bricks

**Model Shows**

(Week Year - 1)



  
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### DISASTER RELIEF SHELTER



**TSUNAMI PRONE COUNTRIES**



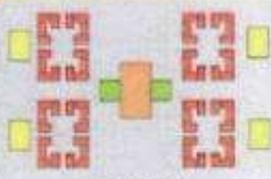
**TSUNAMI PRONE AREA IN INDIA**

**HOW TSUNAMI OCCURS ?**

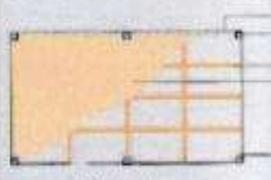
TSUNAMI IS A SERIES OF OCEAN WAVES WITH VERY LONG WAVELENGTH CAUSED BY LARGE SCALE DISTURBANCES OF THE OCEAN SUCH AS:

- EARTHQUAKE
- LANDSLIDE
- VOLCANIC ERUPTION
- EXPLOSIONS

**AIM:** IN ORDER TO PROVIDE TEMPORARY SHELTER TO PEOPLE AFFECTED DURING DISASTER.



**SITE PLAN**



**PLAN**



**FRONT ELEVATION**



**BACK ELEVATION**

**DISASTER RELIEF REQUIREMENT**



**OBJECTIVE**

- RECYCLE
- COST EFFECTIVE
- LIGHTWEIGHT
- WATERPROOF

**MATERIAL**

- ALUMINIUM
- COMPOSITE FIBRE REINFORCED PLASTIC
- WOODEN PANELS

**DETAIL AT A**



**PLINTH TO COLUMN CONNECTION**

**DETAIL AT B**



**COLUMN TO COLUMN CONNECTION**

**DETAIL AT C**



**BEAM TO COLUMN CONNECTION**

**DETAIL AT D**



**360 DEGREE LOUVER**



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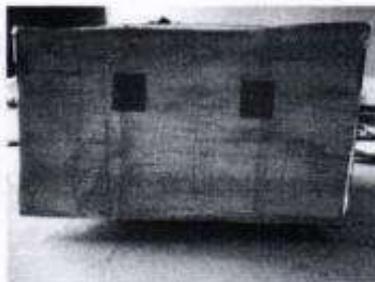
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**conducted from**

**16th May 2020 - 30th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
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*[Signature]*

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## 1.2 Academic Flexibility

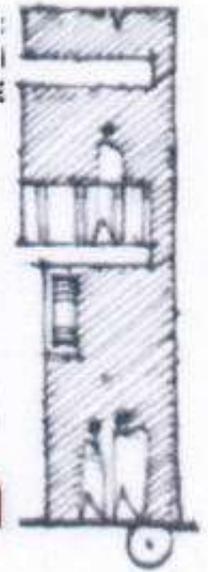
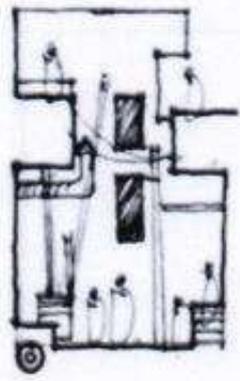
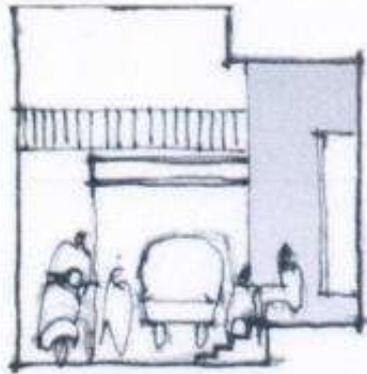
**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2020-21**

**Course 4- Certificate Course on Habitation Aaj Kal**



  
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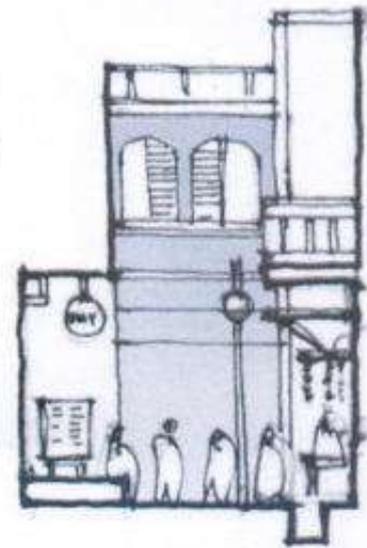


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Online  
**Course**  
 on  
**habitation**

**आज.... कल**  
 the future of today's habitats

duration : 11th may-29th may



let us  
**defeat**  
 corona virus



co-ordinators :



**nikhil shah**  
 urban designer/assistant prof.



**pritam dey**  
 urban designer/assistant prof.



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## Report on the Online Course

### Course Name: 'Habitation Aaj Kal'

#### Course Coordinators:

Ar. Pritam Dey, Asso. Prof., BVCOA, M- 9163890843

Ar. Nikhil Shah, Asst. Prof., BVCOA

**Course Duration: 11<sup>th</sup> May to 29<sup>th</sup> May 2020**

**Timing - 2:00 pm to 4:30 pm**

**No. Of students participated - 41**

#### Introduction:

The online course 'HabitationAaj Kal' was designed to provide students with a comprehensive understanding of the relationship between architecture, habitation, and the broader urban context. Throughout the duration of the course, students explored the principles of urban design, sustainable habitation, and community engagement. This report summarizes the key components, achievements, and feedback from students regarding the course.

**Course Structure and Content:** The course spanned from 11<sup>th</sup> May 2020 to 29<sup>th</sup> May 2020 consisting of different modules covering various aspects of habitation in urban environments. The modules included:

- Introduction to Habitation and the Urban Context:
  - Definition and significance of habitation within habitat, community, and city
  - Historical context and evolution of urban habitation
- Urban Design Principles for Livable Communities:
  - Principles of urban design and their application in creating sustainable and inclusive communities
  - Analysis of successful urban design projects and their impact on habitation
- Social and Cultural Dimensions of Habitation:
  - Socio-cultural influences on habitation within urban contexts
  - Community engagement and participatory design processes
- Environmental Sustainability in Urban Habitation:
  - Sustainable design strategies for urban habitats



  
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- Energy-efficient building systems, water management, and integration of green spaces
- Case Studies: Successful Urban Habitation Projects:
  - Analysis of exemplary urban habitation projects from around the world
  - Evaluation of their design principles, community integration, and sustainability features
- Urban Planning and Policy:
  - Overview of urban planning principles and regulations
  - Examination of case studies on successful urban planning and policy interventions

**Assessment and Student Feedback:**

The course assessments consisted of class participation, individual and group assignments, interim project presentations, and a final comprehensive project presentation. The students actively participated in class discussions, engaged in assignments, and demonstrated a deep understanding of the subject matter.

The feedback received from students was overwhelmingly positive. They appreciated the course's interdisciplinary approach, which enabled them to grasp the complex relationship between architecture, habitation, and the urban environment. The assignments provided an opportunity for students to apply their knowledge and skills in a use, fostering creativity and critical thinking. The integration of case studies and real-world examples enhanced their understanding of sustainable and community-oriented design practices.

Students also expressed their appreciation for the faculty's guidance and support throughout the course. They valued the interactive nature of the classes, which encouraged collaboration and the exchange of ideas. The use of visual presentations aided in effective communication of their presentation.

**Conclusion:** The course 'HabitationAaj Kal' successfully achieved its objectives of providing students with a comprehensive understanding of the role of architecture in creating sustainable and livable habitats within urban contexts. The course structure, content, and assessments were well-received by the students, fostering their knowledge, skills, and passion for



  
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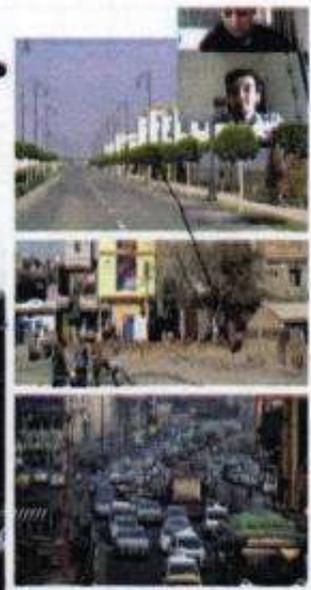
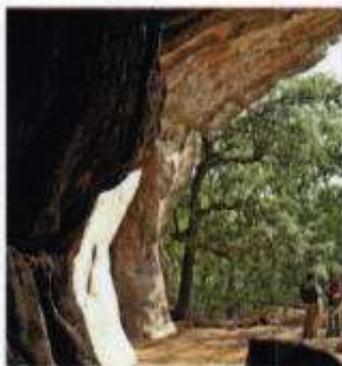
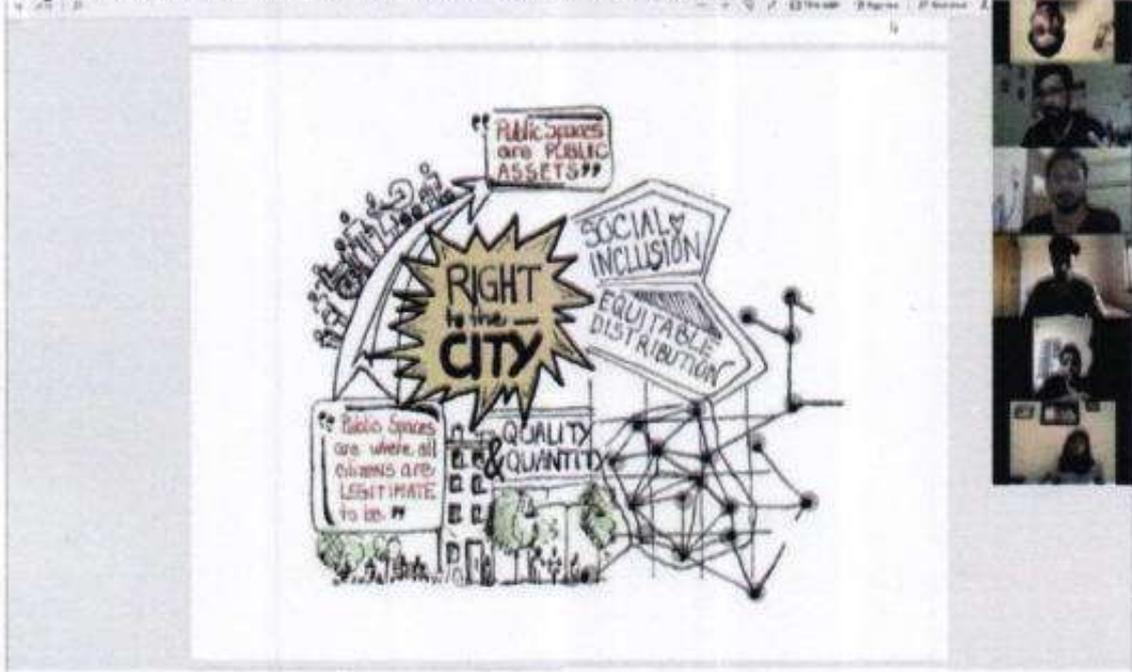
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community-oriented and environmentally responsible design. The faculty is pleased with the outcome of the course and will continue to refine and improve it based on the valuable feedback received.



  
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**Students Outcomes:**



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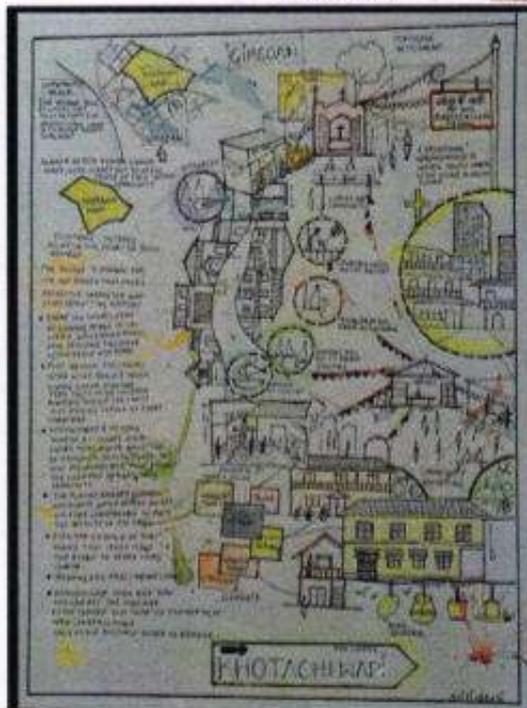
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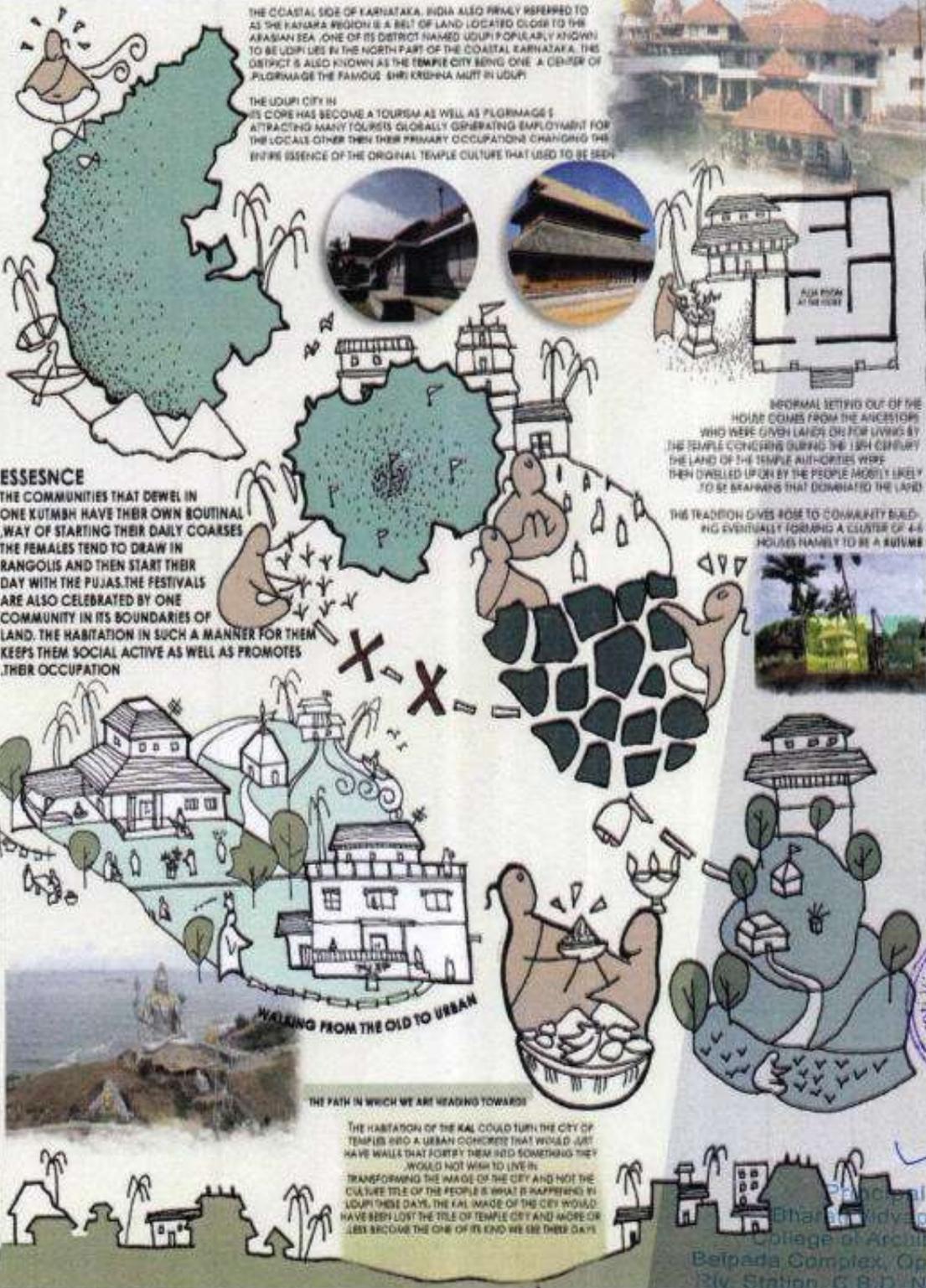
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**HABITATION AAJ KAL.....UDUPI CITY, KARNATAKA**



THE COASTAL SIDE OF KARNATAKA, INDIA ALSO REFERRED TO AS THE KANARA REGION IS A BELT OF LAND LOCATED CLOSE TO THE ARABIAN SEA. ONE OF ITS DISTRICT NAMED UDUPI POPULARLY KNOWN TO BE UDUPI LIES IN THE NORTH PART OF THE COASTAL KARNATAKA. THE DISTRICT IS ALSO KNOWN AS THE TEMPLE CITY BEING ONE A CENTER OF PILGRIMAGE THE FAMOUS SHRI KRISHNA MURT IN UDUPI.

THE UDUPI CITY IN ITS CORE HAS BECOME A TOURISM AS WELL AS PILGRIMAGE S ATTRACTING MANY TOURISTS GLOBALLY GENERATING EMPLOYMENT FOR THE LOCALS OTHER THEN THEIR PRIMARY OCCUPATIONS CHANGING THE ENTIRE ESSENCE OF THE ORIGINAL TEMPLE CULTURE THAT USED TO BE SEEN.

INFORMAL SETTING OUT OF THE HOUSE COMES FROM THE ANCESTORS WHO WERE GIVEN LANDS OR FOR LIVING BY THE TEMPLE CONCERNING DURING THE 15TH CENTURY THE LAND OF THE TEMPLE AUTHORITIES WERE THEN DWELLED UPON BY THE PEOPLE MOSTLY LIKELY TO BE BRAHMINS THAT DOMINATED THE LAND.

THE TRADITION GIVES ROOM TO COMMUNITY BUILDING EVENTUALLY FORMING A CLUSTER OF 4-6 HOUSES NAMELY TO BE A KUTUMB.

ESSENCE  
 THE COMMUNITIES THAT DWEL IN ONE KUTUMB HAVE THEIR OWN ROUTINAL WAY OF STARTING THEIR DAILY COARSE THE FEMALES TEND TO DRAW IN RANGOLIS AND THEN START THEIR DAY WITH THE PUJAS. THE FESTIVALS ARE ALSO CELEBRATED BY ONE COMMUNITY IN ITS BOUNDARIES OF LAND. THE HABITATION IN SUCH A MANNER FOR THEM KEEPS THEM SOCIAL ACTIVE AS WELL AS PROMOTES THEIR OCCUPATION.

WALKING FROM THE OLD TO URBAN

THE PATH IN WHICH WE ARE HEADING TOWARDS

THE HABITATION OF THE KAL COULD TURN THE CITY OF TEMPLES INTO A URBAN CONCRETE THAT WOULD JUST HAVE WALLS THAT FORGET THEM AND SOMETHING THEY WOULD NOT WISH TO LIVE IN. TRANSFORMING THE MAKE OF THE CITY AND NOT THE CULTURE TIRE OF THE PEOPLE IS WHAT IS HAPPENING IN UDUPI THESE DAYS. THE KAL MAKE OF THE CITY WOULD HAVE BEEN LOST THE TITLE OF TEMPLE CITY AND MORE OR LESS BECOME THE ONE OF ITS KIND WE SEE THESE DAYS.





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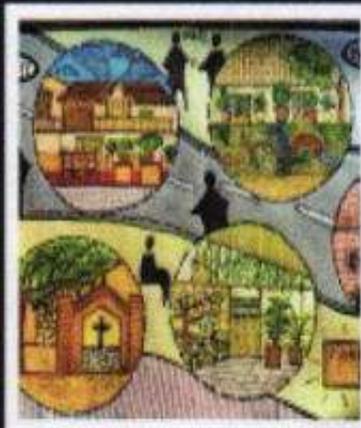
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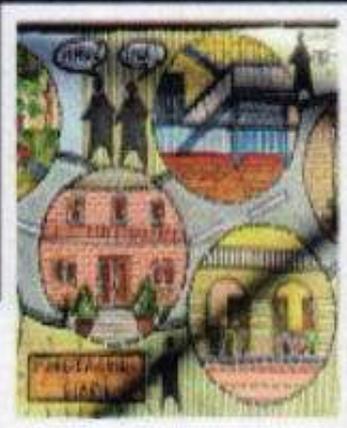
*Facades of Khotachiwadi..*

*The essence of houses that itself tells the story of the people living inside....*

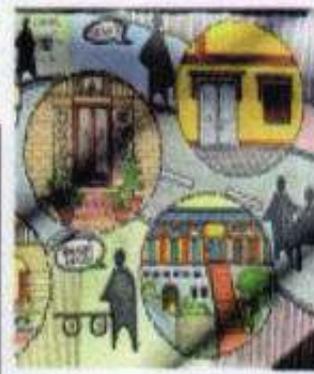


*Kahaniya...*

*The "village" is the small maze of Portuguese-style buildings originally home to Christian community. If you go in the afternoon you will be greeted by the smell of buns and green cuisine....*



*A man with a guitar. You will find an enchanting house with mosaic designs, a tiny fountain, plenty of flowers and splendid garden. Willy has a lot to say about his life stories and the lanes of Khotachiwadi.*



*As the sky changes colors, Khotachiwadi comes alive in many other colors. Children chase each other and village starts hopping with activities, yet a sense of serenity remains.*



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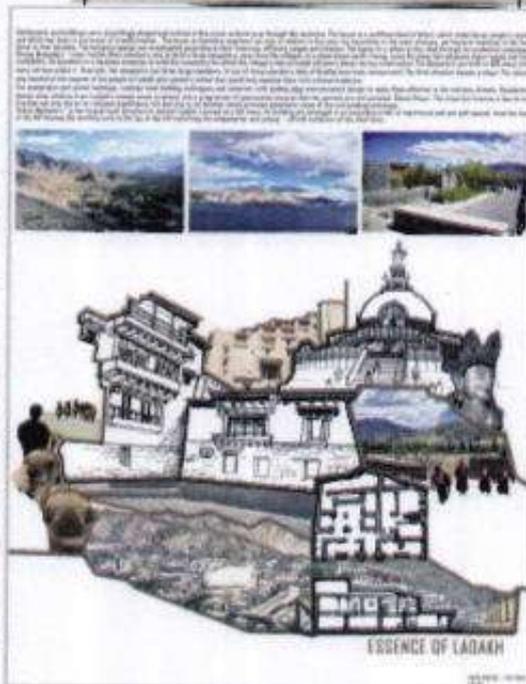
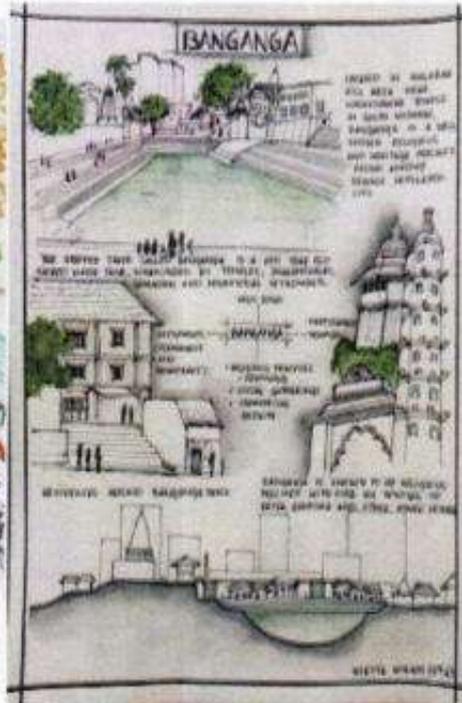
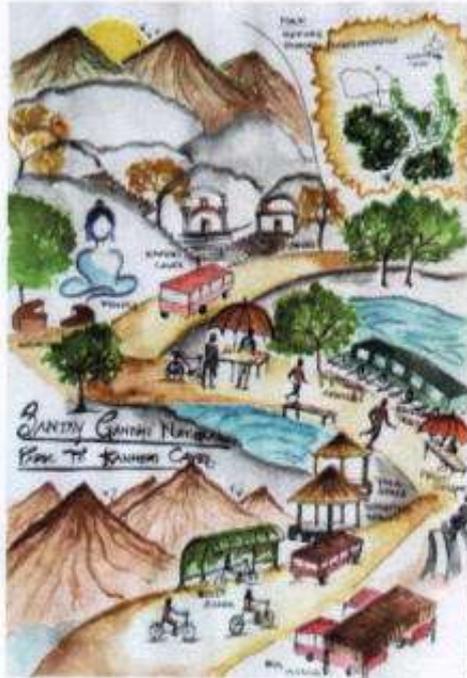
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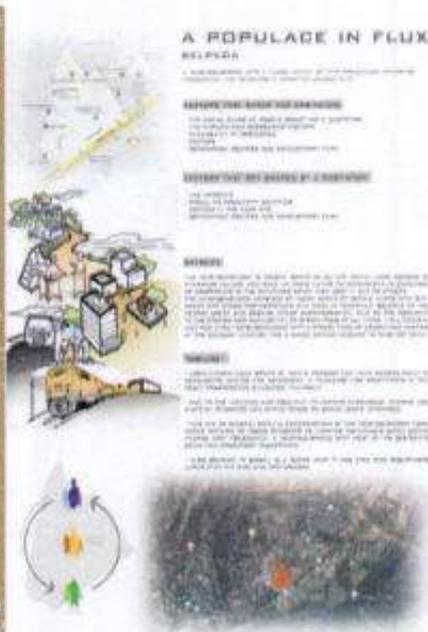
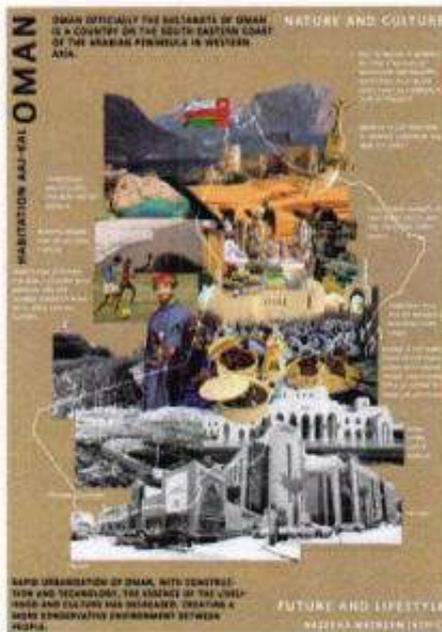
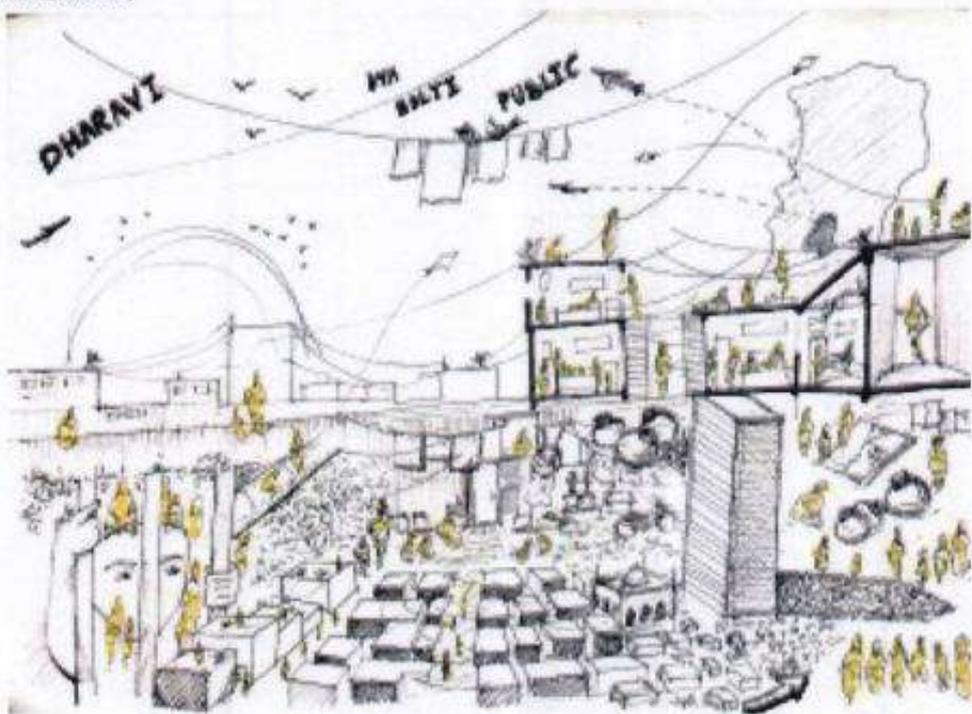
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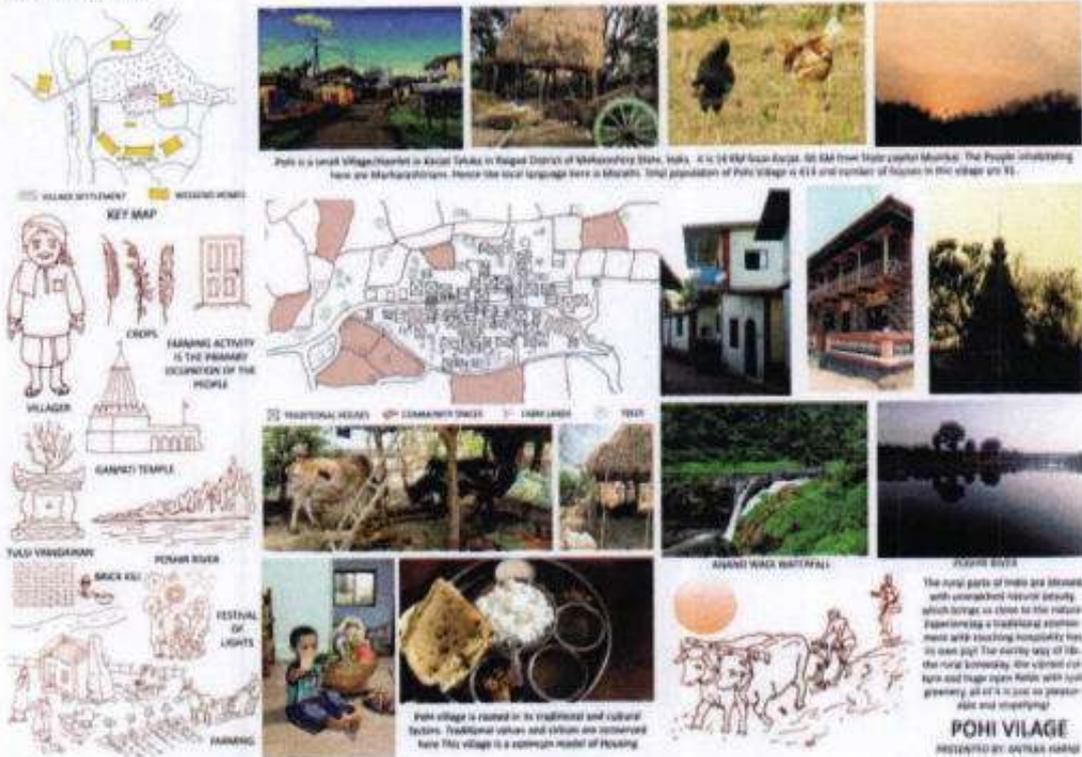
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Pohi is a small village/township in Koppal Taluka in Raichur District of Karnataka State, India. It is 14 KM from Raichur, 60 KM from Bangalore and 100 KM from Mysore. The people celebrating here are Marhattas/Kannadigas. Hence the local language here is Marathi. Total population of Pohi village is 418 and number of houses in the village are 85.

FARMING ACTIVITY IS THE PRIMARY OCCUPATION OF THE PEOPLE

POHI VILAGE  
 PRESENTED BY: SUTARAS GANAI



  
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**11th May 2020 - 29th May 2020**

**at**

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*Ritu Deshmukh*  
**Prof. Ritu Deshmukh  
Principal**

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*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
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## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2020-21**

**Course 5- Certificate Course on Impact of COVID-19 on Public Spaces**



  
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**Co-ordinators**



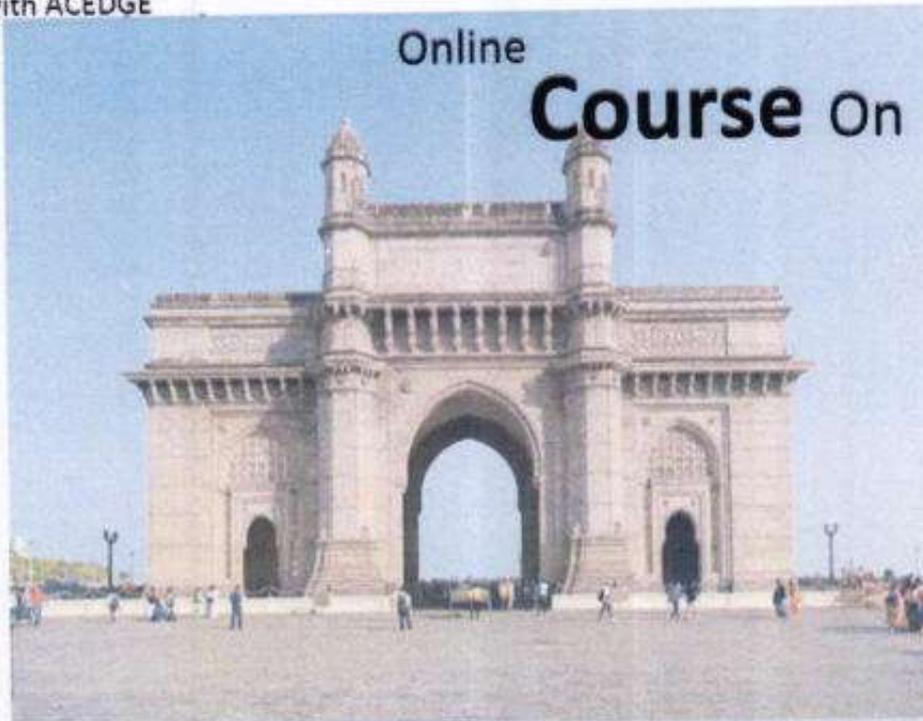
**Ruta Pawar**  
Associate Professor



**Harshada Katkar**  
Assistant Professor



**Neha Pradhan**  
Assistant Professor



**IMPACT OF  
COVID 19 ON  
PUBLIC SPACES**

Source: Shutterstock.com

**Duration : 11th may-29th may 2020**

let us  
**defeat**  
corona virus  
**ACEDGE**  
an *admit* of learning



  
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Report on the Online Course

**'Impact of COVID 19 on Public Spaces'**

**Course Coordinators:**

**Ar. Ruta Pawar**, Asso. Prof., BVCOA, M.-9850975517  
**Ar. Harshada Katkar**, Asst. Prof., BVCOA, M- 8380074745  
**Ar. Neha Pradhan**, Asst. Prof., BVCOA, M-9867906037

**Duration** - 11th May to 28th May 2020

**Timing** - 1:30pm - 4:00 pm

**No. of students participated** - 20

**Introduction:**

The course 'Impact of COVID-19 on Public Spaces' aimed to explore the profound effects of the pandemic on public spaces and the subsequent need for innovative design approaches. This report provides an overview of the course, highlights key components, and summarizes the achievements and feedback received from students.

**Course Structure and Content:** The course spanned 14 days from 11<sup>th</sup> May to 28<sup>th</sup> May 2020 and consisted of various modules designed to deepen students' understanding of the impact of COVID-19 on public spaces. The modules included:

- **Introduction to the Impact of COVID-19 on Public Spaces:**
  - Overview of the challenges and opportunities presented by the pandemic
  - Discussion on the role of design in adapting public spaces to ensure safety and functionality
- **Rethinking Public Space Design:**
  - Exploration of design strategies for accommodating social distancing and health guidelines
  - Analysis of case studies showcasing successful adaptations of public spaces during the pandemic
- **Psychological and Social Implications of Public Space Design:**
  - Examination of the importance of human interaction and well-being in public spaces
  - Integration of psychological and social considerations in the design process
- **Sustainable Design Strategies for Post-Pandemic Public Spaces:**
  - Discussion on sustainable design principles and their application in public spaces
  - Integration of nature and biophilic design elements to promote well-being and resilience



  
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### Assessment and Student Feedback:

The course assessments included active participation in online class discussions and group assignments, design project presentations. The students actively engaged in the course content, demonstrating a keen interest in understanding the impact of the pandemic on public spaces and the role of design in addressing the challenges.

The feedback received from students was overwhelmingly positive. They appreciated the timely nature of the course, as it provided them with insights into the transformation of public spaces during the ongoing pandemic. Students found the online case studies and examples particularly valuable in understanding the practical implications of adapting public spaces. The design studio assignment allowed them to apply the concepts learned and develop creative and innovative solutions.

Students also expressed their appreciation for the faculty's guidance and support throughout the course. They commended the interactive nature of the classes, which facilitated fruitful discussions and the exchange of ideas. The course materials and resources were found to be relevant and informative, providing a strong foundation for understanding the topic.

### Conclusion:

The online course 'Impact of COVID-19 on Public Spaces' effectively achieved its objectives of deepening students' understanding of the impact of the pandemic on public spaces and fostering innovative design thinking. The positive feedback from students indicates that the course provided valuable insights into the challenges and opportunities faced by architects and designers in adapting public spaces. The faculty is pleased with the outcome of the course and will continue to refine and update the curriculum to address the evolving nature of the pandemic and its impact on public spaces.



  
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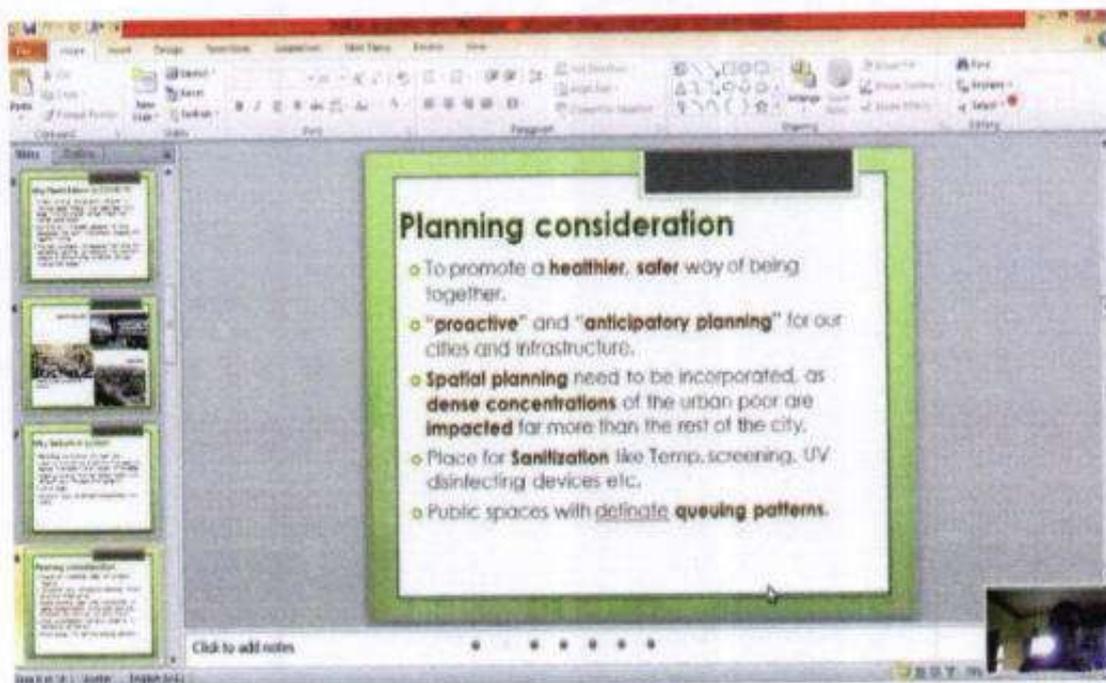
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**PROBLEM STATEMENT :**

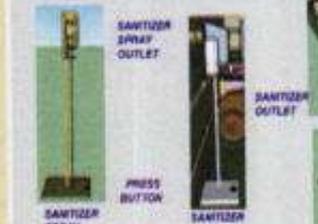
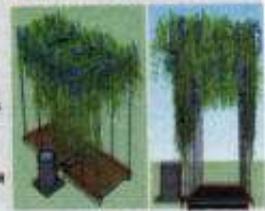
AS THE WORLD IS FACING THE CRISIS TODAY WE ARE ALL BOUND TO STAY HOME.  
 THE LOCKDOWN HAS BEEN MADE MANDATORY IN MANY NATIONS ACROSS THE GLOBE. VERY LESS EXPECTATIONS WITH RESPECT TO AN OUTDOOR LIFE.  
 LOCKDOWN HAS LED TO FRUSTRATION AND HELPLESSNESS AMONGST THE CITIZENS WHICH IS ALSO TAKING TOLL ON THEIR MENTAL HEALTH.  
 AS THERE IS FEAR OF OUTBREAK OF THE VIRUS IS CAUSING PEOPLE TO STAY INDOORS AVOIDING EVEN PARKS AND RECREATIONAL SPACES WITHIN THE SOCIETY.  
 THE FEAR OF THIS PANDEMIC IS NOT JUST AFFECTING ADULTS, BUT CHILDREN AND THE ELDERLY ARE EQUALLY PRONE TO IT AS THEY ARE MORE SUSCEPTIBLE TO THE INFECTION.  
 AS IT HAS ALREADY BEEN MORE THAN 80 DAYS OF LOCKDOWN IN THE NATION THE CITIZENS HAVE NOW STARTED TO VENTURE OUT TO GET OPEN AIR WHICH IS INCREASING THE RISK OF OUTBREAK OF THE VIRUS.  
 THE CONCEPT OF SOCIAL DISTANCING IS BEING VIOLATED BY BY BIT EVERYWHERE. HENCE IT IS ESSENTIAL TO PROVIDE OPEN SPACE WHICH ARE SAFE TO ACCESS BY PEOPLE OF ALL AGE GROUPS.

**PROBLEM SOLUTION :**

AS PER THE BY LAWS OF THE CITY IT IS MANDATORY TO PROVIDE CERTAIN PERCENTAGE OF THE PLOT AREA FOR GREEN OPEN SPACE OR RECREATIONAL PURPOSE.  
 THINKING ABOUT THE SOLUTION TO THIS, WE PROPOSE TO MAKE THE SOCIETY GARDENS FEASIBLE FOR MEMBERS, WHICH CAN BE ACCESSIBLE TO ALL THE AGE GROUPS. SO THAT PEOPLE CAN VENTURE OUT IN THE SOCIETY PARKS. THIS WILL REDUCE THE POSSIBILITY OF INFECTION FROM OUTSIDE ENTERING THE SOCIETY PREMISES.  
 SINCE WE CAN MAKE SOME MODIFICATIONS WITH DUE PRECAUTIONS, THE SOCIETY GARDENS CAN BE OPENED TO THE MEMBERS.  
 AS MENTIONED ABOVE, SOCIAL DISTANCING IS AN UTMOST IMPORTANT STEP WE NEED TO TAKE ALONG WITH PROPER SANITIZATION AND CLEANLINESS.  
 FOLLOWING THINGS CAN BE IMPLEMENTED IN THE SOCIETY PARKS:  
 1. PROVIDE SANITIZATION TUNNEL AT THE ENTRANCE.  
 2. SEATING IN STAGGERED MANNER TO MAINTAIN 6' SOCIAL DISTANCING.  
 3. PROVISION OF SANITIZATION STATIONS AND WASH BASINS AT STRATEGIC LOCATION.  
 4. FOR CHILDREN:  
 (i) SANITIZATION IN PLAYFUL AND INTERESTING WAY.  
 (ii) PROVISION OF OUTDOOR WOODEN DIVISIBLE ROOMS WITH CORNER COATING FOR PLAYING OF A CHILD IN ISOLATED AREA.  
 BY PROVIDING THESE SMALL INTERVENTIONS WE CAN MAKE OUR PARKS SAFER PLACE FOR ALL.

**OUR PROPOSAL IS TO CREATE AN ENTRANCE BY MERGING IT WITH THE SANITIZATION TUNNEL.**

PLASTIC DUTY BASIN  
 MADE FROM HEAVY DUTY PLASTIC FOR THE USE OF WASTE WATER OUTLET.  
 WOODEN PALLET  
 PALLET IS USED TO COVER THE BASIN.  
 SCAFFOLDING AND CONNECTOR ARE STRUCTURES USED TO SRECT AND TO HOLD THE ENTRANCE. MATERIAL USED IS STAINLESS STEEL.  
 WASHING DRUM POLYMER  
 BARREL DRUM POLYMER FOR STORING SANITIZER.  
 MANGROVE SPRINKLER  
 WITH THE HELP OF WATER PUMP PRESSURE CONTROLLER THE SANITIZER IS PUMPED TO THE MANGROVE SPRINKLER. THERE IS A MOTION SENSOR.  
 DRAINAGE PIPE  
 DRAINAGE PIPE WHICH CONNECTS THE PLASTIC DUTY BASIN WITH THE DRAINAGE SYSTEM.



OUTDOOR WOODEN DIVISIBLE ROOMS  
 ONLY ONE CHILD IN A SINGLE ROOM  
 SANITIZER PROVIDED IN EVERY ROOM  
 WILL SANITIZE BEFORE USING THE ROOM BY PRESSING SO THAT THERE IS NO RISK OF TOUCH SANITIZER SPRAY  
 ROOM IS PROVIDED WITH TOYS AND GAMES

OUTDOOR WOODEN DIVISIBLE ROOM



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**SOCIETY PARKS**

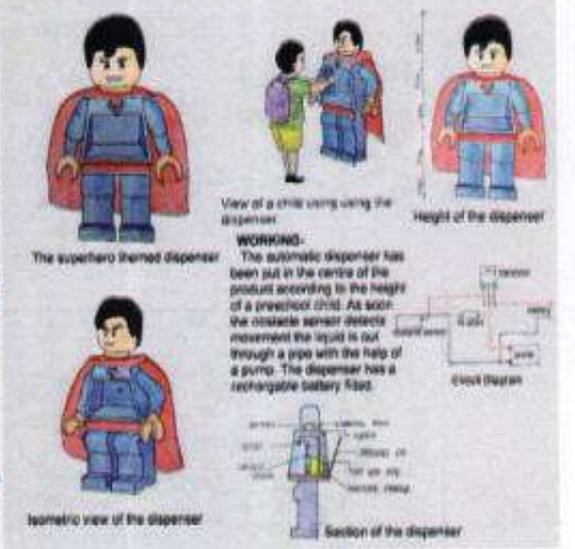
A PERFECT GATEWAY AMIDST THE LOCKDOWN

THE OBJECTIVE OF OUR PLAN IS TO MAKE A SAFE OUTDOOR SPACE ACCESSIBLE TO THE PUBLIC KEEPING IN MIND THE NEED TO THE HOUR

**Problem statement**  
 The outbreak of coronavirus disease (COVID-19) has been declared a public health emergency its important that communities take action to prevent further transmissio, reduce the impacts of the outbreak Education settings should continue to be welcoming, respectful, and supportive environments to all.  
 Today children and young people are global citizens, powerful agents of change and the next generation of caregivers, scientists, and doctors. The problem we are targeting is the kindergarten or preschool children. These beautiful little minds are very innocent, as they are not much aware about the virus. It is difficult for us to make them aware about how to take precautions regarding the sanitizing, as they are more prone than us, thus need to provide methods which are easily adaptable.

**Solution/ Idea**  
 The idea is to build a contactless sanitizer dispenser. The dispenser is contactless as to prevent touching it which will prevent the virus. It will spray alcohol based hand rub sanitizer for sanitization of hands while entering the school.  
 So now the challenge was as it is been installed in preschool, its difficult to teach them to sanitize there hands as they are capable of learning fast but understanding is less and difficult to spread the awarness about the same. The main purpose of creating an automatic dispenser for in the shape of superhero is solely that it interests them and they dont forget sanitizing and we could try to get children to use it considering it as a toy.  
**Requirements**  
 1. sanitizer unit 2. diaphragm pump 3. obstacle sensor 4. switch 5. circuit 6. Superhero shaped plastic body

**Solution/ Idea**



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**Superman: The germ killer**

The objective is to spread awarness among preschool children and gaining their interest.

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*Naik Gauri*

**in recognition of their successful completion of  
Impact of Covid - 19 on Public Spaces**

**conducted from**

**11th May 2020 - 28th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
Principal**

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**ACADEMIC YEAR: 2020 - 2021**

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*Nawar Purva*

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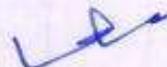
## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2020-21**

**Course 6- Certificate Course on Industrial Heritage of India**



  
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An initiative by:  
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In Collaboration with ACEDGE

Online  
**COURSE**  
on  
**Industrial  
heritage  
of  
India**

duration : 11th may-27th may

web platform :

Registration mandatory

## What is it about?

Industries introduced in India by the colonial rulers in the late-nineteenth century brought far-reaching changes to the manufacturing set-up of the country, in turn affecting the trade nationally and internationally. The transportation networks, especially railways, were developed to facilitate trade of raw materials from the hinterlands to the ports, so that they could feed the mills in England. These industries led to rapid urbanization in some Indian towns where they were situated and a dynamic culture of new social order developed.

Today, because of rapid changing of technology and de-industrialization, many of these industrial sites have been abandoned. Owing to their central locations, they are facing the effects of urban pressures and have become available for development. The workshop aims at understanding the values of these sites and ultimately the need to protect them.

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corona virus



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co-ordinators :



**Ajinkya Vekhande**  
Conservation architect/  
asst. prof.



**Astha Khare**  
Conservation architect/  
asst. prof.



**Madhura Naik**  
Digital architect/  
asst. prof.

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Date :

Report on online course  
**'Industrial Heritage of India'**

Duration: 11th May 2020 to 27th May 2020

**Course Coordinators: Ar. Ajinkya Vekhande, Ar. Astha Khare  
and Ar. Madhura Naik**

**Number of students participated - 10**

The report on the course titled "Industrial Heritage of India " provides an overview of the course, its objectives, implementation strategies, and outcomes.

**Course Overview:**

The course aimed to provide students with a deep understanding of India's industrial heritage and the concept of adaptive reuse for industrial buildings. It covered various aspects, including the historical significance of industrial sites, architectural features of industrial buildings, challenges and opportunities in adaptive reuse, sustainable design principles, stakeholder engagement, legal frameworks, and successful case studies.

**Implementation Strategies:**

**Curriculum Development:** A well-structured and comprehensive curriculum that encompassed theoretical knowledge, exercises, case studies. The curriculum was designed to ensure a balanced understanding of the subject matter and promote interactive learning.

**Expert Faculty:** We engaged experienced and knowledgeable faculty members who specialize in industrial heritage and adaptive reuse. They delivered lectures, facilitated discussions, and provided guidance to students throughout the course.

**Group Projects:** As part of the course, students were divided into groups and assigned practical exercises and projects. They were required to conduct assessments, feasibility studies, and propose interventions. This



  
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Date :

approach fostered critical thinking, problem-solving, and collaboration skills among the students.

**Outcomes and Achievements:** The course achieved the following outcomes:

**Enhanced Knowledge:** Students gained a comprehensive understanding of India's industrial heritage, architectural features of industrial buildings, and the concept of adaptive reuse. They acquired knowledge of sustainable design principles, community engagement strategies, and legal aspects related to heritage conservation.

**Practical Skills:** Through exercises and group projects, students developed skills in conducting assessments, feasibility studies, and designing. They learned how to balance heritage preservation, functionality, and aesthetics in their proposals.

**Critical Thinking and Analysis:** Students learned to critically analyze industrial heritage sites, evaluate their potential, and identify challenges and opportunities. They honed their analytical skills in assessing the social, economic, and environmental impacts of intervention.

**Collaboration and Communication:** The group projects and class discussions fostered teamwork, collaboration, and effective communication among the students. They learned to work together, exchange ideas, and present their proposals to their peers and faculty.

### **Recommendations:**

Based on the course implementation and student feedback, the following recommendations for future iterations of the course:

**Include more diverse case studies in offline mode:** Incorporate a broader range of national and international case studies to expose students to a wider variety of projects and approaches.



  
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**Guest Lectures and Industry Experts:** Invite more guest speakers from relevant fields, such as architects, conservationists, and heritage experts, to provide insights and share their experiences with the students.

**Field Trips and Practical Engagements:** Increase the number of site visits and practical engagements to expose students to a greater variety of industrial heritage sites and adaptive reuse projects.

### Conclusion:

Overall, the course on "Industrial Heritage of India" was successfully conducted, and it achieved its objectives of imparting knowledge, developing practical skills, and promoting critical thinking. The students' active participation, positive feedback, and final project outcomes reflect the effectiveness of the course.

### Students Outcomes:

#### The Celestial Pol Of Abundance The Al-Kawthar

The placement of the Taj Mahal is all in the proportion and the monument here the most the most thing that is done in the world.

On the point where the two water channels intersect, including the gateway into the complex.



Water channels are provided to each garden.

#### The dome

The most remarkable part of the Taj Mahal is the central white marble dome which crowns the tomb. Situated at the east end of the mausoleum, the main dome is flanked by four smaller domes on four corners.



The oval shaped dome of the Taj Mahal sits on a circular drum that adds support to the structure.



The dome is also intricately designed with support with work.



#### Minarets

The Taj Mahal's minarets detached from the main tomb.

Standing tall at 130 feet were elegantly designed with a slight inward lean, the minarets lean.

The minarets lean in such a way that in case of any disaster happens, it causes no damage to the central dome.



These four minarets rise from the ground with an eight sided base and a circular pillar. On the top of the pillar is an octagonal balcony.



#### Ancient Architecture in Ancient India (3300 BCE)

Harappan Civilization's urban plan included the world's first known urban sanitation systems.

Waste water from households was directed to covered drains, which lined the major streets.

The ancient Indian systems of sewerage and drainage were far more advanced than any found in contemporary urban sites in some countries.



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### REASONS FOR MAHARAJA SAWAI JAI SINGH TO CHANGE HIS CAPITAL FROM AMBER TO JAIPUR (1727)

**MILITARY REASONS**

- Jaisalmer
- A strategic fort on a steep natural granite hillside in the hills.
- The city was surrounded by high walls and bastions, making it difficult for the enemy to penetrate.
- The city was well fortified and had a strong defensive system.

**GEOGRAPHICAL REASONS**

- The city was built on a high hillside, making it difficult for the enemy to attack.
- The city was surrounded by a natural moat, which provided a good defensive system.
- The city had a strong natural defensive system, which was well fortified and had a strong defensive system.





The migration of the capital from Amber to Jaipur was a strategic decision. Amber was a well-fortified city, but it was located in the Thar Desert, which was a difficult environment for a large city. Jaipur, on the other hand, was located in the Aravalli Range, which provided a natural defensive system. The migration was completed in 1727.

**PHYSICAL REASONS** - The city was built on a high hillside, making it difficult for the enemy to attack. The city was surrounded by a natural moat, which provided a good defensive system.

**MILITARY REASONS** - The city was well fortified and had a strong defensive system. The city was surrounded by high walls and bastions, making it difficult for the enemy to penetrate.

**WATER SUPPLY** - The city had a well-developed water supply system, which was a major advantage. The city was built on a hillside, and the water supply system was designed to bring water up to the city.

  
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**in recognition of their successful completion of  
Industrial Heritage of India**

**conducted from**

**11th May 2020 - 27th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
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## 1.2 Academic Flexibility

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**AY 2020-21**

**Course 7- Certificate Course on Landscape and Site Development**



  
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Course

on

# Landscape & Site development

Assessing the site before intervention

course co-ordinator :

Duration: 11th may-29th may

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Landscape Architect  
Assistant professor



**Himika Lakhanpuria**  
Architect  
Assistant professor



**Kirti Lonerkar**  
Architect & Urban Designer  
Assistant professor



  
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## Report on the Course

### Landscape and Site Development Duration - 11<sup>th</sup> May to 29<sup>th</sup> May 2020

#### Faculty Report: 'Landscape and Site Development'

##### Coordinator:

**Ar. Sonu Bothe**, Asst. Prof., BVCOA,

**Ar. Himika Lakhanpuria**, Asst. Prof., BVCOA,

**Ar. Kirti Lonerkar**, Asst. Prof., BVCOA

No. of Students participated- 38

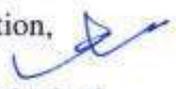
##### Introduction:

The course 'Landscape and Site Development' aimed to provide students with a comprehensive understanding of the integration of landscape design principles and site planning strategies within architectural projects. This report presents an overview of the course, highlights key components, and summarizes the achievements and feedback received from students.

**Course Structure and Content:** The course spanned 11<sup>th</sup> May to 31<sup>st</sup> May 2020 and comprised various modules designed to deepen students' knowledge of site analysis, landscape design principles, and sustainable development of outdoor spaces. The modules included:

- Introduction to Landscape Architecture and Site Development:
  - Overview of landscape architecture and its relevance to architectural design
  - Introduction to site analysis and its significance in the design process
- Site Analysis and Assessment:
  - Techniques for analyzing site characteristics, including topography, climate, vegetation, and cultural context
  - Identification of site opportunities and constraints for design interventions
- Landscape Design Principles:
  - Exploration of fundamental principles of landscape design, such as scale, proportion, balance, and unity



  
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- Examination of design elements, including vegetation, water features, hardscape, and circulation

● **Sustainable Site Development:**

- Integration of sustainable design principles in site planning and landscape design  
- Strategies for water management, biodiversity, energy efficiency, and material selection

● **Case Studies in Landscape Architecture:**

- Analysis of exemplary landscape architecture projects and their integration with architectural interventions  
- Study of design concepts, materiality, and user experiences

● **Site Planning and Master Planning:**

- Techniques for site planning, circulation, zoning, and land use allocation  
- Considerations for creating functional, cohesive, and aesthetically pleasing outdoor spaces

**Assessment and Student Feedback:**

The course assessments included active participation in online class discussions, and group assignments, design project presentations. The students exhibited great enthusiasm and actively engaged with the course content, demonstrating a solid grasp of site analysis, landscape design principles, and sustainable strategies for site development.

The feedback received from students was overwhelmingly positive. They appreciated the course's practical nature, finding it valuable to apply their knowledge to real-world scenarios. Students also highlighted the relevance of the case studies, which provided insights into successful landscape architecture projects and their integration with architecture.

Furthermore, students praised the course coordinator's guidance and support throughout the course. They commended the interactive nature of the online classes, which fostered meaningful discussions and the exchange of ideas. The course materials and resources were found to be informative and well-aligned with the course objectives.

**Conclusion:** The course 'Landscape and Site Development' successfully achieved its objectives of deepening students' understanding of landscape design principles and their integration within architectural projects. The positive feedback from students indicates that the course provided valuable insights into site analysis, sustainable strategies, and the creation of functional outdoor spaces. The course coordinator is pleased with the outcomes and will continue to refine and update the curriculum to incorporate emerging trends and advancements in the field.



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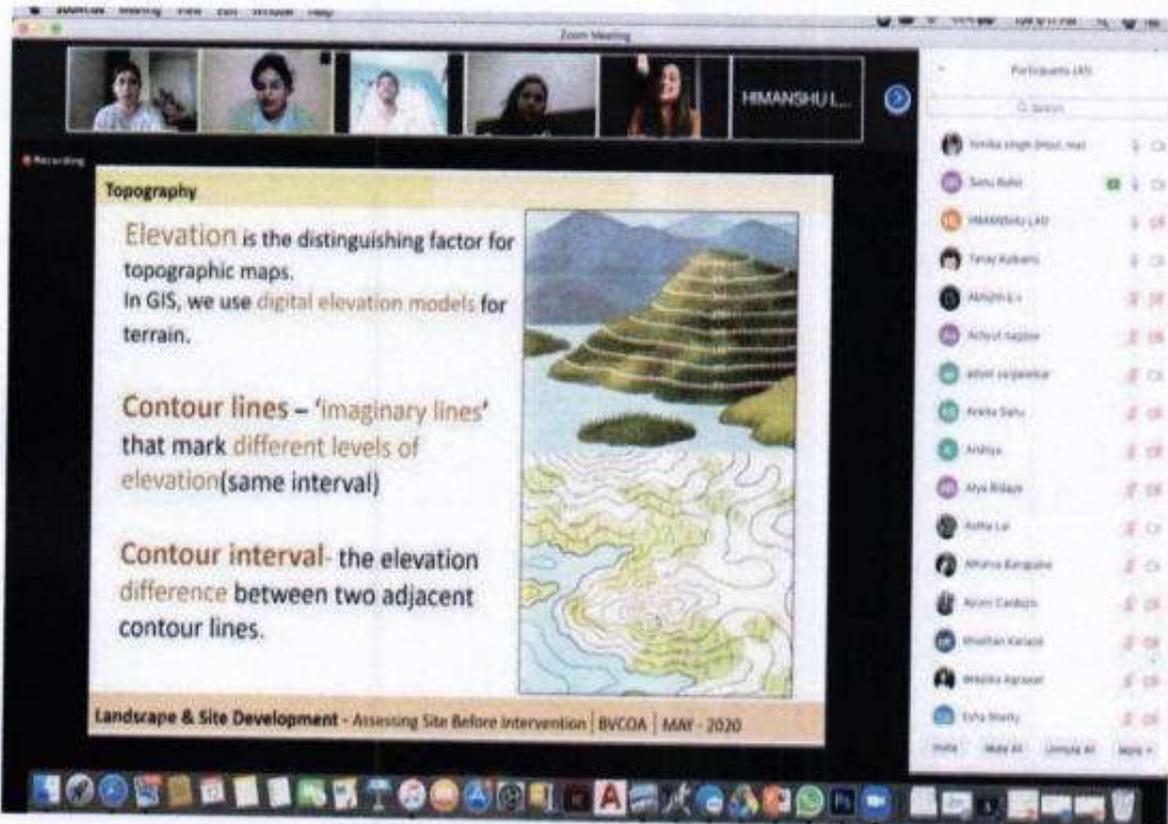
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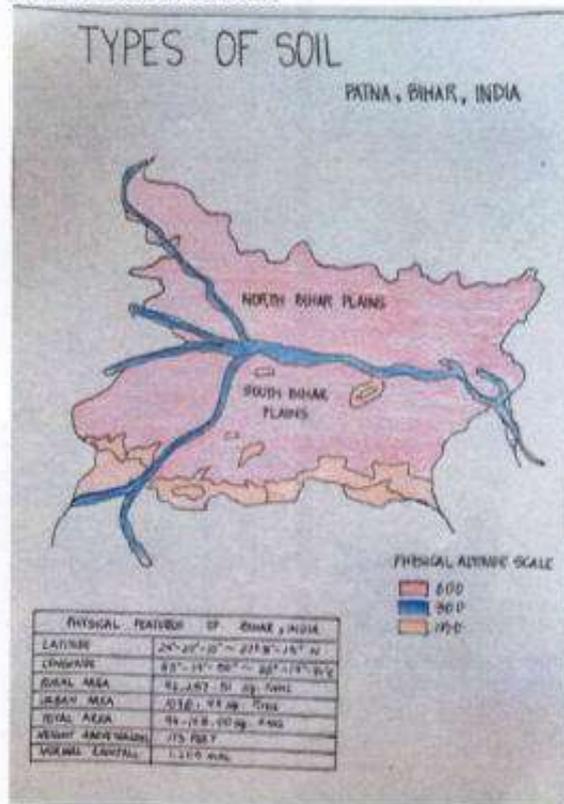
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### Students Outcomes:



### SOIL PROFILE OF BIHAR

Bihar is situated on the world's fertile alluvial plain of Ganges valley which extends from the foothills of the Himalayas in the north to a few miles south of the river Ganges in the plains through the delta from the west to the east. Variation in soil, precipitation, vegetation and physical relief have resulted in various soil varieties into the various soil types.

#### SOILS OF NORTHERN PLAIN

- Red and brown soil** - It is extending to deep over bed rocks and pebbles. It is mostly clayey, rich in organic matter and neutral reaction. This type of soil is found in northern extension district.
- Black soil** - It is grey to yellow in colour and extends to moderately higher in valleys. The soil of this is more fertile than upland area. This type of soil is found in north-western extension district and northern part of Bihar near by the border of Nepal near foothills of Himalayas.
- Gangotri Alluvium soil** - The soil is generally fertile in Bihar plain but to regular tillage without application of manure have less low organic content. It is mostly heavy with varying thickness. It is common to some extent and black, brown and red.

#### SOILS OF SOUTHERN PLAIN

- Karnal-Kawal soil** - It is heavy clay soil (alkaline nature) which is characterized by soil profile layer of 'stratified'. It is found in Khatwa to Jhansi, Amroha, Tehri, Meerut, Muzaffarnagar, Sonapat, etc. It is best suited for rice and other crops like wheat, banana, pulses and gram.
- Sal soil** - It is found in the lower belt of Ganges which is spread from Bihar to Orissa district. The colour of the soil varies from light grey to dark grey and in field from medium to heavy soil. Like an spring crop like wheat, gram, green gram, mung bean, etc. but the harvested after water table up and their yield is quite high.



  
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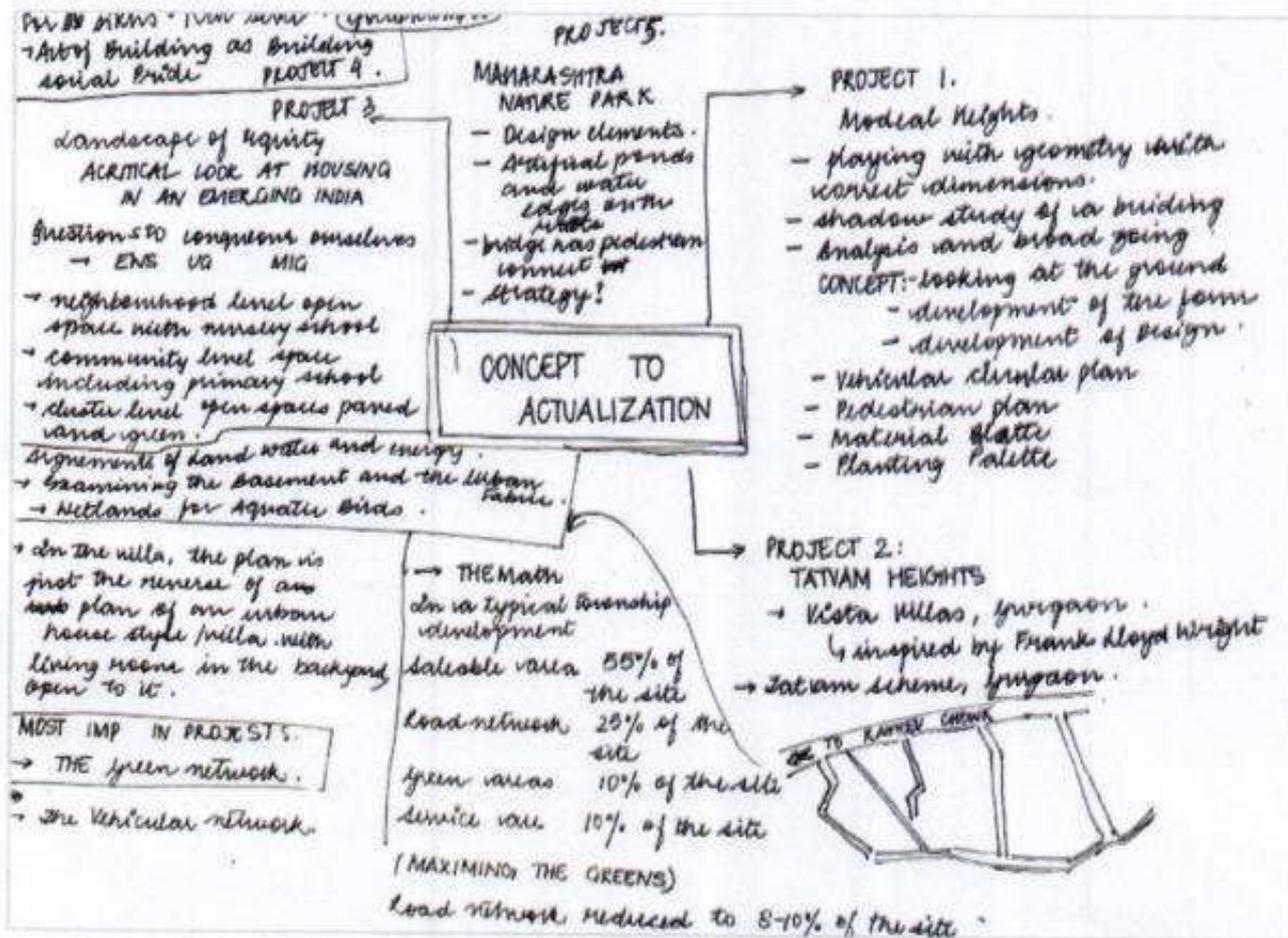
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**at**

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*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
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**Prof. Ritu Deshmukh  
Principal**

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## 1.2 Academic Flexibility

1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years

AY 2020-21

Course 8- Certificate Course on Smart City - A Paradigm Shift Post Pandemic

  
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let us defeat corona virus

Duration: 11<sup>th</sup> May to 31<sup>st</sup> May

Online

# Course on **Smart City** A paradigm shift post Pandemic

An Initiative by Bharati Vidyapeeth College of Architecture, Navi Mumbai  
In Collaboration with ACEDGE



**ACEDGE**  
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Sumitra Kudam



Shilpa Zohak



  
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**Report on the Online Course**  
**Smart City: A Paradigm Shift Post Pandemic**  
Duration - 11<sup>th</sup> May to 31<sup>st</sup> May 2020

**Course Coordinators:**

**Ar. Shilpa Zabak**, Asso. Prof., BVCOA, M.-9967595836

**Ar. Sumitra Kadam** Asst. Prof., BVCOA, M- 9967915710

**No. of Students participated- 17**

Faculty Report: Smart City: A Paradigm Shift Post Pandemic

Course: Architectural Course on 'Smart City: A Paradigm Shift Post Pandemic'

**Overview:**

The architectural course on 'Smart City: A Paradigm Shift Post Pandemic' was designed to explore the concept of smart cities and examine how the COVID-19 pandemic has influenced and reshaped urban development. The course aimed to provide students with a comprehensive understanding of the integration of technology, data, and sustainable practices in creating resilient and future-proof cities. This report summarizes the key aspects and outcomes of the course.

**Course Objectives:**

The course focused on achieving the following objectives:

- Understanding the concept and significance of smart cities in a post-pandemic context.
- Analyzing the impact of the COVID-19 pandemic on urban areas and the need for adaptive and resilient city planning.
- Studying successful smart city case studies and identifying key components.
- Addressing challenges and opportunities in implementing smart city initiatives.
- Emphasizing sustainability and green practices in smart city development.
- Promoting citizen engagement and participation in smart city projects.



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**Course Structure:**

The course spanned 16 days and consisted of lectures, group activities, guest speaker sessions, and supplementary readings. The curriculum provided a balanced mix of theoretical knowledge and application, allowing students to develop a holistic understanding of smart city concepts and strategies.

**Course Highlights:**

**Lectures:** Engaging lectures were delivered to introduce and explain the core concepts of smart cities, including technology integration, data-driven decision making, and sustainable urban planning.

**Case Studies:** Smart city projects were examined online to analyze their success factors, challenges faced, and lessons learned. This provided students with valuable insights into practical implementation.

**Group Activities:** Collaborative exercises encouraged students to apply their knowledge and work together to solve complex problems related to smart city design and implementation.

**Projects:** Assignments allowed students to develop their skills in designing smart city projects, incorporating elements such as sustainability, citizen engagement, and data-driven solutions.

**Guest Speakers:** Experts from the industry were invited to share their experiences and provide valuable perspectives on smart city development, further enriching students' understanding.

**Readings and Resources:** Relevant articles, research papers, and reports were provided to enhance students' knowledge and encourage further exploration of smart city concepts and trends.

**Recommendations:** Based on student feedback and observations, the following recommendations are suggested for future iterations of the course:



  
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- Post-lockdown, incorporate more interactive sessions, workshops, or field visits to allow students to experience smart city technologies and solutions firsthand.
- Provide additional opportunities for students to engage with professionals and policymakers involved in smart city initiatives through networking events or guest lectures.
- Include more case studies and examples from a diverse range of geographical locations to showcase the global applicability of smart city concepts.

**Conclusion:**

The architectural course on 'Smart City: A Paradigm Shift Post Pandemic' successfully provided students with a comprehensive understanding of smart city development in the post-pandemic era. The course design, including online lectures, case studies, assignments which facilitated effective learning and knowledge application. The positive student feedback and performance indicate the course's success in achieving



  
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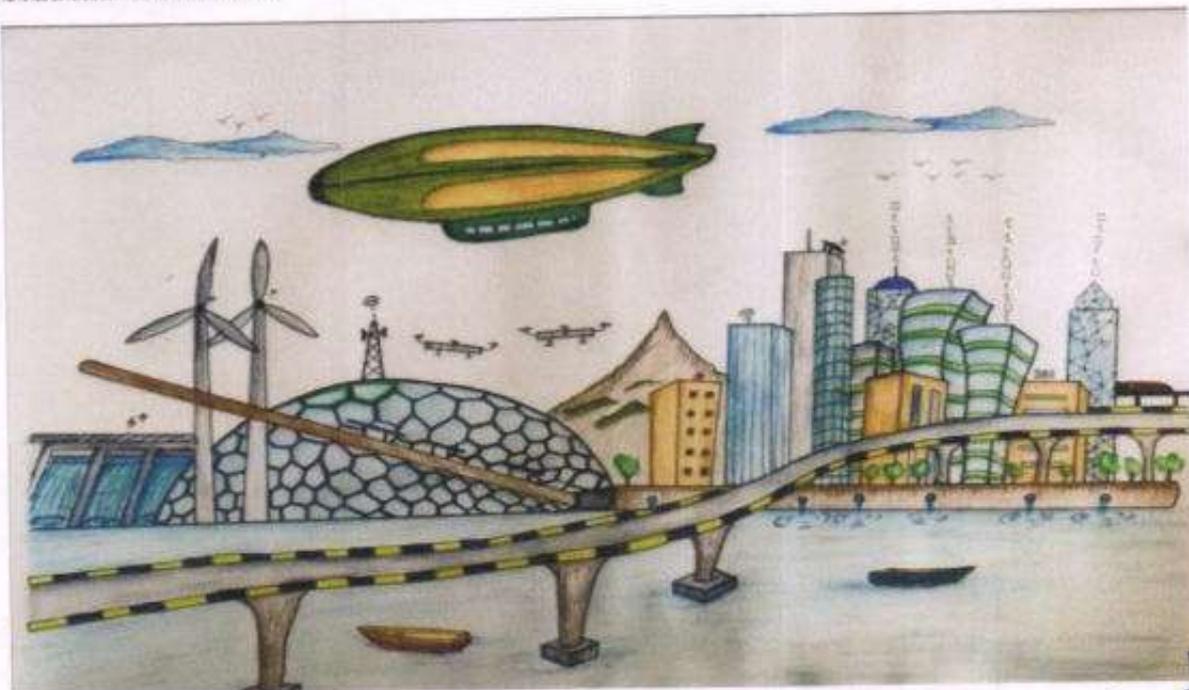
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**What is the duration and the strategy of the mission?**



**Students Outcomes:**



  
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**conducted from**

**11th May 2020 - 31th May 2020**

**at**

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**Prof. Ritu Deshmukh  
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**at**

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## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2020-21**

**Course 9- Certificate Course on Zonal Built Heritage**



  
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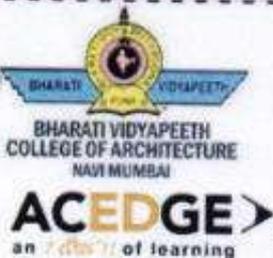
# Zonal Built Heritage

Climate responsive architecture....

A learning from Heritage

co-ordinators :

Duration : 11th may-29th may



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corona virus



**Renuka Wazalwar**  
Architect/assistant prof.



**Harshada Ponshe**  
Architect/ Associate prof.



**Swapna Deshpande**  
Architect Planner/assistant prof.



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## Report on the Online Course

### 'Zonal Built heritage'

#### Course Coordinators:

**Ar. Harshada Ponshe**, Asso. Prof., BVCOA

**Ar. Renuka Wazalwar** Asst. Prof., BVCOA

**Ar. Swapna Deshpande**, Asst. Prof., BVCOA

**Duration** - 11th May to 29th May 2020

**Timing** - 1:30pm - 4:00 pm

#### No. of students participated - 20

The recently concluded online course, 'Zonal Built Heritage' which aimed to educate students on the significance and preservation of cultural identity through the conservation of zonal built heritage. The course spanned from 11<sup>th</sup> to 29<sup>th</sup> May 2020 and covered various aspects related to zonal built heritage, including architectural styles, historical contexts, conservation strategies, and innovative solutions. The following is an overview of the course and its outcomes:

#### Course Overview:

The course 'Zonal Built Heritage' was designed to provide students with a thorough understanding of zonal built heritage and its role in preserving cultural identity. It aimed to equip students with the knowledge and skills necessary to assess, conserve, and adapt zonal built heritages while considering their historical, social, and cultural contexts.

#### Course Highlights:

The online course covered a wide range of topics, including an introduction to zonal built heritage, exploration of architectural styles and typologies, analysis of historical and cultural contexts, conservation challenges and opportunities, sustainable preservation approaches, and case studies of successful conservation projects.

Various teaching methodologies were employed, including online lectures, discussions, guest lectures, online case studies, and assignments. These approaches ensured an interactive and engaging learning experience for the participants.

The course encouraged critical thinking and design skills, allowing participants to propose innovative solutions for zonal built heritage preservation.

Throughout the course, participants actively participated in online class discussions and activities, completed assignments that demonstrated their understanding of zonal built heritage preservation.



  
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**Feedback:**

The online course received positive feedback from the students, who expressed satisfaction with the content, teaching methodologies, and overall learning experience. They appreciated the interdisciplinary approach that combined architectural, historical, and cultural perspectives. They found the online case studies from guest lecturers particularly valuable as they provided real-world examples of zonal built heritage conservation.

**Recommendations:** Based on the outcomes and feedback, the following recommendations for future iterations of the course:

- Include offline interactive sessions and group activities to encourage collaborative learning and exchange of ideas.
- Explore the possibility of organizing guest lectures or workshops offline by renowned experts in the field of zonal built heritage preservation.
- Incorporate more local or regional live case studies to ensure relevance and contextual understanding for participants.

**Conclusion:**

The online course 'Zonal Built Heritage' successfully achieved its objectives of educating students about the significance of zonal built heritage and equipping them with the necessary knowledge and skills for its preservation.



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CONCLUSIONS :



Can today's architecture be tomorrows heritage ? if it can't, is it a good reason why conservation should be encouraged ?

Urvashi Vinchhi  
SONAL MATAI



*(Handwritten signature)*

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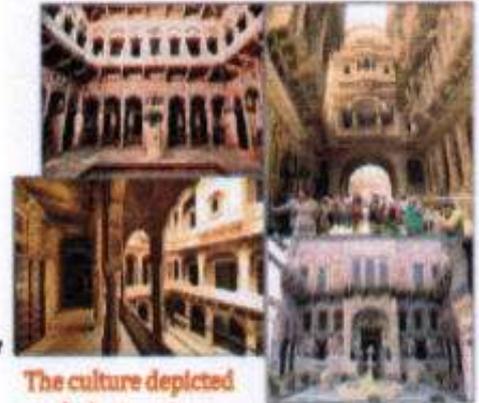
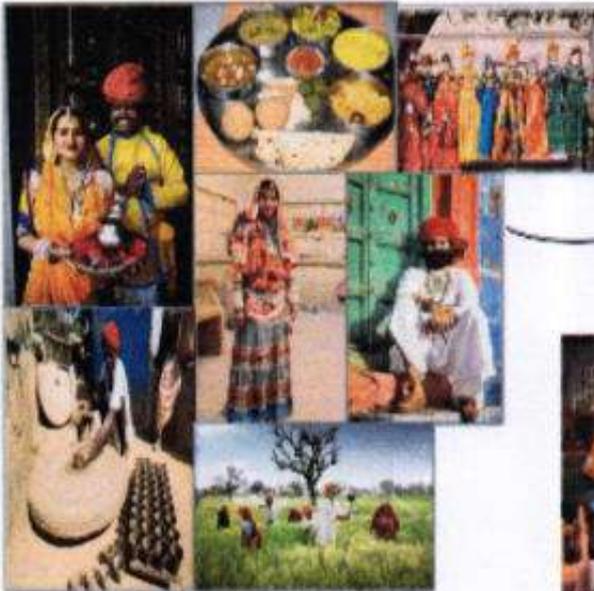
Principal  
**Prof. Satish Dhale**  
(G.D.DID, P.G.DID, IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M. /

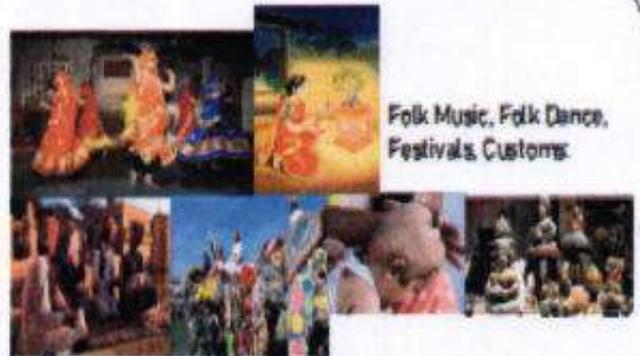
Date :

## RAJASTHANI CULTURE (JAISALMER)

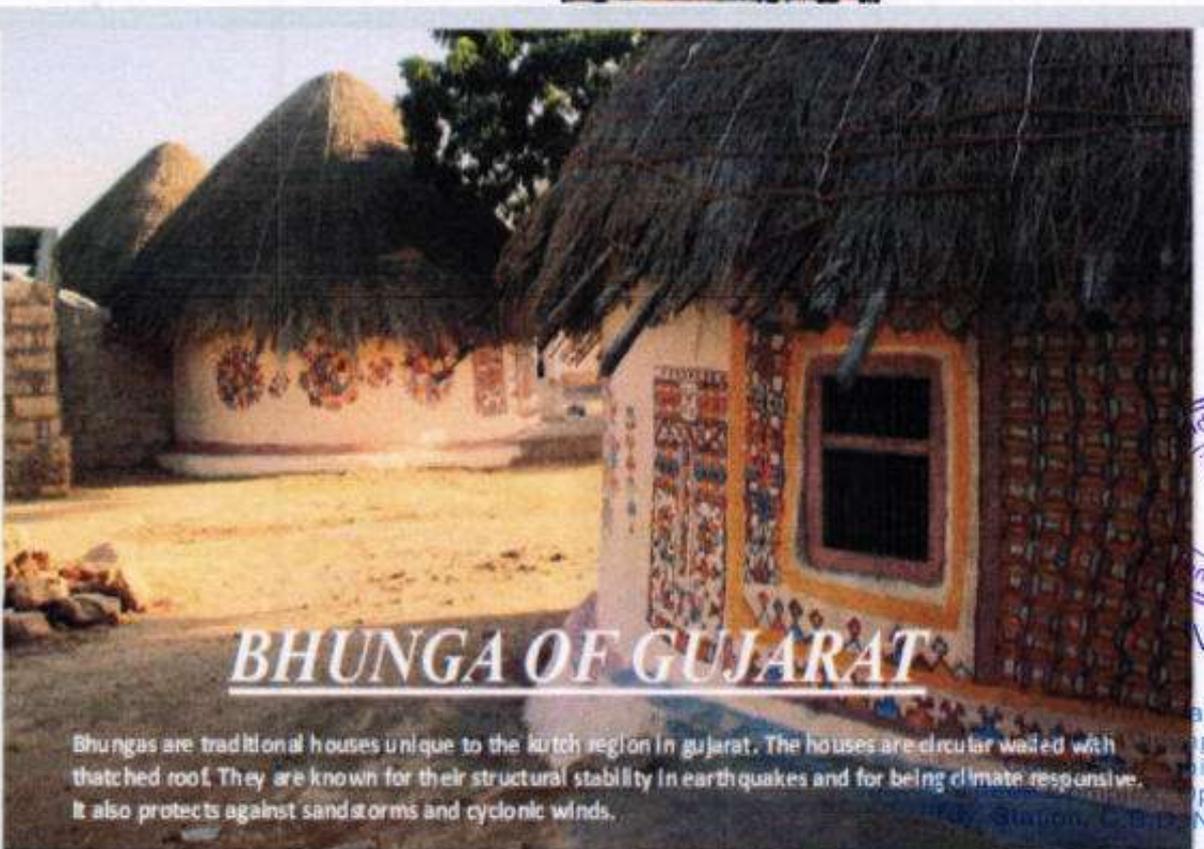
People, Cuisine, Traditional dress, Art and Crafts, Occupation



The culture depicted on their structures



Folk Music, Folk Dance, Festivals, Customs



## BHUNGA OF GUJARAT

Bhungas are traditional houses unique to the kutch region in Gujarat. The houses are circular walled with thatched roof. They are known for their structural stability in earthquakes and for being climate responsive. It also protects against sandstorms and cyclonic winds.





# Bharati Vidyapeeth

## COLLEGE OF ARCHITECTURE

Affiliated to the University of Mumbai



Founder :  
**Dr. Patangrao Kadam**  
 M.A.L.L.B.Ph.D.

Belpada Complex, Opp. Kharghar Rly. Station,  
 Sec.7, C. B. D. Belapur, Navi Mumbai- 400 614 - India

Principal  
**Prof. Satish Dhale**  
 (G.D.DID, P.G.DID, IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M./

Date :

### BHUNGA

#### SHAPE AND FORM OF STRUCTURE-

 <b>Circular planform</b>	 Circular form shape for its max advantage against the lateral forces of an earthquake.	 The inner wall is coated with mud and plaster work, called as <i>gapan</i> , a single lamp is enough to light up the home due to reflections from the inner wall.	 Wind eyes are set at lower level in case for wall to serve the purpose of cross ventilation.	 Mud and plaster work on the outer surface of the Bhunga acts as a barrier by reflecting heat.
 <b>Small openings</b>	 Low height walls helps the stability of the dome during earthquake.	 Bamboo strips are used to make dome.	 Thick roof is a weak conductor of heat and add to the thermal comfort.	 Overhang is low, thus with the shade over the walls and protect from direct sunlight.
 <b>Conical roof Ring and radial braces</b>				

**SETTLEMENT DESIGN**

Separate spaces are provided for two main reasons  
 1.To maintain privacy  
 2.To avoid cracks

**CLUSTER PLAN**

**ELEVATION**

**TYPOLOGICAL FEATURES OF BHUNGA**

- The typological order by the cluster with the a given space above the ground floor is 6m to 8m
- The dia defines the design of the home and the place for group activities.
- On the cluster not various structure appearing the fourthly, one or more Bhunga planning between 3 to 6 m and height into 10m covered by mud plastered out.
- A typical Bhunga facade and 2 or 4 small window openings arranged around the door.
- The low platform called *pedio* on which traditional furniture or chairs are placed.

**VIEW OF CLUSTER**

**CLUSTER PLAN**

**ELEVATION**

**PLATFORM**

**PLAN**

**Pedio**

### ANALYSIS

**Bernoulli's principle of pressure difference for better air movement**

- This houses have thick walls 300 to 350mm.
- Because of massive walls takes more time for the penetration of sunlight into the structure.
- During penetration intensity of radiation will reduce
- The thicker wall and

**THICK MUD WALLS**

The thick wall made up of mud keep the interior cool.

**Thatched roof**

weak conductor of heat.

Thick walls are required for thermal insulation.

Cool during summer  
 Temp. rises to 40 degrees

Warm during winter  
 Temp. drops to 10 degrees



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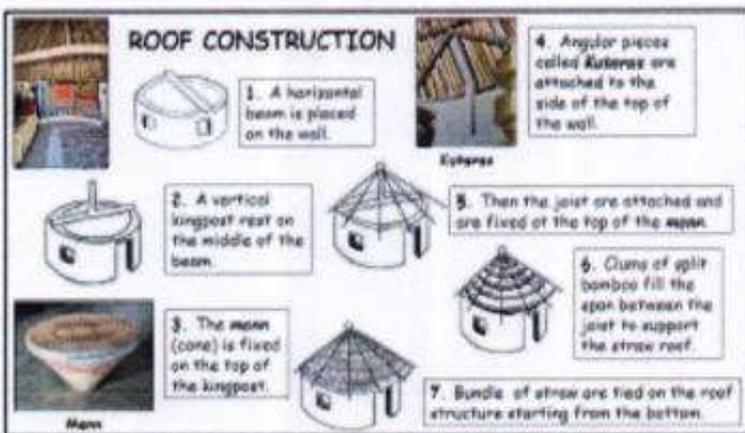
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Date :

## Materials

- Chrysali (Chikar)**  
 -locally available.  
 -provides thermal comfort.
- Babool (Ganda baava da)**  
 -locally available.  
 -strong and durable.
- Chowdung (Gaynu gobar)**  
 -for thermal cooling.
- Bamboo (Vau di)**  
 -high tensile strength.  
 -light in weight.



The top roof is weak conductor of heat and thus the temperature inside the bhunga remains cool.

The roof is light in weight, which avoids severe injuries if collapsed due to earthquake.

The roof overhang of bhungas comes quite low and cast shadows on the walls and protect the wall from the direct sunrays.

## DESERT RESORT, MANDAWA

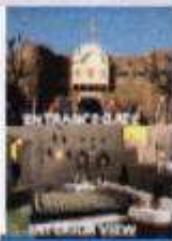
### TYPLOGY OF DESERT RESORT

The desert resort is a combination of two typologies-

- simple in design
- focus is on topography

### CHARACTERISTICS-

- Single architectural element
- Centralised space with dry climate walls
- less openings



- 1. Main Entrance
- 2. Reception
- 3. Restaurant
- 4. Bar
- 5. Lounge
- 6. Kitchen
- 7. Store
- 8. Office
- 9. Guest Room
- 10. Bath
- 11. Terrace
- 12. Courtyard
- 13. Wall
- 14. Gate
- 15. Path
- 16. Pond
- 17. Tree
- 18. Bench
- 19. Light
- 20. Sign



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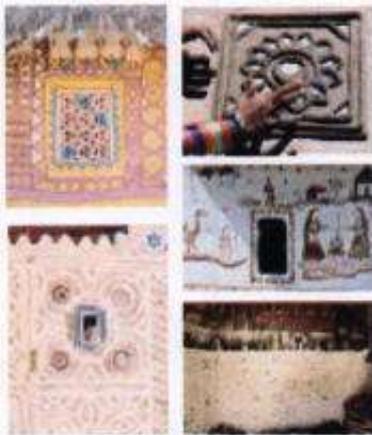
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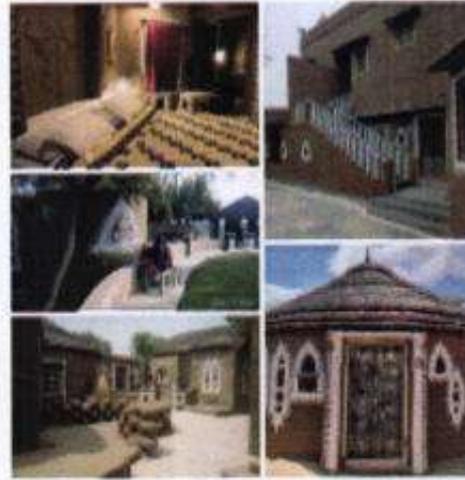
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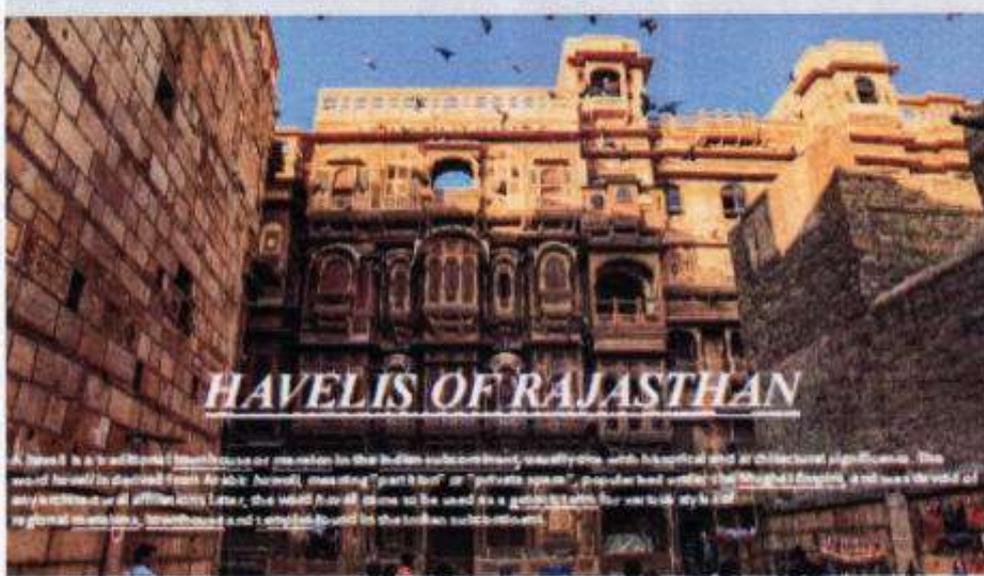
## ORNAMENTATION



IN TYPICAL BHUNGA



IN DESERT RESORT, RAJASTHAN



## HAVELIS OF RAJASTHAN

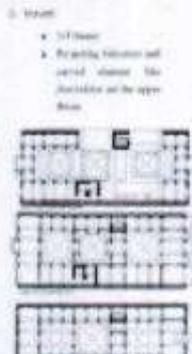
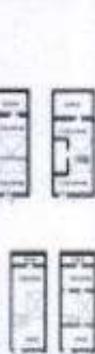
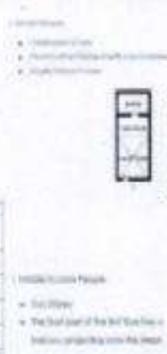
A Haveli is a traditional multi-storey or mansion in the Indian subcontinent, usually built with historical and architectural significance. The word Haveli is derived from the Hindi word 'Haveli' meaning 'particular' or 'private room'. It was used to refer to the private quarters of a nobleman or a wealthy merchant. Later, the word Haveli came to be used as a general term for a large style of Rajasthani mansions, palaces and temples found in the Indian subcontinent.

## TYPE OF HOUSES IN JAISALMER

- Jaolmer is named after its founder local Jaol 'JAWALMER' means 'the hill fort of Jaol'.
- Jaolmer is also called as the golden city of India because the yellow sand give a yellowish-golden touch to the city and its surrounding area.
- Jaolmer as a city, its urban fabric is in total harmony with its arid terrain and the lifestyle of its people.



FLOOR	PROVIDED IN 1990/21
Ground floor	5
1st floor	25
2nd floor	25
Roof top	15



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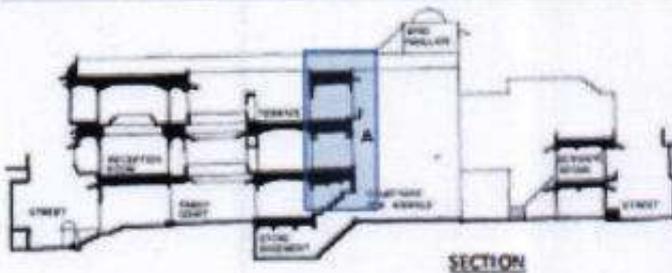
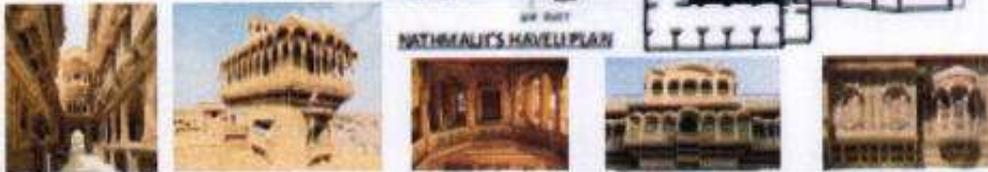
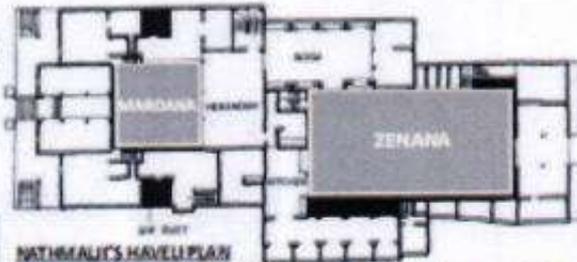
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## NATHMAL JI-KI-HAVELI

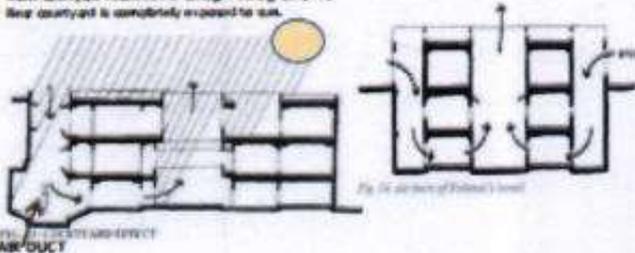
Nathmal Ji-haveli is considered as the epitome of architectural splendour in Jhulecha, while the exterior is engraved with delicate carvings, the interior is elegant with rich paintings.

The architects of this haveli were **Nathmal and Lala** who happened to be brothers. There is a very interesting story regarding its construction. It is said that the two brothers started building different parts of haveli simultaneously.

- Thick walls and mud plaster reduces the thermal load on the building.
- Entire building is of unequal heights with varied profiles and high aspect ratio, creating an unequal glare and also provide shading.
- Second level they have a no. of projections like sunshades and balconies.
- Uneven building forms also influences radiative heat loss.
- Increased wall area of the uneven building mass reduces a great impact of heat to the sky and street cooler.



Open courtyard receives the sunlight during summer. Deep courtyard is completely exposed to sun.



THE EFFECT AND EFFECT AIR DUCT



VIEW FROM FRONT COURTYARD



VIEW FROM INNER COURT



## Materials

- Sandstone:  
-reflects heat.  
-available in large scale.
- Limestone:  
-poor conductor of heat.  
-easy to carve.
- Marble:  
-locally available.  
-looks attractive.
- Granite:  
-absorbs less heat.



In traditional methods to lay closely spaced timber beams and cover them with a layer of mud or grass matting and a thick layer of earth on top.

Walls are made of stone and lime plaster. Stone provides four times greater time lag. Lime plaster is poor conductor to heat, which reduces heat penetration.



Jharcho is a stone window projecting from the wall face of the building. This helps in increasing protection from both summer sun and winter sun.



Highly textured walls have a portion of their surface in shade which reduces the total surface area exposed to sunlight and less heat is absorbed by the wall.



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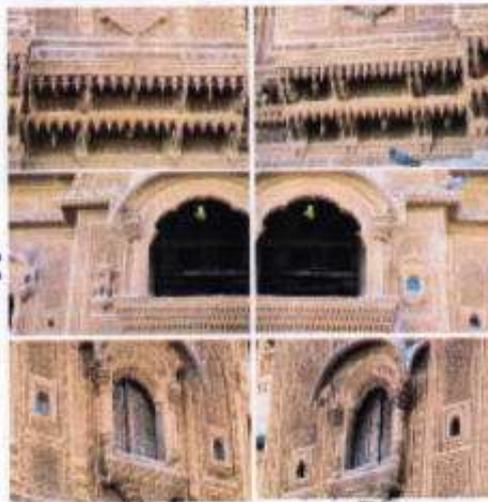
**ORNAMENTATION IN NATHMALJI KI HAVELI, JAISALMER**



Projections in the form of Jharicha on the facade.



Another attraction is the elephants in yellow sandstone, which are placed at impressively carved entrance door as they are guarding the haveli and welcoming the guests.



Left

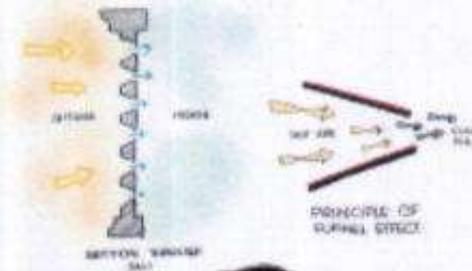
Right

**ANALYSIS**



Window

**Concept of Jali**



For example



When air pass from bigger diameter to smaller it gets cooler and vice versa. The effect is called as Funnel effect.



*(Signature)*  
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**ACADEMIC YEAR: 2020 - 2021**

**This Certificate is awarded to**

*Mandhalkar Sayali*

**in recognition of their successful completion of  
Zonal Built Heritage**

**conducted from**

**11th May 2020 - 29th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
Principal**

*[Signature]*  
Principal  
Bharati Vidyapeeth  
College of Architecture  
Belpada Complex, Opp. Kharghar  
Rly. Station, C.B.D, Navi Mumbai



**ACADEMIC YEAR: 2020 - 2021**

**This Certificate is awarded to**

*Late Rupali*

**in recognition of their successful completion of  
Zonal Built Heritage**

**conducted from**

**11th May 2020 - 29th May 2020**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*

**Prof. Ritu Deshmukh  
Principal**

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(G.D.D.D., P.G.D.D., IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M. /

Date :

## Criteria 1 - Curricular Aspects

### Key Indicator - 1.2 Academic Flexibility

#### Academic Year 2019-20

- Course 1 - Certificate Course on AutoCAD**
- Course 2 - Certificate Course on Building with Natural Materials**
- Course 3 - Certificate Course on Performance of Building Envelope**
- Course 4 - Certificate Course on Parametric Modelling**
- Course 5 - Certificate Course on Mitti- Folk arts and Crafts**



  
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Ref. No. : BV/COA/N.M./

Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2019-20**

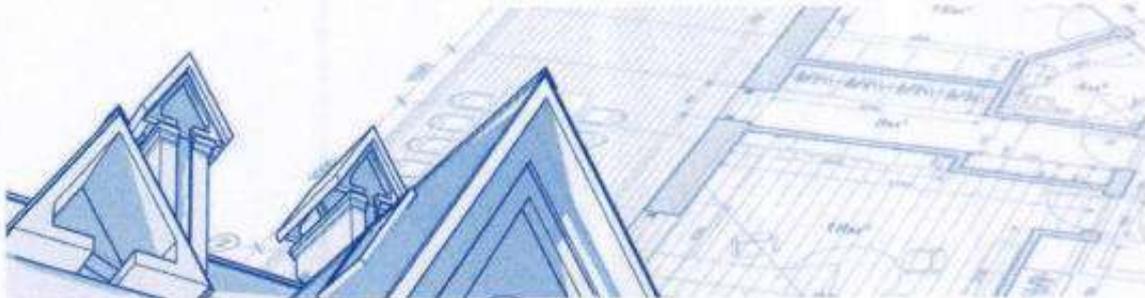
**Course 1- Certificate Course on AutoCAD**



  
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# CADD CENTRE

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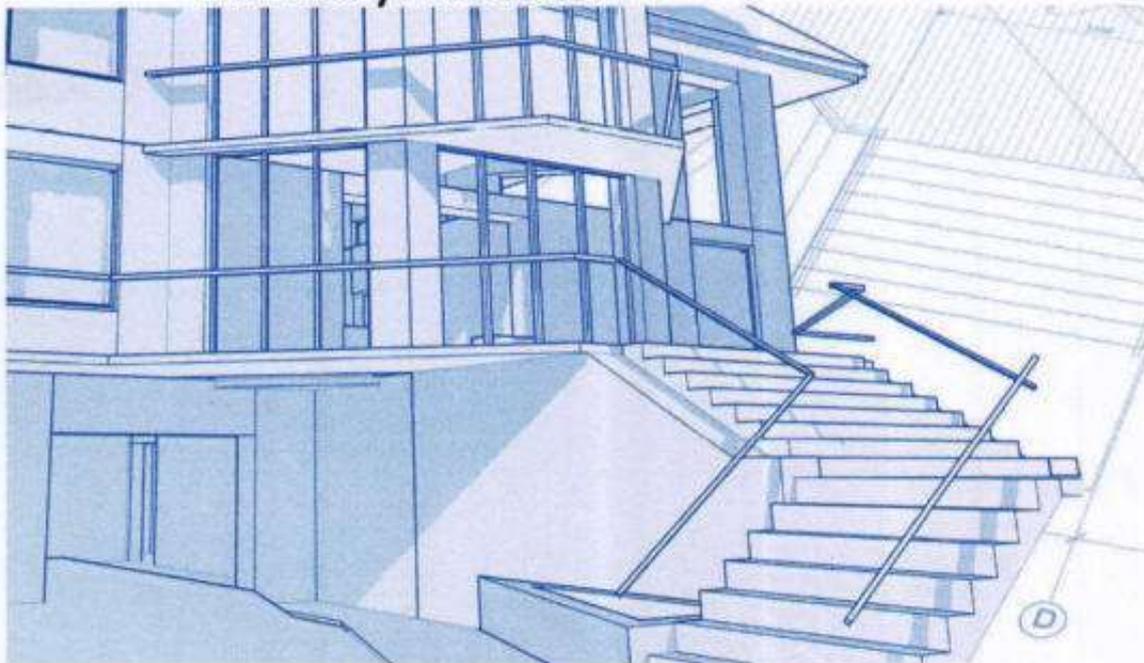
Course On

# AUTOCAD

For 2nd yr Students

COORDINATOR

Prof. Tejaswini H.M.



Dates : 8th July 2019 to 26th July 2019

TIMINGS - 2:00 pm to 4:00 pm





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BHARATI VIDYAPEETH  
COLLEGE OF ARCHITECTURE  
NAVI MUMBAI

## MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) entered on the 14<sup>th</sup> June 2019 (month and year) By and Between

CADD Centre Training Services, having its office at Kharghar, Navi Mumbai (hereinafter referred as "CADD Centre" for the sake of brevity) and represented by its Centre Head Mr/Ms. SONALI PATIL

(centre head name) having the training centre at #101, Grow More Tower, Plot 5, sector 2, Near Siemens, Kharghar 410210.

(address of the centre) Which expression shall mean and include its successors and assigns.

And

Bharati Vidyapeeth School of Interior Design & College of Architecture (college name), having its campus at Belpada Complex, Opposite Kharghar Railway Station, sector 7, CBD Belapur, Navi Mumbai 400614 (address of the college), and represented by its Principal, Ms. Ritu Deshmukh

(detail signing authority), which expression shall mean and include its successors in office and assigns

**CADD Centre, The party of the first part shall provide:**

- Introduction to CAD training for all the first year engineering students from all the discipline.
- Specially designed course material for the Introduction to CAD, to every student who is participating the 12 hrs training.
- Participation certificate to all the participants of this unique introduction to CAD training program. college name shall be printed on the certificate.
- Make the students aware of the latest tools and techniques through technical appreciation program. keep them aware of the industry requirements.
- Assistance in downloading college version of AutoCAD software on behalf of the college and assist in installing in the college machines.
- Optional advanced training required by the students at a subsidized course fee (Rs. 3000).
- Qualified trainers for the conduct of the course.
- Periodical assessment of the progress of students for their further improvements.



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Rly. Station, C.B.D, Navi Mumbai

CIN: U72300TN1988PTC041242 | TIN: 33470803478 | CST:960215 | PAN: AAB CC 1473 B | Service Tax No: AAB CC 1473 B

**CADD Centre Training Services Private Limited**

**Registered & Corporate Office:**  
8th Floor, Gee Gee Crystal, Office No:8C & 8 D,  
91, Dr. Radhakrishnan Salai, Mylapore, Chennai - 600 004.  
Phone: 044 459 66100

The \_\_\_\_\_ College. The party of the second part shall provide:

- The required number of computer systems with CAD software and other required infrastructure
- The Class rooms with LCD projector and a Computer with AutoCAD software for the conduct of the theory classes.
- To Schedule the classes during the weekdays.
- To ensure all students attend the training programs scheduled for them.
- The latest version of AutoCAD software and computer systems
- Disciplinary support for the smooth conduct and timely completion of the entire course.

**Participants:**

The participants would be the first year students of all the branches of engineering and architecture.

**Course Contents:**

1. Principles of Engineering Drawing
2. Introduction to AutoCAD
3. Coordinates System
4. Drawing Settings
5. File Management
6. Editing Commands
7. Object properties

**Time Schedule:**

The program will be conducted during the college timings. Depending on the total strength, the students will be divided into batches with a minimum of 20 and a maximum of 60 per batch.

The program will be conducted according to the time table drawn up with the mutual consent of both parties.

**Jurisdiction:**

All matters, queries, disputes or differences, whatsoever, arising between the parties touching the construction, meaning, operation or effect of this Memorandum of Understanding or out of or relating to this Memorandum of Understanding or breach thereof shall be settled through arbitration in accordance with the relevant Arbitration Act in force at such time. The Arbitration award shall be binding on both parties.



  
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**Termination:**

Both the college and CADD Centre shall have the rights to terminate this MOU by providing three months' notice. Termination of this MOU for whatever reason shall be without prejudice to the rights of either party and of the students and the ongoing academic programmes.

**Validity:**

This Memorandum of Understanding will be valid for a period of three years. This Memorandum of Understanding shall come into effect from (Date) \_\_\_\_\_

**For For CADD Centre**

*sevali*

(Affix the Seal)

**For College Institute**

*[Signature]*

Name & Signature of HOD

**For College / Institute**

*[Signature]*

Name & Signature of Authority

Principal (Affix the Seal)



**Principal**  
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College of Architecture  
Belpada Complex, Opp. Kharghar  
Rly. Station, Navi Mumbai



*[Signature]*  
**Principal**  
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College of Architecture  
Belpada Complex, Opp. Kharghar  
Rly. Station, C.B.D. Navi Mumbai

Date-30th July 2019

### Report on the course conducted on AutoCAD

A three week long AutoCAD course by CADD Centre was conducted for the 2nd year B.Arch. students of Bharati Vidyapeeth College of Architecture, Navi Mumbai ifrom 8th July 2019 to 26th July 2019 from 2:00 pm to 4:00 pm

For the first week of the course, basic tools in AutoCAD were taught to the students, followed by using layer function which is very important in making architectural and other technical drawings. In this week, emphasize was also given on the different selection tools and advanced drawing tools. The students also got hands on practice on the layer and block command.

The second week highlighted the importance of other 2D commands used for modifications of the drawing being made.

In the third week, assignments were provided which the students were supposed to complete for being graded.

*Antyavani*

COURSE COORDINATOR



  
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**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

**PRANOTI SHINDE**

**in recognition of their successful completion of**

**Auto CAD**

**conducted from**

**08/07/2019 TO 26/07/2019**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**

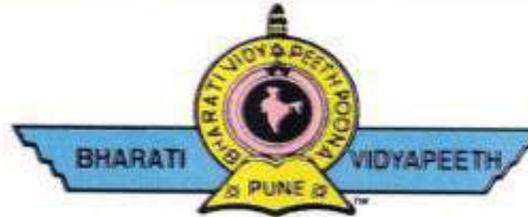


**Prof. Ritu Deshmukh  
Principal**

**Principal  
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COLLEGE OF ARCHITECTURE  
NAVI MUMBAI**



**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

**LAD HIMANSHU RAMAKANT**

**in recognition of their successful completion of  
AutoCAD**

**conducted from**

**08/07/2019 TO 26/07/2019**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



**Prof. Ritu Deshmukh  
Principal**

**Principal  
Bharati Vidyapeeth  
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Rly Station C.B.D, Navi Mumbai**



**Bharati Vidyapeeth**  
**COLLEGE OF ARCHITECTURE**  
Affiliated to the University of Mumbai



Founder :  
**Dr. Patangrao Kadam**  
M.A., L.L.B., Ph.D.

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Sec.7, C. B. D. Belapur, Navi Mumbai- 400 614 - India

Principal  
**Prof. Satish Dhale**  
(G.D.D.I.O., P.G.D.I.D., IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M. /

Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2019-20**

**Course 2- Certificate Course on Building with natural Material**



  
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**MEMORANDUM OF UNDERSTANDING**  
**BETWEEN**  
**Bharati Vidyapeeth College of Architecture, Navi Mumbai**  
**AND**  
**Design Jatra, Palghar**

This Memorandum of Understanding (hereinafter referred to as "MoU") is made on this 1st day of November 2018.

between

Bharati Vidyapeeth College of Architecture, Navi Mumbai affiliated to University of Mumbai and recognized by Council of Architecture situated at Balpada Complex, Opp. Kharghar Rly. Station. Sec. 7, C.B.D. Belapur, Navi Mumbai- 400 614, Maharashtra, India (hereinafter referred to as "BVCOA")

and

Design Jatra, House no. 09, Geti Pada, Mukkam Murbad, Post Vetli, Taluka Dahanu, district Palghar- 401607, Maharashtra, India (hereinafter referred to as "The Studio")

**Purpose and Scope**

BVCOA and The Studio agree:

- a) to exchange information on research and educational programmes,
- b) to exchange information on teaching, learning material and other literature relevant to their educational and research programmes,
- c) to jointly organise short-term continuing education programmes on topics of mutual interest and to invite each other's faculty to participate therein,
- d) to jointly organise seminars, conferences, or workshops on topics of mutual interest and to invite each other's faculty to participate therein,
- e) to jointly propose and engage in research or training programmes sponsored by funding agencies, and to invite each other's faculty to participate therein,
- f) to exchange, on a reciprocal basis, faculty and students for limited periods of time for the purpose of internship, education and /or research.

BVCOA and The Studio agree that detailed terms and conditions that guide each activity identified above, if required, will be separately agreed upon by the two institutions by signing the



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implementing agreement for each activity. These terms shall include a description of proposed activity and other arrangements.

### **Commencement, renewal, termination and amendment**

This MoU will come into force upon affixing of the signatures of the representatives of the partner institutions and will remain in effect for two years.

This MoU may be renewed upon its expiry, with the agreement of both partner institutions.



Prof. Ritu Deshmukh  
Principal, BVCOA  
Dated: **01/11/2018**



Pratik Dhanmer  
Principal Architect,  
Design Jatra  
Dated: **01/11/2018**



Course on

# “Building with Natural Materials”

By Design Jatra

2nd December 2019 to 6th December 2019

## COURSE CONDUCTOR

Design Jatra- : Ar.Shardul Patil , Ar. Vinita Kaur and Ar. Anushree T.

## COORDINATOR

Prof. Tejaswini H.M.& Prof. Sumitra Kadam



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TIME : 9AM TO 4 PM

## **'Building with Natural Material'**

- **Introduction:**

The main goal of the course

Enhance the capabilities and skills of the students in utilizing natural building materials for construction thus making them aware of the alternative building construction techniques.

- **The topics of the course:**

Wattle and Daub frames

Plastering

- **Date and Period:**

The course started on December 2<sup>nd</sup>, 2019 and completed December 6<sup>th</sup>, 2019.

Timing- 9:00 a.m. to 4:00 p.m. (Duration of the course is 35 hours during 5 days)

- **Place of Course:**

The activity took place in the classrooms for lecture and presentation and in the courtyard and construction yard for hands on.

- **Course Conductors (Trainers)**

**Design Jatra-** : Ar.Shardul Patil , Ar. Vinita Kaur and Ar. Anushree T.

- **Evaluation:**

The evaluation for the course is done on the basis of their 75% attendance and performance in the hands-on exercise

- **Feedback:**

The students want to attend more such courses which would teach them alternative construction techniques and loads of hands on experience.

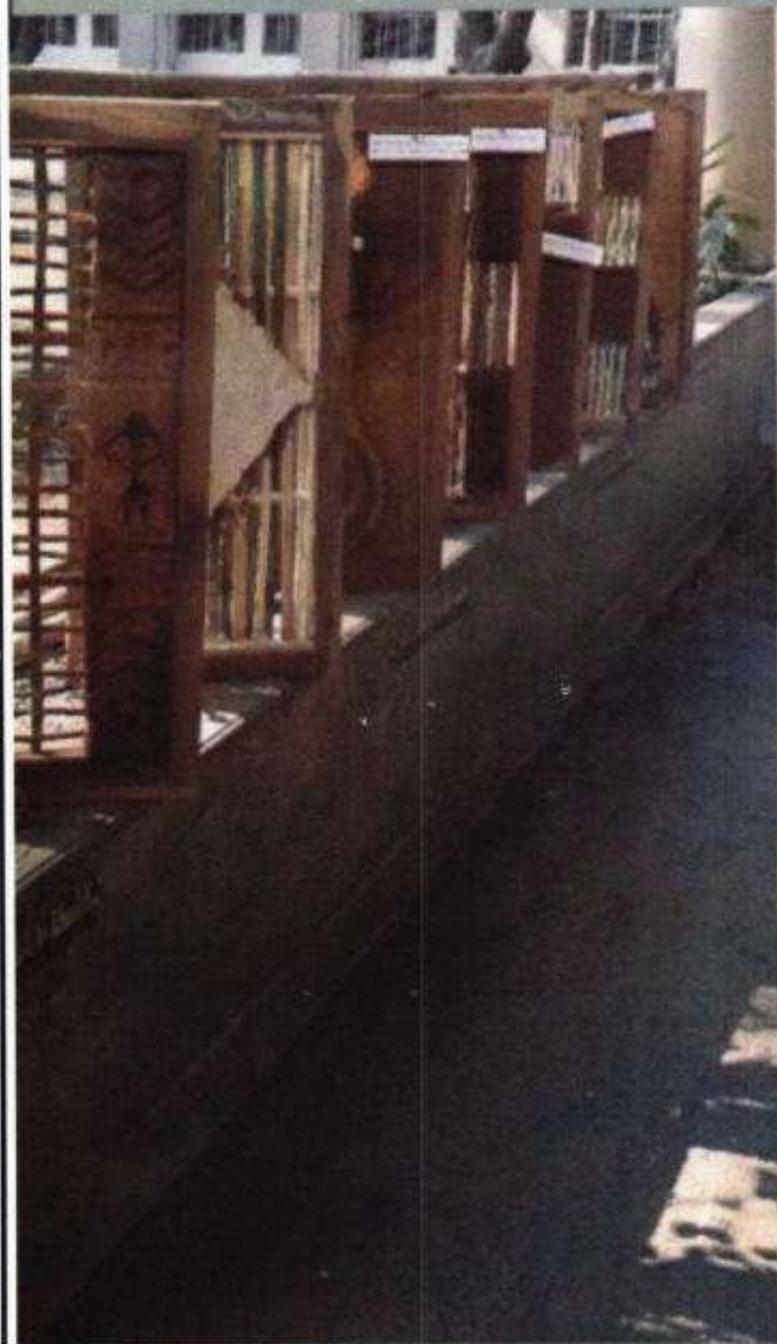


  
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# Building with Natural Material

## Course Report



  
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# CONTENTS

WATTLE	.....	1-3
DAUB	.....	4-6
PLASTER	.....	7-10
FINAL WORK	....	11

*Architecture should speak of its time and place, but yearn for timelessness.*

*- Frank Gehry*



  
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# WATTLE

---

The first element made was the Weattle, which consisted of a timber frame and battens, into which strips of bamboo were woven in. this acted Equivalent in strength to steel, bamboo made the appropriate surface for Daubbing.



  
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Green bamboos are cut into thin strips using a sickle. The strips are woven alternatively so that each side gets the same share of wet and dry phase for applying the layer of daub for moisture absorption.



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Bamboos are cut by holding them vertically on a firm surface. With one hand holding the bamboo and the other with the sickle, the sickle and bamboo are hammered together on the ground.



While cutting, it is to be made sure that during every cut, the hand should be below the node closest to the cut for safety purposes. The nodes of the bamboo act as breakage when the sickle is hammered.



A bamboo shoot can be cut into more than four pieces and accordingly thicknesses can be taken. But it is to be made sure that the thickness should just allow easy bending of the strip for easy weaving.



## Creating your Own Wattle

Other than the weaving procedure, patterns can be devised as long as weaving is done to hold the inner base wall. As shown in the left image, the vertical strips are placed normally while the horizontal strips are tied together with the vertical bamboos for support. The best rope that suffices this is thin nylon ropes but care needs to be taken as it may weaken the knots.



*Handwritten signature*

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# DAUB

---

The layer of Daub acts both as a layer of protection and a layer of minerals. The addition of fibres, such as rice husks, dry leaves etc, creates a biodiversity within the wall and as time passes by, these fibres convert to minerals that turn the frame stronger.

A handwritten signature in blue ink, appearing to be "V. D." with a flourish.

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# 2

Upon tarpolene sheet, the daub mixture is mixed by hand with water put in the same manner as concrete is mixed with water.

The tarpolene sheet is then lifted from sides such that the daub is turned and a lump is made.

It is to be made sure that the daub does not stick to the tarpolene sheet while mixing.

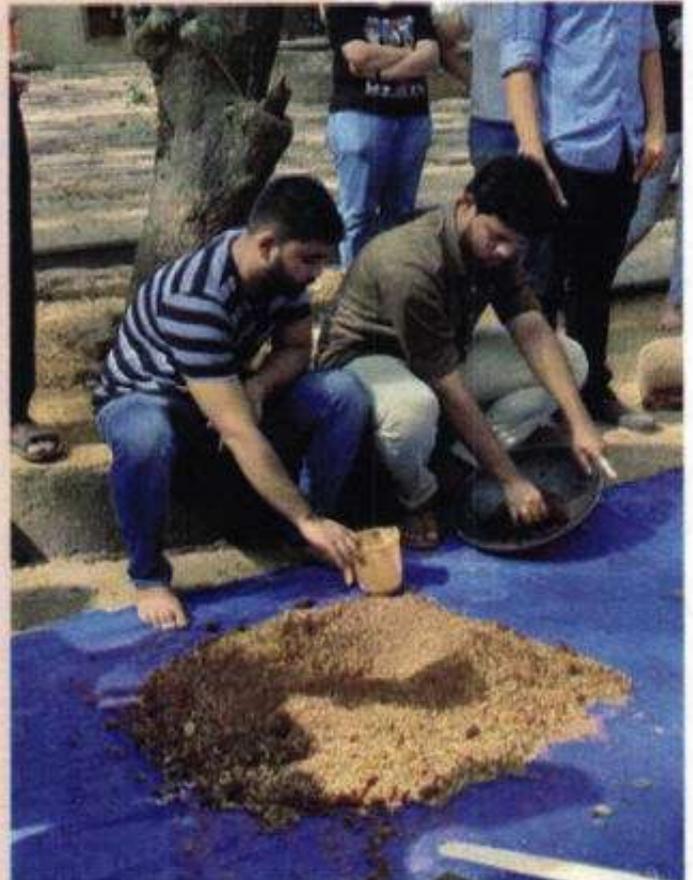
When applying the Daub, the fistful of lump needs to be aimed at the spot of daubing with force and rubbed in side-ways direction.

## DAUB

- : 3 ghamelas of Mud
- : 1 ghamela of Sand
- : 1 mug of Cow Dung
- : 1 ghamela of Rice Husk



The figure above shows how the ingredients for Daub are laid on a tarpolene sheet before mixing.



  
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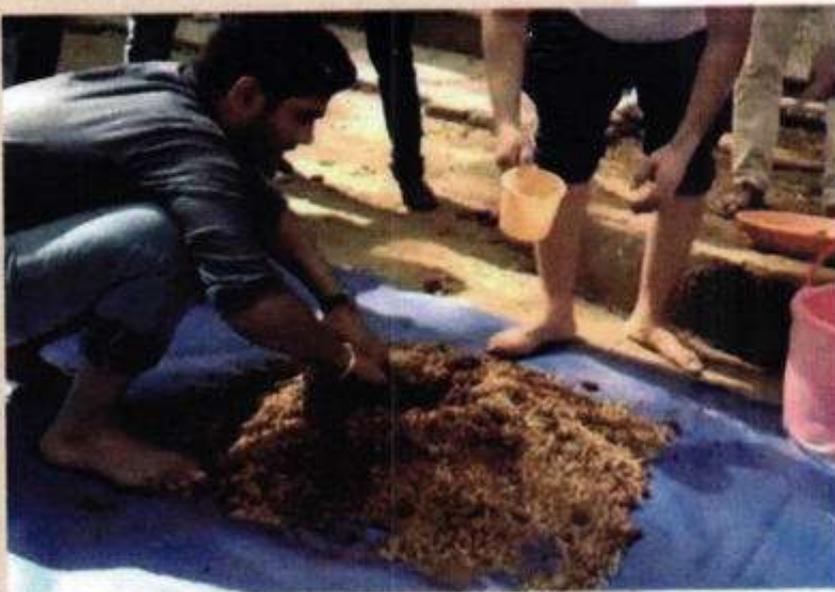
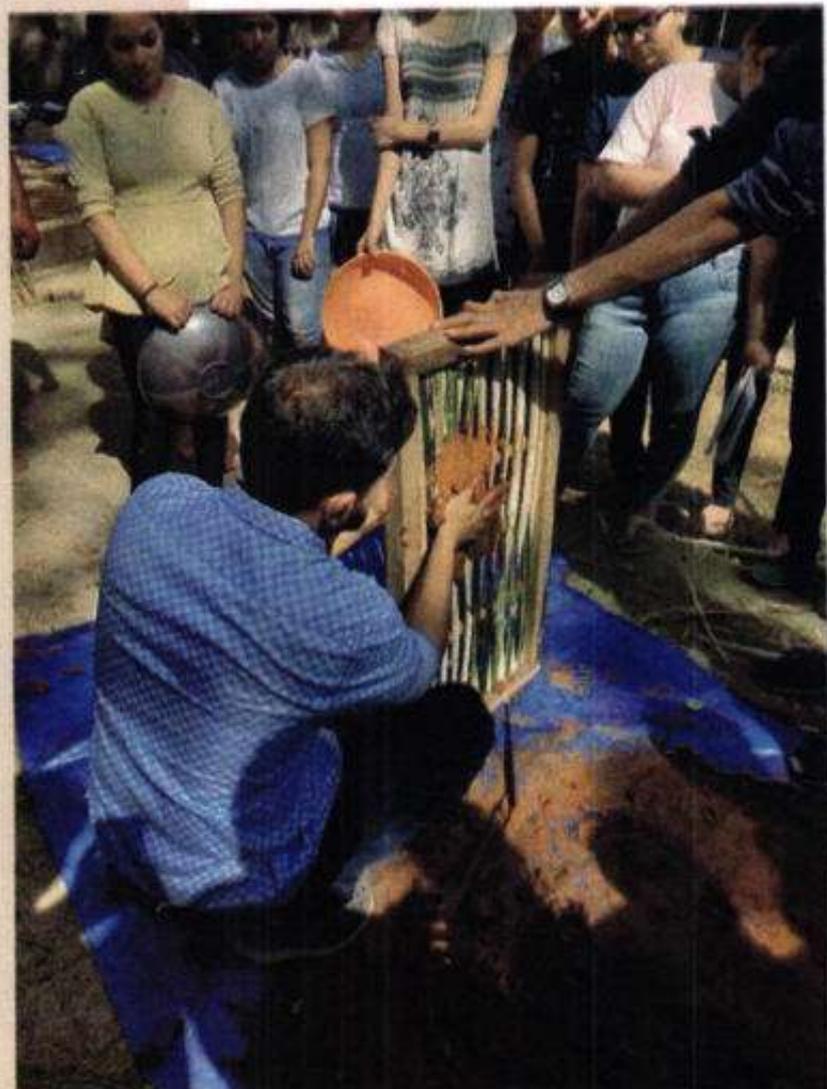


Figure at top left : The Daub is mixed with cowdung and water is simultaneously poured into the mound in similar fashion to that done in concrete.

Figure at top right: After achieving a good consistency, the ends of the tarpolene sheet are used to rotate the daub mixture and make a large mound of daub.

Figure at the right: Once the daub is ready, a fistful of lump is aimed at the wattle, while doing this, two people should aim lumps at both sides together so as to have an effective bond with the wattle and less wastage.

Then the lump is scrubbed along the wattle in sideways direction forming a thin layer of Daub.



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# PLASTER

The last step includes plastering either with mud or with lime as required. Two layers of coats were applied in which the coats were applied using a trowel and each coats finishing was done using finishing trowels.



  
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# 3



Mild hydrated lime is to be prepared a few days before plastering.

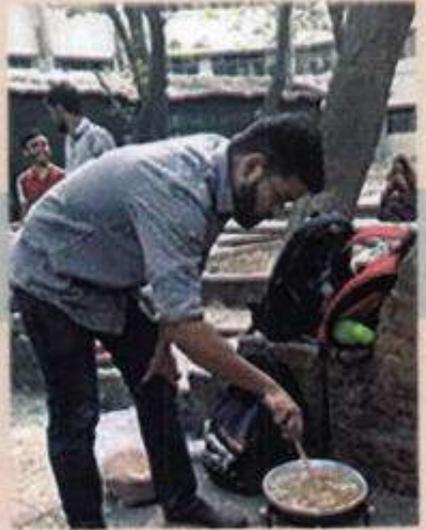
## Adhesives

Jaggery is immersed in water and a solution is made. After the solution is made and crushed Hirda is added to it. Then it is sieved and mixed for plastering

Two different meshes are used to attain regular sieved sand/mud and a finely sieved sand/mud for different coats of plaster.

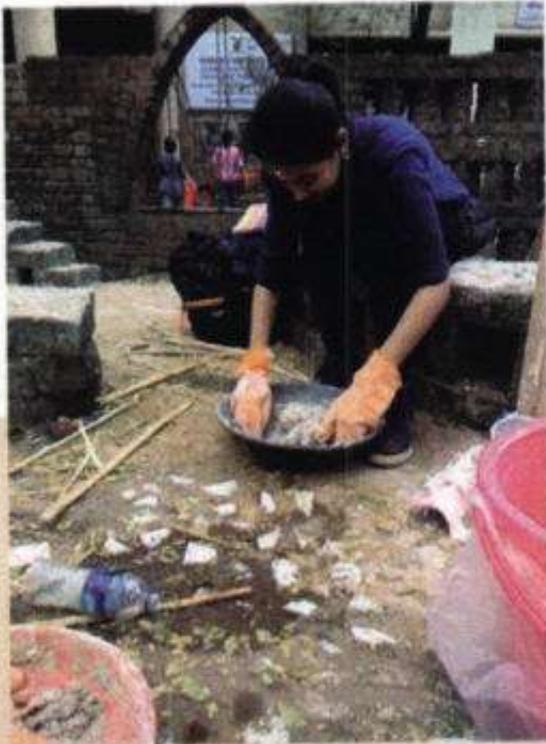


Methi is heated and water is added to it. Methi water is added then to Guggul Water and a mixture is made.



## LIME PLASTER

Before applying the base coat, curing is done on the daub after a day or two of drying.



### BASE COAT

- : 2 ghmaelas of seived Sand
- : 1 mug of Lime
- : 1/2 mug of Jaggery water & 1/2 mug of Hirda Water
- (OR)
- : Mixture of Guggal water and Methi water 1/4 50ml bottle.

### FINAL COAT

- : 1 mug Lime
- : 2 mugs of Rangoli
- (OR)
- : 2 mugs of finely seived Sand
- : 1/2 mug of Jaggery water & 1/2 mug of Hirda Water (OR)
- : Mixture of Guggal water and Methi water 1/4 50ml bottle.



Using the Trowel, the plaster is splat onto the the vertically placed frame. The frame is completely covered and excess is to be removed.



Using the wooden trowel, the plaster is levelled and excess is removed. The plaster is then allowed to dry.

  
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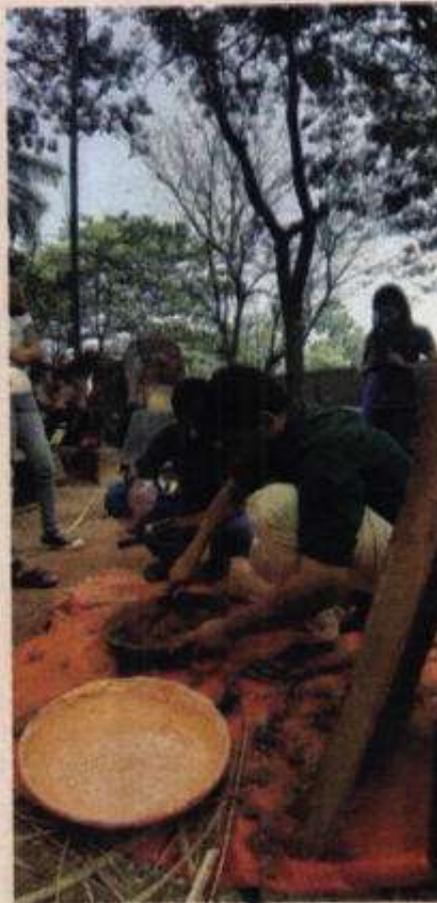
# MUD PLASTER

## BASE COAT

- : 2 Ghamelas of sieved sand
- : 1 Ghamela of sieved Sand
- : 1 mug Cow Dung
- : 1/8 mug of Linseed Oil

## FINAL COAT

- : 2 Ghamelas of finely sieved Mud
- : 1 ghamela of finely sieved Sand
- : 10% Lime in proportion to ghamela



Natural dyes are mixed in with the final layer of lime plaster.

After the base coats are applied, Lime plaster can be applied onto a Base mud plaster and vice versa.

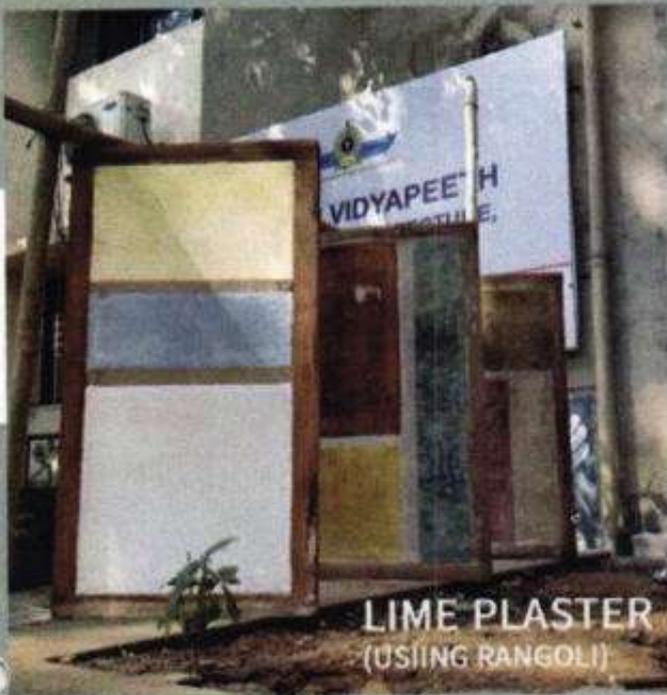


When doing the final coat, a thinner layer is applied using the steel Trowel to have a fine finish.



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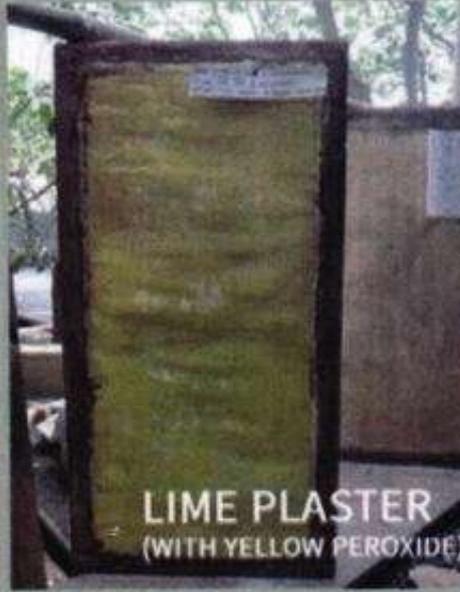


LIME PLASTER  
(USING RANGOLI)

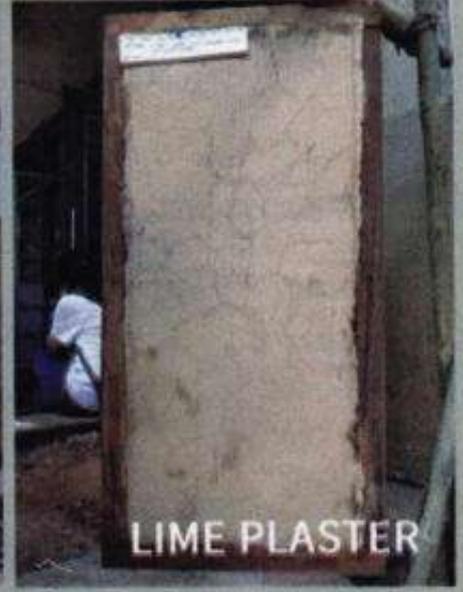
# FINAL WORK



MUD PLASTER



LIME PLASTER  
(WITH YELLOW PEROXIDE)



LIME PLASTER



WATTLE AND DAUB  
Complex, Opp. Kharghar  
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*Handwritten signature*



**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

AMIT BODAKE

**in recognition of their successful completion of**  
BUILDING WITH NATURAL MATERIALS

**conducted from**

2<sup>ND</sup> - 6<sup>TH</sup> DEC. 2019

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



*Ritu Deshmukh*  
**Prof. Ritu Deshmukh**  
**Principal**

*[Signature]*  
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**BHARATI VIDYAPEETH  
COLLEGE OF ARCHITECTURE  
NAVI MUMBAI**



**ACADEMIC YEAR: 2019 - 2020**

**This Certificate is awarded to**

PRANAV PRADHAN

**in recognition of their successful completion of  
BUILDING WITH NATURAL MATERIALS**

**conducted from**

2<sup>ND</sup> - 6<sup>TH</sup> DEC. 2019

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**



  
**Prof. Ritu Deshmukh  
Principal**

  
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Date :

## 1.2 Academic Flexibility

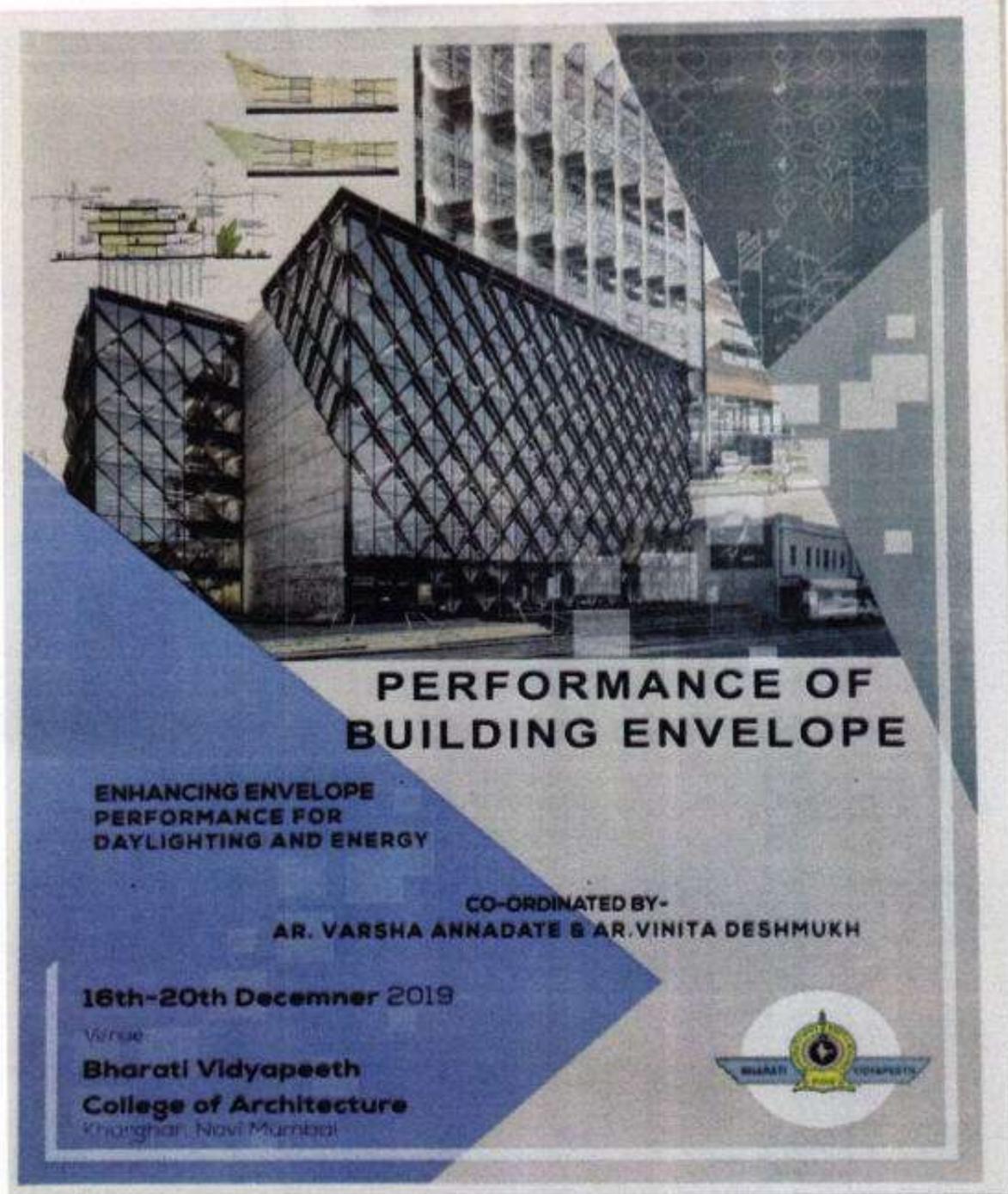
**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2019-20**

**Course 3- Certificate Course on Performance of Building Envelope**



  
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# PERFORMANCE OF BUILDING ENVELOPE

ENHANCING ENVELOPE PERFORMANCE FOR DAYLIGHTING AND ENERGY

CO-ORDINATED BY-  
AR. VARSHA ANNADATE & AR. VINITA DESHMUKH

16th-20th Decemner 2019

Venue:  
**Bharati Vidyapeeth**  
**College of Architecture**  
Kharghar, Navi Mumbai



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Ph: (022) 2757 1451, 2756 4646



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## REPORT:



### Brief about the Program:

The course was conducted for consecutive 5 days. The course started with the sessions for theoretical understanding of building envelopes, daylighting, ECBC 2017, different materials for construction, and green rating systems, for first two days. The concept of Net Zero Energy Building was understood through the case studies in groups. Following case studies were done online by the students:

1. Akshay Urja Bhavan, Harayana.
2. IGBC, Hyderabad.
3. Indira Paryavaran Bhavan, Delhi
4. CEPT NZEB- a living laboratory.
5. Suzlon, Pune.

To achieve the goal, the course included the field work – understanding the space allocation in BV College of Architecture building. The study included taking readings for daylight, temperature & humidity for all the spaces on all floors. The fenestration details, materials used for construction with their thermal properties were understood through wall sections. Students worked in groups for field study and generated simulated model for daylighting using the software. Discussions on the end results and suggestions were done. This study is the way-forward for generating the simulation model for the suggestive measures.

### The methodology includes-

- **Field measurements:** The college building is a G+4 structure with floor plate of approx.. 1425 sqm and total of 5682sqm approx. For evaluation of performance of building envelope, the batch of twenty students were grouped in 5 groups with four students each. Each group was assigned one floor for mapping the light ingress and temperatures



  
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using Lux meter and Thermo Hygrometer. The readings were taken at 9.00am and 3.00pm in a day.

- **Simulation:** The same empirical data was used to simulate and get the results to understand the amount of daylight in the spaces on all floors. Annual simulation results were obtained for the whole building. The Design Builder and Radiance software were used for simulation. The simulated results were also obtained after applying passive strategies as light shelves, chajja projection to enhance the indoor daylight. The comparative study between existing condition and after applying strategies helped the students to obtain the enhanced light levels in the room giving reduction in number of light fittings and subsequently reduction in energy consumption.

The class was divided in 5 groups for the group exercises.

**Date and Period:** The course started on 16<sup>th</sup> Dec 2019 and completed on 20<sup>th</sup> Dec 2019.

Timing- 9:00 a.m. to 4:30 p.m with half an hour lunch break (Duration of the course is 35 hours during 5 days).

**Participants-** The course was intended for 5<sup>th</sup> yr. B.Arch students. The number of students =20.

**Place of Course:** The activity took place in the computer lab and college building.

**Coordinator-** Prof. Varsha Annadate and Prof. Vinita Deshmukh.

**The experts:** 1) Ar. Garima Kamra from ASahi India Glass Ltd. for Different materials and Performance of Building envelopes as per ECBC norms. 2) Prof. Anil Nandedkar for Daylighting. 3) Ar. Sarang Karmarkar for ECBC norms, Daylighting and simulation.

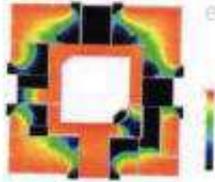
**Outcome:** The hands-on exercise gave the students the opportunity to handle the equipment and the method of taking measurements. The software used for simulations helped the students to apply it in their dissertation project and design the facades of the proposed project.



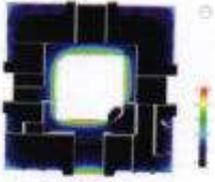
  
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**STUDENTS  
OUTCOME:**

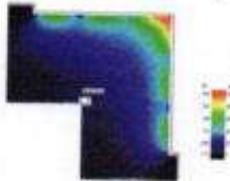
**LIBRARY SIMULATIONS**



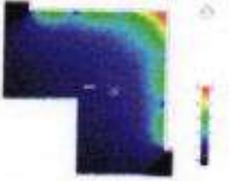
Ground Floor Annual Simulation



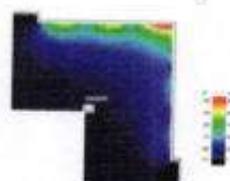
Ground Floor Daily Simulation



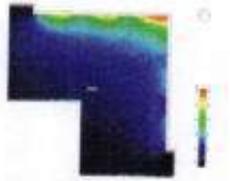
Simulation of 21st June ( Summer Solstice )



Simulation of 21st June After Intervention



Simulation of 21st Dec ( Winter Solstice )

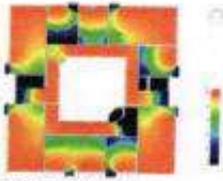


Simulation of 21st Dec After Intervention

Due to non-uniformity in the distribution of light , there is a sudden drop in lux level at the edges of the room with no fenestrations.

After introducing white Gypsum board as false ceiling due to its reflective property the uniformity of the light has increased with gradual increase in the lux level at the edges with no fenestrations.

**STAFF ROOM SIMULATIONS**



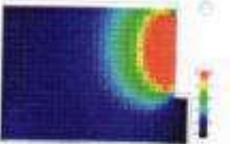
First Floor Annual Simulation



First Floor Daily Simulation



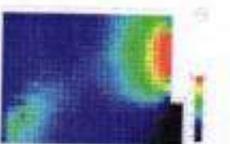
Simulation of 21st June ( Summer Solstice )



Simulation of 21st June After Intervention



Simulation of 21st Dec ( Winter Solstice )

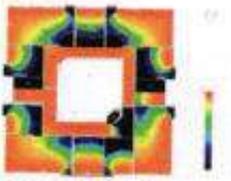


Simulation of 21st Dec After Intervention

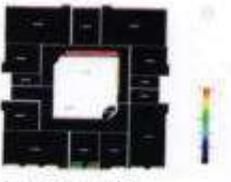
Due to no openings in west facade there is no distribution of light at the habitable area.

After introducing white gypsum board as false ceiling due to its reflective property the uniformity of the light had increased , and adding a clear storey window increases lux levels with proper distribution of light.

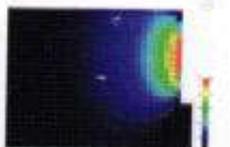
**FOURTH YEAR-B CLASSROOM SIMULATION**



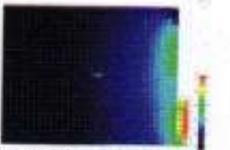
Second Floor Annual Simulation



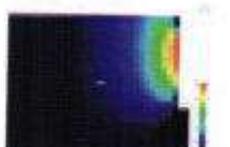
Second Floor Daily Simulation



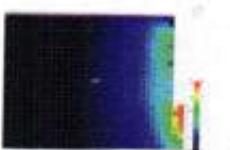
Simulation of 21st June ( Summer Solstice )



Simulation of 21st June After Intervention



Simulation of 21st Dec ( Winter Solstice )



Simulation of 21st Dec After Intervention

The west side facing room is dark due to hindrance to light inlet because of trees partially blocking.

Introducing a new window on the same side, increases light intake in the room.

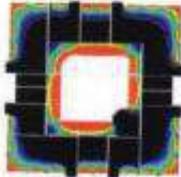


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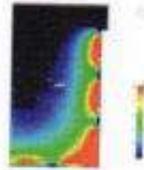
**SOUTH - EAST STUDIO SIMULATIONS**



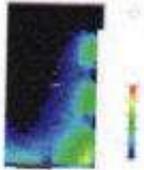
Third Floor Annual Simulation



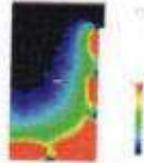
Third Floor Daily Simulation



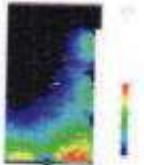
Simulation of 21st June ( Summer Solstice )



Simulation of 21st June After Intervention



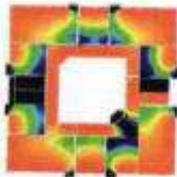
Simulation of 21st Dec ( Winter Solstice )



Simulation of 21st Dec After Intervention

The simulation of 21st June high glare is recorded in the south east studio through the clear glazed window. To prevent the glare light shelves are introduced which in-turn reduce both glare and heat gain.

**SOUTH - WEST STUDIO SIMULATIONS**



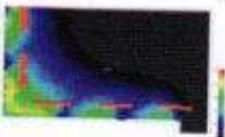
Fourth Floor Annual Simulation



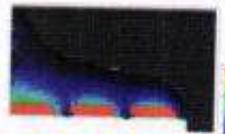
Fourth Floor Daily Simulation



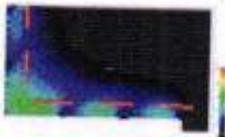
Simulation of 21st June ( Summer Solstice )



Simulation of 21st June After Intervention



Simulation of 21st Dec ( Winter Solstice )



Simulation of 21st Dec After Intervention

The simulation of 21st June high glare is recorded in the south west studio through the clear glazed window. To prevent the glare, fins are introduced which in-turn reduce both glare and heat gain.

The simulation of 21st Dec high glare is recorded and order to reduce it a light shelf is introduced to disperse the light throughout the south west studio.



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### ASSESSMENT PROCEDURE:

Evaluation criteria – Min. attendance for 3 days out of 5 days.  
Active participation in the group assignments. Completion and submission of assignment.  
Certificates will be given to students fulfilling the above criteria.  
Exercise no. 1- Individual work, Exercise no. 2, 3 & 4 – Group work

S.No.	Group nos.	Name	Exercise 1 (20)	Exercise 2 (20)	Exercise 3 (50)	Performance (10)	Total (100)
1	Group1	Atharva Dixit	13	14	35	10	72
2		Arjun Laxman	16	15	42	10	86
3		Devika Aras	13	14	35	7	69
4		Nikita Kharbe	16	15	35	10	76
5	Group2	Arjita Gupta	14	15	38	10	77
6		Pravarta Dhapare	15	15	35	10	75
7		Shravani Kendki	15	16	35	10	76
8		Apeksha Joshi	16	16	40	10	82
9	Group3	Nidhi Joshi	14	15	33	10	72
10		Rahul Karmi	12	16	31	10	69
11		Prajesh Jadhav	11	16	32	8	67
12		Dishani Chavan	13	15	32	9	69
13	Group4	Darshan Chavan	12	13	32	8	65
14		Shwetank Jain	10	11	28	10	59
15		Krishna Bhadra	14	14	34	10	72
16		Rahul Kadam	13	14	34	10	71
17	Group5	Anurag Deshmukh	14	13	37	10	74
18		Sandhya Varier	15	12	37	10	74
19		Kashyap Garodia	15	13	35	10	73
20		Rutvij Khopkar	14	13	35	8	70



  
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**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

ARJITA GUPTA

**in recognition of their successful completion of**

BUILDING ENVELOPE

**conducted from**

16<sup>TH</sup> - 20<sup>TH</sup> DEC. 2019

**at**

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**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

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Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2019-20**

**Course 4- Certificate Course on Parametric Modelling**



  
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COORDINATOR

**Prof. Madhura Naik**

COURSE INSTRUCTOR

**Mr. Sai Srimanth (Parakraft)**

# Course On **Parametric Modelling**

**16th December to 20th December 2019**

**TIMINGS - 9:00am to 4:00 pm**



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Report on  
**Parametric modelling**

**Course Instructor**

**Mr. Sai Srimanth (Parakraft)**

**No . of students participated - 42**



Parametric design is the most widely used modelling process in contemporary architecture and design. The course was organized in collaboration with ParaKraft for a duration of 5 days (16th to 20th December 2019) with the agenda to explore the techniques and tools used in parametric modelling and computational design as a foundation for design optimization. The sessions introduced several parametric design modelling platforms and scripting environments that enable rapid generation of 3D models and enable rapid evaluation of parametrically-driven design alternatives.



  
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**Topics included:**

- Direct modelling versus parametric design principles
- Design exploration employing platforms for parametric modelling, such as Rhino
- Languages and environments for visual scripting, such as Grasshopper
- Methods and strategies for single- and multi-dimensional optimization



  
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## EVALUATION:

The evaluation of students in a parametric design course typically involves a combination of methods designed to assess their understanding of theoretical concepts, practical skills, and the application of parametric design principles.

## FEEDBACK:

The students are hoping to learn the advanced parametric tools and utilize the same in their design subjects.



  
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**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

**BHOLE SAMIDHA**

**in recognition of their successful completion of**

**PARAMETRIC MODELLING**

**conducted from**

**16<sup>TH</sup> - 20<sup>TH</sup> DEC. 2019**

**at**

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**ACADEMIC YEAR: 20 19 - 20 20**

**This Certificate is awarded to**

TEJBE MANASI

**in recognition of their successful completion of**

PARAMETRIC MODELLING

**conducted from**

16<sup>TH</sup> - 20<sup>TH</sup> DEC. 2019

**at**

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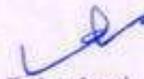
## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2019-20**

**Course 5- Certificate Course on Mitti- Folk Art and Crafts**



  
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Course on

# Mitti- Folk arts and Crafts

For 1st yr students	Dates  <b>23rd December 2019 to 27th December 2019</b>  <b>TIMINGS- 9:00 a.m. to 4:00 p.m.</b>

**Mitti Initiative**  
Mrs. Shoma Banerjee

**COORDINATOR**  
Ar. Renuka Wazalwar  
Asst. Professor, BVCOA



"The idea of beauty is the fundamental idea of everything." - Leo Tolstoy

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## Report on the course conducted on

### Mitti- Folk arts and Crafts



#### ● Introduction:

The course's primary objective, which was accomplished in its five days of activity from December 23 to December 27, was to strengthen and enhance the talents and skills of first-year students as well as to make them aware of and exposed to the rich national artistic legacy.

#### ● Number of students - 129 Students

#### ● The topics of the course:

With the inclusion of art forms in a fresh, innovative approach, new paradigms of instruction and practise in the field of architecture are to be developed for which the following art forms were taught

- Lippan Art ,Artisan- Mr. Ashwin Marvada Jura
- Gond Art, Artisan- Mr. Surender Tekam
- Chitrakathi Art, Artisan- Mr. Chetan Gangavane
- Wire Art, Artisan- Mrs. Sashi Bala
- Madhubani Art, Artisan- Mrs. Anju Chaudhary
- Kawad Art, Artisan - Mr. Dwaraka Prasad
- Warli Art, Artisan- Mr. Dilip Bahatho



  
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### Methodology of Course:

The following themes were utilized in the course to emphasize discussion and practical, hands-on methodology:

- ❖ Dividing the large group of students into smaller groups according to their choice of the specific art form
- ❖ Involving the students in collective interaction and discussion, thus encouraging dialogue.
- ❖ Practical, hands-on learning experiences that strengthen connections

### ● Evaluation:

The evaluation for the course is done on the basis of two aspects

- Attendance and
- Performance based on the art form the students produced individually.

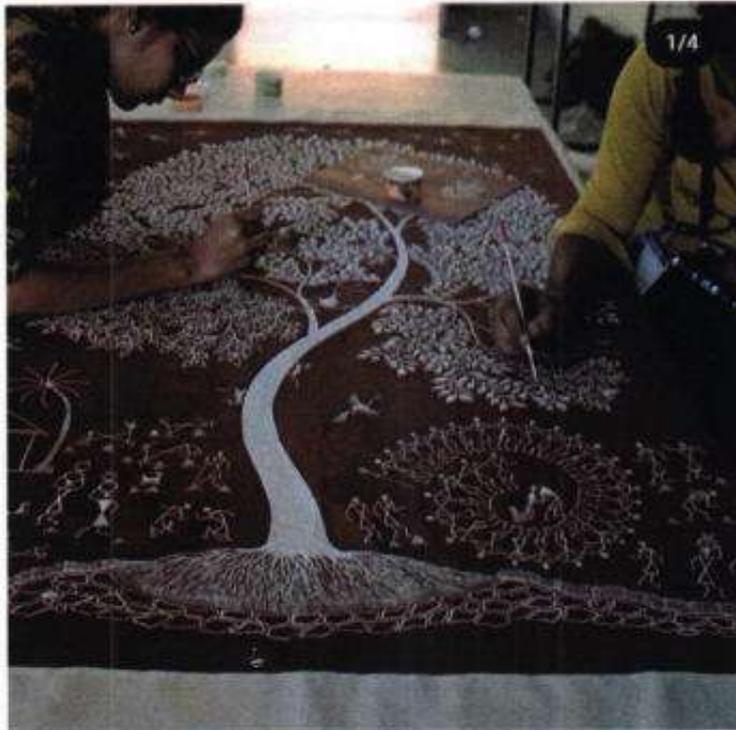
### ● Feedback:

The goal of the entire initiative was to: 1. Provide a forum for the promotion of indigenous art forms; 2. Educate the next generation about this history; and 3. Support local artists by purchasing their wares. 2. Students really received first-hand instruction from the crafts people themselves, learning the art forms from nothing to a finished product. Additionally, the pupils want to learn different kinds of art.



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# MITTI-FOLK ARTS & CRAFT 2019-2020



## CERTIFICATE OF PARTICIPATION

This Certificate is awarded to

MOVALIA ISHITA ASHOK

in recognition of their successful completion of MITTI- Folk Arts & Craft

Course conducted from

23<sup>RD</sup> - 27<sup>TH</sup> DEC. 2019

at

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**Principal**  
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**Rly Station C.B.D, Navi Mumbai**

**Mrs. Somma Bannerjee**  
**MITTI- Founder Director,**  
**Kharghar, Navi - Mumbai**

# MITTI-FOLK ARTS & CRAFT 2019-2020



## CERTIFICATE OF PARTICIPATION

This Certificate is awarded to

NAGVEKAR SAKSHI SANJAY

in recognition of their successful completion of MITTI- Folk Arts & Craft

Course conducted from

23<sup>RD</sup> - 27<sup>TH</sup> DEC. 2019

at

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MITTI- Founder Director,  
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Ref. No. - BV / COA / N.M. /

Date

## Criteria 1 - Curricular Aspects

### Key Indicator - 1.2 Academic Flexibility

#### Academic Year 2018-19

**Course 1- Certificate Course on Earth Architecture, Auroville**

**Course 2- Certificate Course on Biomimicry and Tensegrity**

**Course 3- Certificate Course on Mitti- Folk arts and Crafts**

**Course 4- Certificate Course on Building Skin for High-rise Smart Facade:**

**Collaborative Design Approach**

**Course 5- Certificate Course on Mind Mapping and Design Thinking**

**Course 6- Certificate Course on Parametric Design Thinking**

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## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2018-19**

**Course 1- Certificate Course on Earth Architecture**



  
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# Summer School @ Auroville

7th May to 17th May 2018

## Course on Earth Architecture

**Course-Conductor**

Ar. Shubha Mishra

**Course-Coordinator**

Ar. Tejaswini H.M



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Report on Course  
**'Earth Architecture'**

by

CEASID - Centre of Earth Architecture and Sustainable Integrated Development,  
Auroville

- Date – 7<sup>th</sup> -17<sup>th</sup> May 2018
- Number of students enrolled- 26 Nos.

The course on 'Earth Architecture, by CEASID - Centre of Earth Architecture and Sustainable Integrated Development in Auroville was taken during May 2018 for 4<sup>th</sup> Year Students. The course aimed to explore Auroville's unique architectural approach, with a focus on earth architecture and sustainable integrated development.

**Course Overview:**

The course provided students with a comprehensive understanding of Auroville's philosophy, principles, and architectural practices. The course covered topics such as sustainable integrated development, earth architecture techniques, sustainable construction materials and sustainable infrastructure. The course duration was 10 Days of instruction per day.

**Student Engagement and Participation:**

Throughout the course, the students demonstrated a high level of engagement and active participation. They eagerly participated in discussions, shared their perspectives, and engaged in design workshops and site visits. The students showed a strong interest in understanding the principles of sustainable integrated development and exploring the unique architectural solutions in Auroville.

**Course Content and Delivery:**

The course content was well-received by the students, providing a comprehensive overview of Auroville's sustainable integrated development and earth architecture practices. The lectures, case studies, design workshops, and field visits effectively presented the concepts and techniques of sustainable architecture within the context of Auroville. The combination of theoretical knowledge and practical exercises allowed



  
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students to grasp the complexities of sustainable integrated development and earth-based construction.

**Assessment Methods:**

To assess students' understanding and application of the course concepts, a variety of assessment methods were utilized. These included individual and group assignments, design workshops, presentations, and a final report compilation focused on all the learnings of sustainable architecture. These assessments provided opportunities for students to showcase their knowledge, critical thinking skills, and creativity in the context of sustainable integrated development.

**Student Feedback:**

The course received positive feedback from the students. They expressed appreciation for the course content, which provided them with a deep understanding of sustainable architectural practices. The hands-on design workshops and the field visit to Auroville were particularly highlighted as valuable experiences, allowing students to witness and analyze real-world examples of sustainable integrated development. The students also appreciated the relevance of the course in addressing current environmental challenges and their impact on architectural design.

**Conclusion and Recommendations:**

Based on the feedback and outcomes, the course has been successful in achieving its objectives. The students have gained a comprehensive understanding of sustainable architecture and demonstrated their ability to apply sustainable design principles in their projects.

The course be continued in future, considering its relevance in promoting sustainable architecture and integrated development. It is also recommended to explore opportunities for collaboration with Auroville's architectural community and to include guest lectures from practitioners with expertise in earth architecture and sustainable development.

  
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Centre for Earth Architecture  
&  
Sustainable Integrated Development

# CENTRE OF EARTH ARCHITECTURE AND SUSTAINABLE INTEGRATED DEVELOPMENT

**AR. SHUBHA MISHRA**  
**FOUNDER-DIRECTOR-MENTOR & CHIEF ARCHITECT CEASID**  
ceasid@gmail.com , (+91) 9112079811,  
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**CONDUCTED FOR: FOURTH YEAR ARCHITECTURE STUDENTS OF  
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Centre for Earth Architecture  
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**CEASID: Centre for Earth Architecture & Sustainable Integrated Development at Pune (Maharashtra) , Bhopal (Madhya Pradesh) & near Auroville (Tamilnadu), India;** founded in July 2010 by **Architect Shubha Mishra**, is a private organization, which aims to promote Earth Architecture , Appropriate Building Technologies & Sustainable Integrated Development'; through conducting Training courses, Seminar series, Researches, Study tours, Architectural Projects, Livelihood projects, Writings, Architectural Journalism, & Social Services for Humanity & Nature with a Holistic approach.

**Email: ceasid@gmail.com,**

**Phone: (+91) 9112079811**

**Website: www.ceasid.com**

**Media: [www.facebook.com/ceasid](http://www.facebook.com/ceasid) , FB group: ceasid**

**'Sustainable Architecture is an environmental friendly integrated approach of managing the natural resources at every stage of planning, Design, construction , execution & usage ; by maintaining the social, ecological, spiritual, economical & aesthetical balance with optimum living standards without harming nature. It's an Architecture from nature, with nature & for nature'.-Ar.Shubha Mishra**



**Ar Shubha Mishra**

**C.O.A Registered Architect  
Founder-Director -Teacher CEASID**

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Sustainable Integrated Development

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PHOTOS BY SHREYA VENGURLEKAR AND SUNEHA SHETTY  
VIDEOS BY ADITI CHAKROBORTY



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# INTRODUCTION TO SUSTAINABLE INTEGRATED DEVELOPMENT AS A WAY OF LIFE



Centre for Earth Architecture

Sustainable Integrated Development

Live & let live, let's grow together, respecting mother Earth by maintaining balance between its resources. Sustainable integrated development has always been CEASID's mantra & its way of life. And here in this primary session - the need, importance & how to do regular practice of amalgamating Sustainable Integrated Development with daily life will be taught by giving live case study examples of converting sustainable holistic living dreams into practical reality.

**AIM:** To understand the importance of sustainable living.

**EXPERIMENT:** The task was to collect available materials in the vicinity and compile it in a plastic bottle.

## PROCEDURE:

1. Three groups of two members each were made to complete the task.
2. The task was to collect the materials available in nature around the vicinity within 5 minutes.
3. Several materials like soil, stone, leaves, metal, coconut coir, rubber, etc were found around.
4. These materials were then assembled together by every group .
5. Every group was instructed to compile these materials in a plastic bottle within a time limit of 5 minutes.
6. After completing the task a short jury was conducted to understand the thought process of every group.

**INFERENCE:** **Group 1** considered time as the main motive and compiled all the materials into one.

**Group 2** combined materials like soil, water, coconut coir, mangalore tiles, that can be used as a new construction material.

**Group 3** formed layers of soil, water, coconut coir, stems, leaves , flowers as per their size. This arrangement of layers resulted into the formation of a new life.



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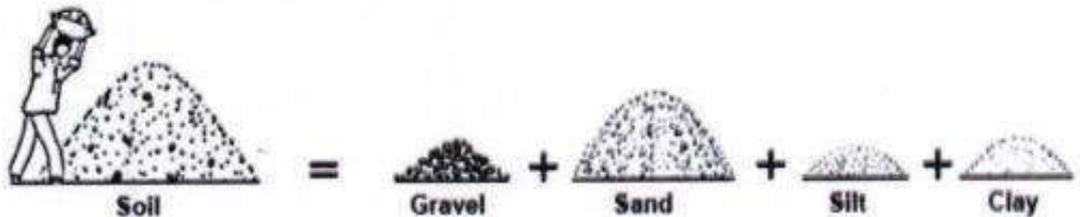
# IDEAL SOIL FOR CONSTRUCTION



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## IDEAL SOIL FOR CONSTRUCTION

- 50 % - Sand
- 20 % - Clay
- 15 % - Gravel
- 15 % - Silt



## SOIL STABILIZATION

TO ADD COWDUNG –

- Advantages : Makes it water resistant .
- It is a binding material .
- It is anti-termite .
- Increases compressive strength .

Limitation : Smell of the cowdung .

TO ADD COCONUT COIR –

- Advantages : To add strength to the soil .
- Low cost .
- Low thermal conductivity .
- High strength .
- Crack resistant .

Husk and Straws can also be added to add strength to the soil .



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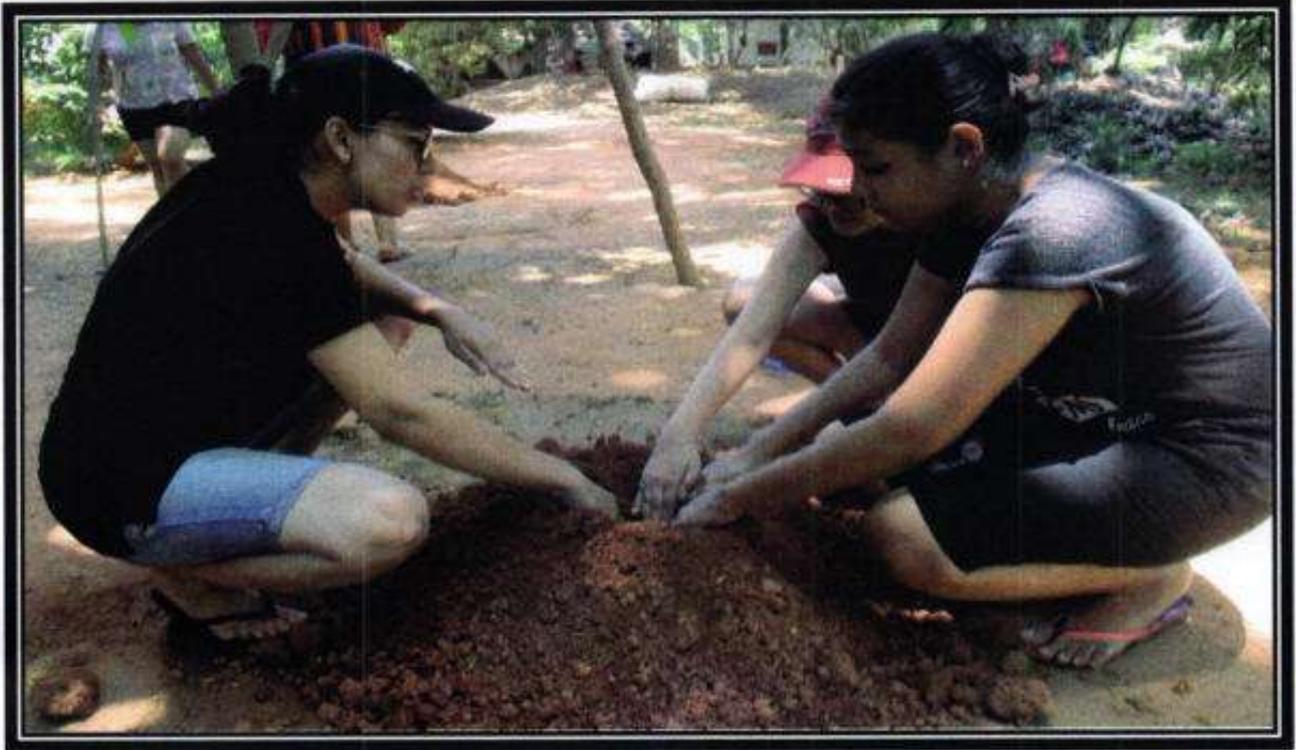
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# PROCESS



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## DRY MIX

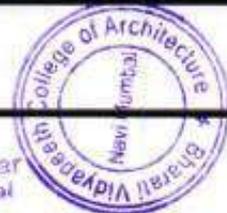


## ADDING WATER



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# PROCESS



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## WET MIX



## ADDING COWDUNG



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# PROCESS

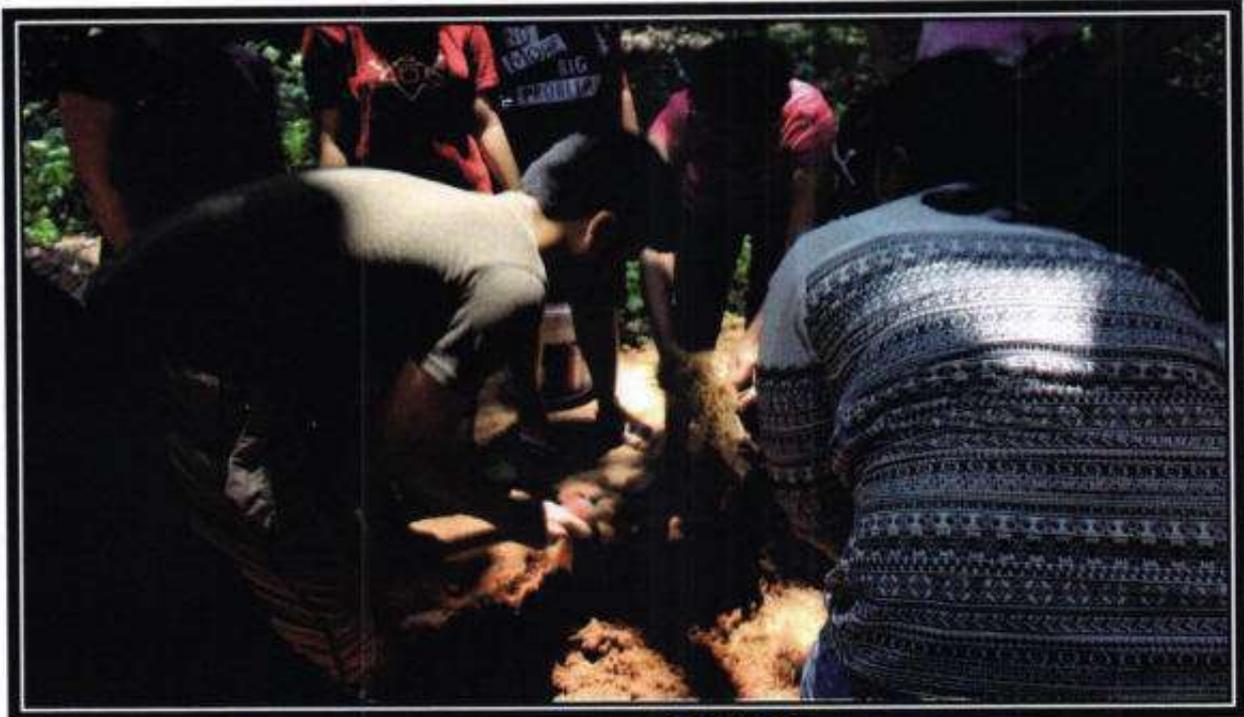


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## MIXING



## ADDING COCONUT COIR



✓

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# TYPES OF COB MIXTURE MAKING



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STAMPING METHOD	TARPAULIN METHODE
	
<ul style="list-style-type: none"><li>• IT IS SLOW PROCESS</li></ul>	<ul style="list-style-type: none"><li>• IT IS QUICK PROCESS</li></ul>
<ul style="list-style-type: none"><li>• NEED MORE LABORS</li></ul>	<ul style="list-style-type: none"><li>• NEED LESS LABOR</li></ul>



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# PROCESS



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## MAKING OF COB BALL



## MAKING COB STRUCTURE



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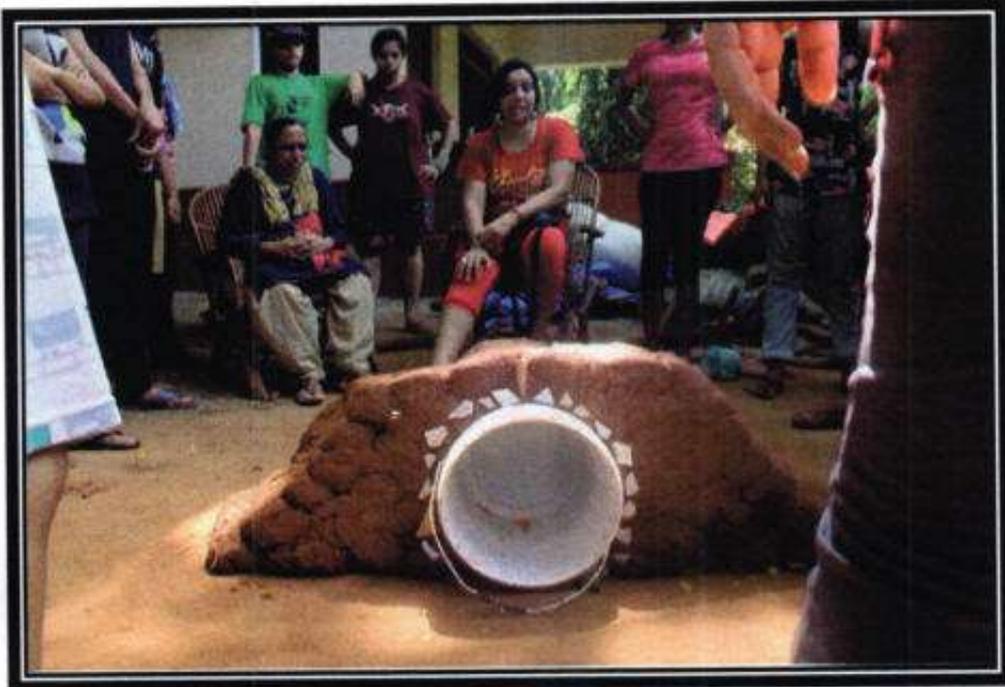


# PROCESS

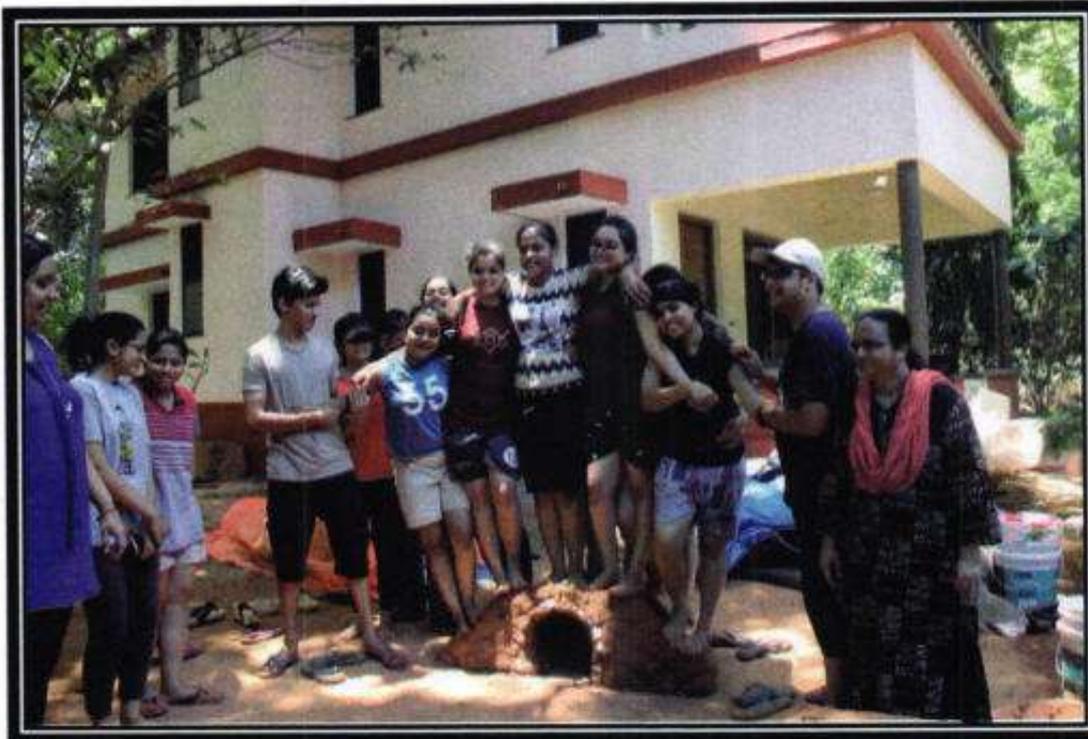


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## FINAL COB STRUCTURE



## LOAD TEST OF COB STRUCTURE



A handwritten signature in blue ink, appearing to be 'A' with a flourish.

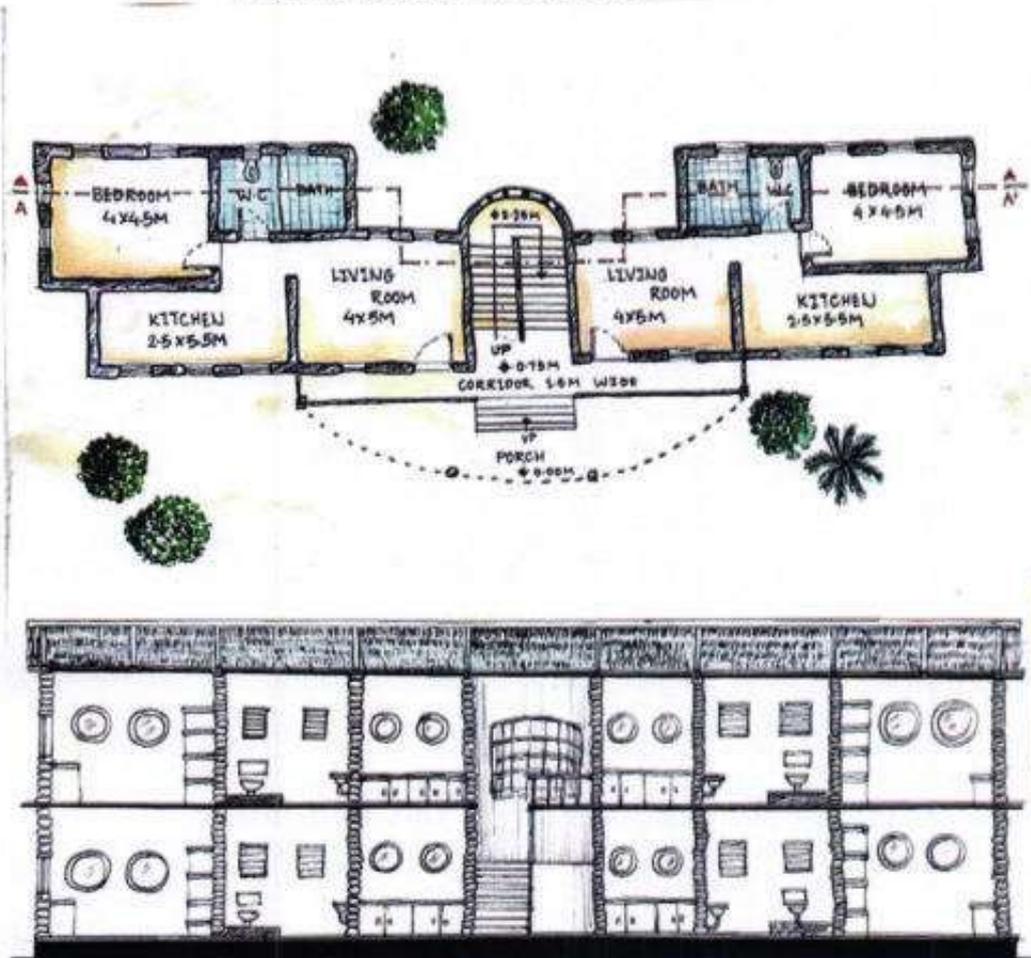
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# DESIGN OF COB STRUCTURE



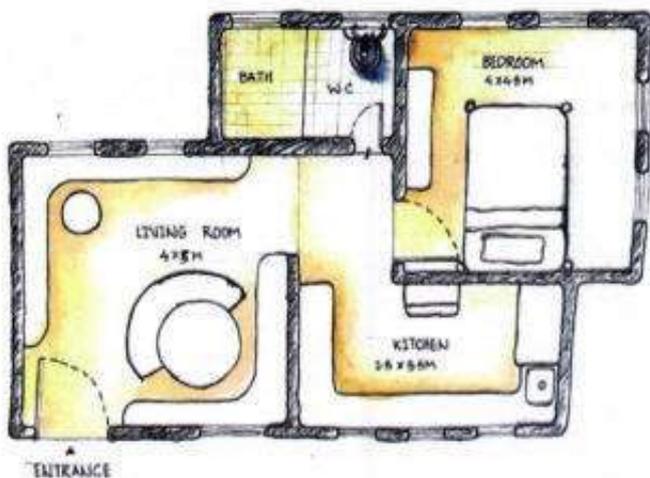
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## 1BHK COB STRUCTURE



SECTION AA'

## SECTION



ENTRANCE

1BHK MODULE



COB FURNITURE DETAIL

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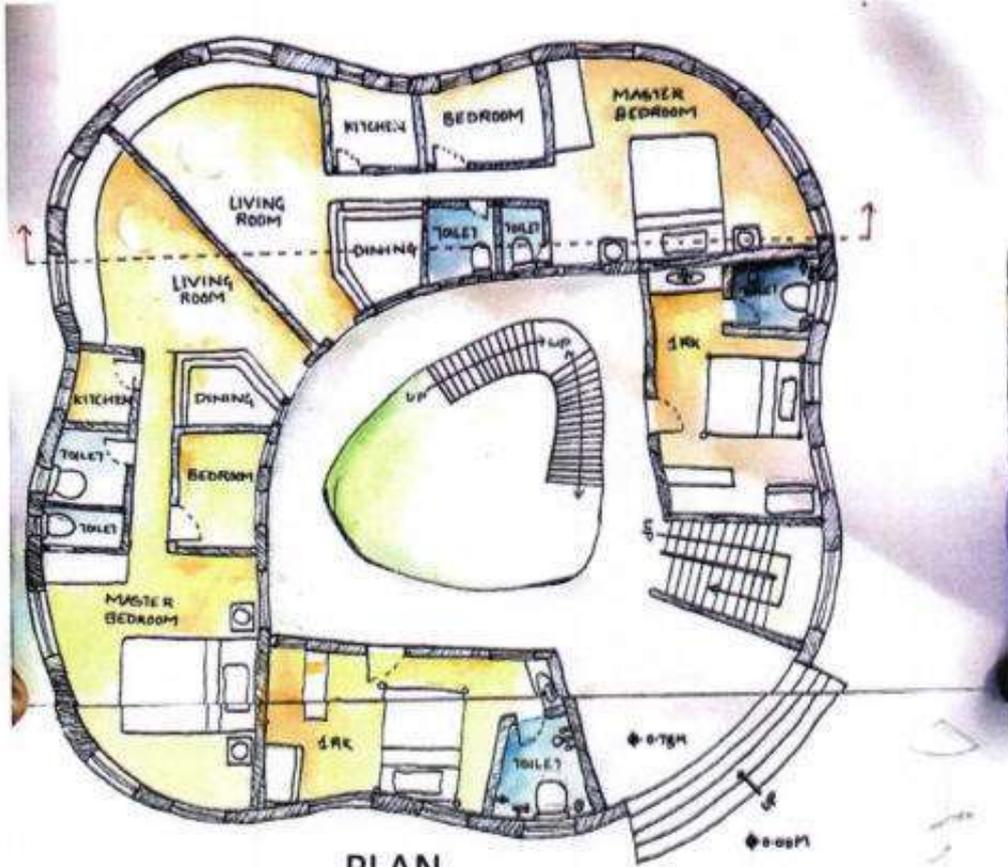


# DESIGN OF COB STRUCTURE

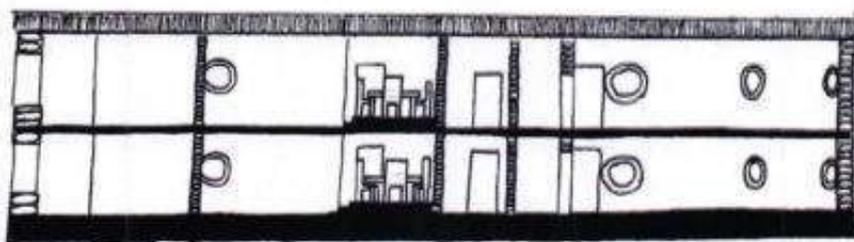


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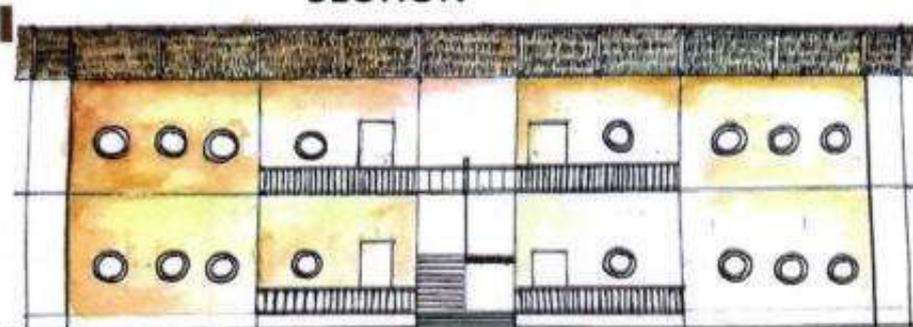
## 2BHK AND STUDIO APARTMENT



PLAN



SECTION



ELEVATION



*[Signature]*

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# ADOBE CONSTRUCTION



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- *Adobe comes under moulded technique of earth architecture where earth is moulded either by hands, moulds or by machines into various shapes.*
- *Adobe is also referred as sundried bricks.*
- *Adobe structures are extremely durable and eco-friendly.*
- *The oldest documented building : ramasseum egypt of 1300bc is also out of this technique.*



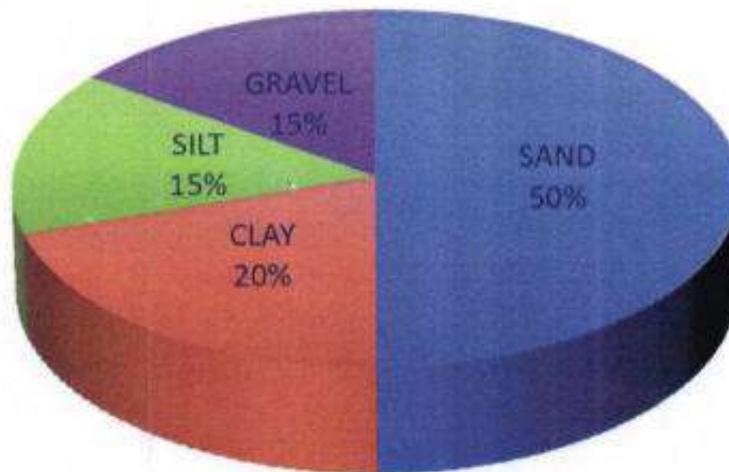
  
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# SOIL MIXING



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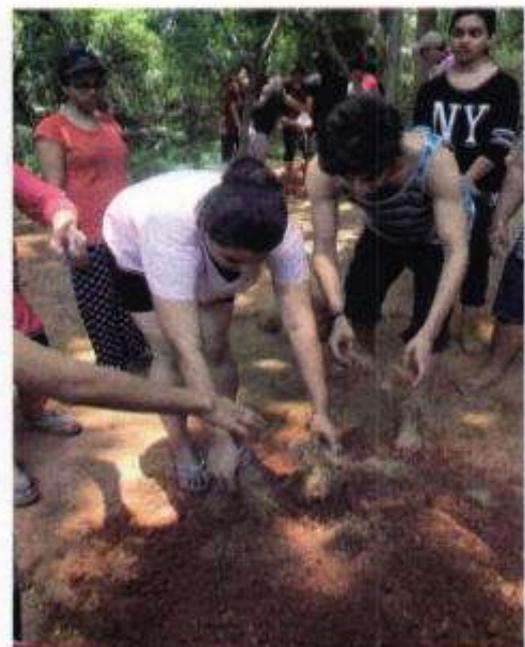
## IDEAL COMPOSITION OF SOIL



■ SAND ■ CLAY ■ SILT ■ GRAVEL



**Step 1**  
Dry mixing  
Removing gravels and straws.  
Mixing small amount of cowdung  
(Antiseptic treatment and binder)



**Step 2**  
Add coconut coir as a  
reinforcement



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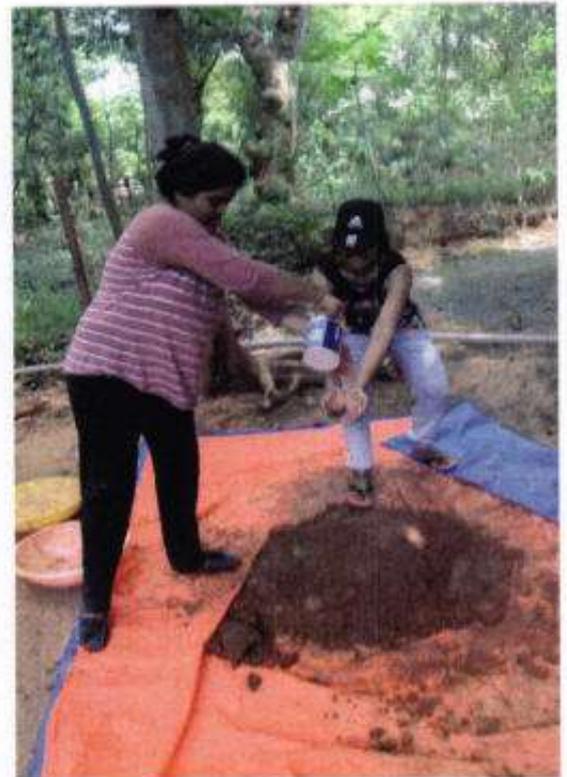
# SOIL MIXING



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**STEP 3  
SPRINKLE WATER INTO THE  
MIXTURE.**



**STEP 4  
COVER THE MIXTURE BY  
TARPOLINE SHEET AND STAMP  
ON IT TO GET THE DESIRED  
HOMOGENOUS MIX.**



  
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## ADOBE MIXING



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## TYPES OF BLOCKS



**HAND-MADE  
BLOCKS**



**RESEARCH BY THE  
STUDENTS.**



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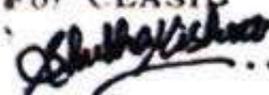
## **EARTH ARCHITECTURE & SUSTAINABLE INTEGRATED DEVELOPMENT *Course -A***

### **ARCHITECTURAL SUMMER SCHOOL & INTERSHIP PROGRAMME**

This is to certify that **SIMRAN GUPTA** has successfully participated as a **CEASID TRANIEE** in our Architectural Summer School & Internship Programme on Earth Architecture & Sustainable Integrated Development *Course-A*; held in **AUROVILLE** from 07th -17th may 2018 , Organized by : ' CEASID: Centre for Earth Architecture & Sustainable Integrated Development' under the guidance of Ar. Shubha mishra, Director , CEASID

Date: 17-05-2018

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www.facebook.com/ceasid

For CEASID  


**Ar. Shubha Mishra**

Founder, Director & Mentor - CEASID



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## **EARTH ARCHITECTURE & SUSTAINABLE INTEGRATED DEVELOPMENT *Course -A***

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Date: 17-05-2018

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**Ar. Shubha Mishra**

Founder, Director & Mentor - CEASID

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Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2018-19**

**Course 2- Certificate Course on Mitti- Folk Art and Crafts**



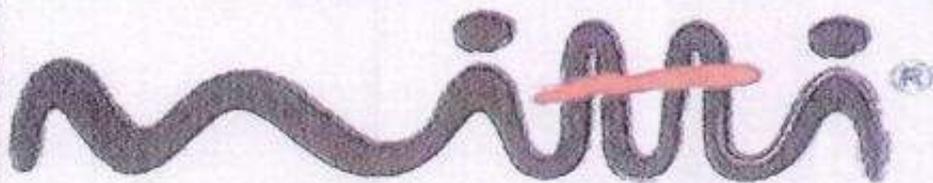
  
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Course on  
**Mitti - Folk Arts and Crafts**

3rd December 2018  
to  
7th December 2018

Mitti Initiative  
Mrs. Shoma Banerjee

Co-ordinators:  
Ar. Renuka Wazalwar



"The Idea of beauty is fundamental idea of everything"  
- Leo Tolstoy



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## Report about the course conducted on Mitti- Folk arts and Crafts



### Introduction:

The main goal of the course is to Improve and enhance the capabilities and skills of the 1st Year students and to make them aware and expose them to the vast art heritage of the country.

### The topics of the course:

To develop new paradigms of pedagogy and practice in the field of Architecture with incorporation of art forms in a new creative way,

The Discourse was on

- ❖ Art in Architecture:
- ❖ Understanding inter- relationship between art and architecture,
- ❖ Different approaches and perspectives on Art and Handicraft,
- ❖ its importance in Interiors,
- ❖ Exploring its Applications,
- ❖ Documenting the Knowledge and Skills.



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The different art forms learned in the course were-

1. **Wood Carving craft from West Bengal** – West Bengal is famous for its wood carving craft comprising of idols, shrines, temple pillars etc. Different carvings convey individual messages such as Gemini represents wealth, animal figures symbolizes strength and human figures means success. A wide variety of wood such as Neem, Bel, Mango, teak, Mahogany are used for wood carving in Bengal.
2. **Sanjhi Stencils of Mathura** - Braj or Brajbhoomi, situated along the river Jamuna, is the birthplaces of both, Lord Krishna and the art form of Sanjhi Its name is derived from the words 'sajja' meaning 'decoration', 'sancha' meaning 'mould' and 'sanjh' meaning 'dusk' relating to the time of the day the drawings were revealed. This ancient craft of paper stencilling was used to make rangoli patterns on walls and floors, which depict the Radha Krishna legend. The very intricate Sanjhi have many creepers and flowers running along the borders. The motifs and the themes include the images of the deity Sanjhi and Sanjha, the streets of Mathura and Vrindavan with dancing peacocks, cows, and monkeys on kadamba tree or river flowing past the temple, Krishna rasa or and Gopal stealing butter. Later, it also started to depict scenes from court and everyday life under the patronage of Mughals. As an intermingling of white and dark space, first, a draft of the design is prepared on paper. The design is then used as a stencil for the final drawing, ensuring that bridges are made to hold the stencil together.
3. **Copper Bell Ringing in the herds of Kutch** - One such craft which originated with cattle rearing is the craft of metal bells, or 'Ghantadi', as known locally in Gujarat. This craft originated in Sindh, (currently in Pakistan) and is believed to be over a thousand years old. The Ghantadis are made by the Lohar caste in Kutch. The bells can be classified into thirteen sizes and are customized for different animals. While the body of the bell is made using scrap iron sheets, beaten together to form the required shape, the bells are then coated mainly with copper.
4. **Rogan Steady hands of Kutch** - The art of Rogan has been adopted from Iran. A metal stylus, used by incredibly steady hands, daubs a large piece of cloth with a mixture of castor oil boiled on a slow fire and vegetable dyes. At room temperature, the paint is carefully twisted to create flowers, animals and local folk art. Earth is dug for the preparation of chulah and after adjusting the hand on it, castor oil is boiled in it for hours, which is then stirred until it becomes a thick paste. Natural dyes were used as colour pigment. Placing a small amount of the paint paste in their palm, the artisans begin by placing their left index finger under the cloth stretched on a wooden frame and painting using their right hand. Next, the artisan folds his designs into a blank fabric, thereby printing its mirror image. In effect making it a very basic form of printing.
5. **Madhubani Painting From the walls of Mithila** – Madhubani means forest of honey and is traced back to the era of Ramayana. This painting is done on the walls and later on handmade



  
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papers, silk sarees and other cloth materials. It is done with fingers, twigs, bamboo stick brushes, nib-pens and match sticks using natural dyes and pigments.

6. **Pattachitra** *Myths and scrolls from Odisha* - Hailing from the land of Jagganath, Pattachitra is one of the oldest art forms of our country, telling us stories of our rich mythological heritage. Once the cloth is dry and ready, it is polished with stone. The artists use indigenous paints made from naturally available raw materials. The creation of the Pattachitra paintings is a disciplined art form, and the artists maintain rigidity in their use of colours and patterns.

7. **Lippan kaam** *Mud and mirrors* - Lippai or Lippan stands for mud washing while kaam means work in Gujarati. Practiced by both the women and men of Kutch, the art form uses a rough, wet surface as a base. Once the base is coated with a layer of clay, a mixture of finely filtered local clay and camel/donkey dung is mixed together in equal parts and kneaded into a dough-like substance. It is this dough that is used to create the outlines of the motifs, by coiling the mixture and then raising the soft clay by pinching it. An adhesive is used to make the clay stick to the base. The starting point of this artwork is usually the border, followed by the motifs within it. The artists generally work on the motifs without any prior sketching or tracing, simply by using their hands and their vision of the end goal. Once the motifs are created small circular or triangular mirrors are cut manually and embedded on the base for a glittering. The artwork, is then sun dried in the sun for a period of 4-5 days, during which it hardens and becomes a stiff surface. Today, lippan kaam has found its way to modern homes with new innovations.

● **Date and Period:**

- ❖ The course started on December 3rd, 2018 and completed December 7th, 2018.
- ❖ Timing- 9:00 a.m. to 4:00 p.m. (Duration of the course is 35 hours during 5 days)

● **Participants-** B.Arch. - ---Students participated and B.Voc.(ID) - ---- Students participated

● **Place of Course:**

- ❖ The activity took place in the 1<sup>st</sup> year studios and classrooms of B.Arch and B.Voc.

● **Coordinator- Prof. Renuka Wazalwar and Mrs. Shoma Banerjee**

7 trainers participated in the activity as follows:

1. Mr. Biswajit – Wood Carving
2. Mr. Suryakant Bondwal - Sanjhi
3. Mr. Faisal Khan – Copper Bell
4. Mr. Abdul Gafur D. Khatri – Rogan Art
5. Mrs. Anju Chaudhary - Madhubani Art
6. Mr. Mukut Joshi - Pattachitra
7. MrGani Fakir Mammad – Lippan Kaam.



  
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● **Methodology of Course:**

The course focused on discourse and practical hands-on methodology by using the following concepts:

- ❖ Dividing the large group of students into smaller groups as per their choice of the specific art form.
- ❖ Involving the students in collective interaction and discussion, thus encouraging dialogue.
- ❖ Practical hands on experience for better learning and build the connection

**Students work:**



  
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### ● Evaluation:

The evaluation for the course is done on the basis of two aspects

- 75% attendance min. and
- Performance based on the product the students produced individually.

### ● Feedback:

The whole exercise was having two sides, 1. Providing a platform for promoting the indigenous art forms, making the younger generation aware about this heritage and encourage the artisans by buying their products. 2. Students actually had a hands-on experience and learnt the art forms from scratch to a finished product from the artisans themselves. The students are hoping to learn other art forms as well.



  
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# MITTI-FOLK ARTS & CRAFT 2018 -2019



## CERTIFICATE OF PARTICIPATION

This Certificate is awarded to

BHOI NANDKISHOR MADAN

in recognition of their successful completion of MITTI- Folk Arts & Craft

Course conducted from

3<sup>RD</sup> - 7<sup>TH</sup> DEC. 2018

at

Bharati Vidyapeeth College of Architecture, Navi-Mumbai

**Prof. Ritu Deshmukh**  
**Principal**  
**BVCOA NAVI MUMBAI**

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**Mrs. Somma Bannerjee**  
**MITTI- Founder Director,**  
**Kharghar, Navi - Mumbai**

# MITTI-FOLK ARTS & CRAFT 2018-2019



## CERTIFICATE OF PARTICIPATION

This Certificate is awarded to

UTEKAR SHREYAS ASHOK

in recognition of their successful completion of MITTI- Folk Arts & Craft

Course conducted from

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at

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Prof. Ritu Deshmukh  
Principal  
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Mrs. Somma Bannerjee  
MITTI- Founder Director,  
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**Prof. Satish Dhale**  
(G.D.Did., P.G.Did., IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M./

Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2018-19**

**Course 3- Certificate Course on Biomimicry and Tensegrity**



  
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Course on

# Biomimicry & Tensegrity

3rd December 2018 to 7th December 2018

**Course Conductors :**

Ar. Chetan Shivaprasad &  
Ar. Shreya Sen

**Faculty Coordinators:**

Ar. Tejaswini H.M. &  
Ar. Sumitra Kadam

Venue: Seminar hall and courtyard



  
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Course on

# Biomimicry and Tensegrity

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**3<sup>rd</sup> -7<sup>th</sup> December 2018**

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Kharghar*

**Ar. Chetan Shivaprasad**

**Ar. Shreya Sen**

Faculty coordinator

**Prof. Tejaswini H.M.**



A handwritten signature in blue ink, appearing to be "A.S.", written over the stamp.

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# Biomimicry and Tensegrity

*Biomimicry in Architecture* is the imitation of the models, systems, and elements of nature for the purpose of solving complex human problems; biomimicry in architecture and manufacturing is the practice of designing buildings and products that simulate or co-opt processes that occur in nature.

Tensegrity is the property demonstrated by a system that employs cables (traction) and rigidity of other elements (usually steel, wood or bamboo) capable of acting under the intrinsic stresses (traction and compression) together and simultaneously, giving greater resistance and formal stability. It creates an interconnected structure that works biologically like muscles and bones, where one element strengthens the other.

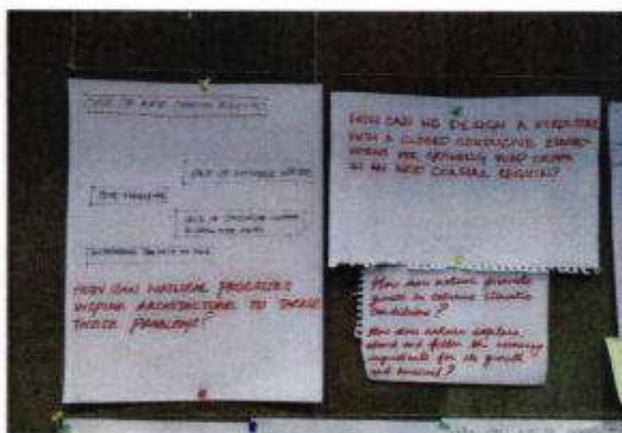
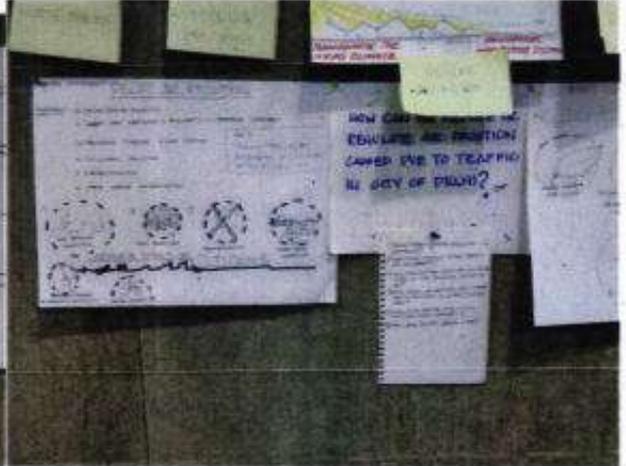
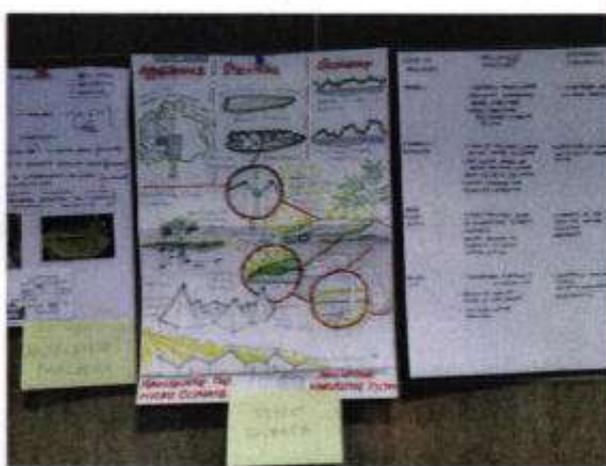
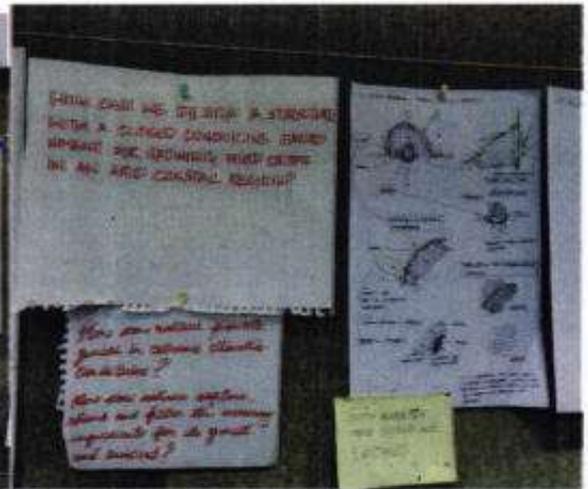
The objectives of 5 day course conducted by Ar. Chetan Shivaprasad and Ar. Shreya Sen for the Final year thesis students of Bharati Vidyapeeth College of Architecture were-

- Understanding nature in the campus and their characteristics
- Research on current world scenario and come up with solutions from nature
- Understanding tensegrity and making its module
- Making mini models of tensile fabric from stockings; soap films and wires
- Making tensegrity installation

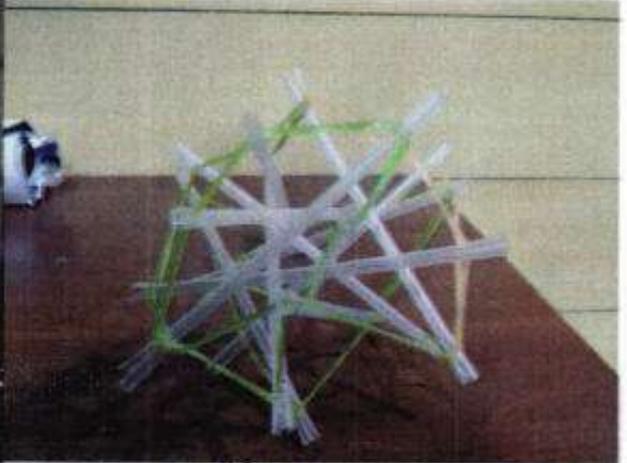
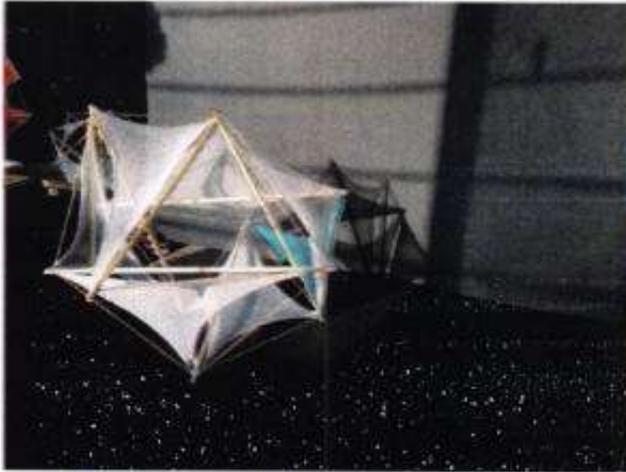


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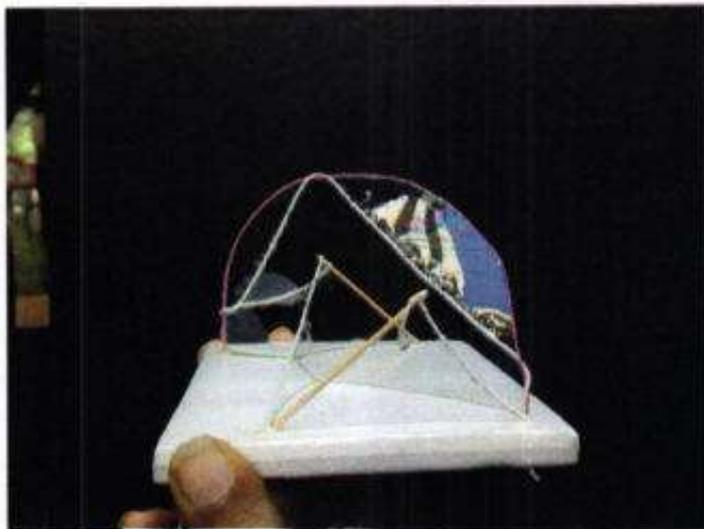
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4



  
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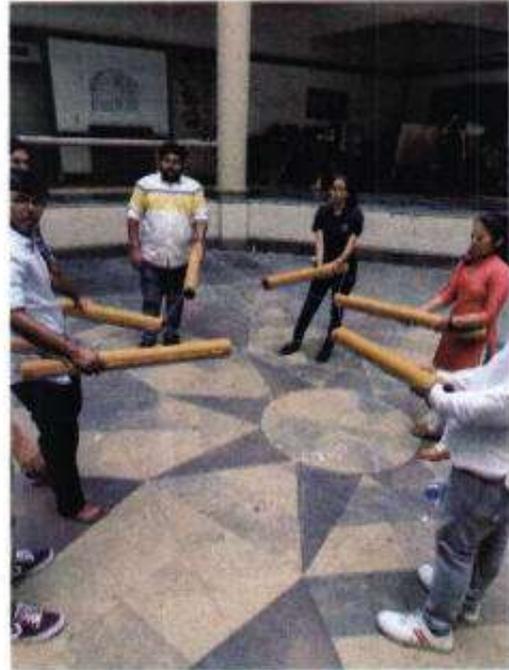
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### **Conclusion:**

The Biomimicry and Tensegrity course has proven to be successful in achieving its objectives and providing students with a solid foundation in biomimicry and tensegrity principles. The course content and assignments fostered critical thinking, problem-solving, and research skills, enabling students to analyze and evaluate biomimicry and tensegrity-based architectural designs effectively.

The assessment methods implemented throughout the course provided a well-rounded evaluation of students' learning outcomes. The design projects, in particular, allowed students to apply their knowledge and skills, fostering creativity, collaboration, and presentation abilities.

Based on the positive feedback and outcomes of the course, the Biomimicry and Tensegrity in Architecture course continue to be offered in future semesters. Suggestions for improvement include incorporating more field visits to architectural sites and inviting guest speakers who have expertise in biomimicry and tensegrity.



  
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**ACADEMIC YEAR: 20 18 - 20 19**

**This Certificate is awarded to**

**BHALERAO HITESH VASANT**

**in recognition of their successful completion of**

**BIOMIMICRY AND TENSEGRITY**

**conducted from**

**3<sup>RD</sup> DEC 18 TO 7<sup>TH</sup> DEC 18**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**

**Prof. Ritu Deshmukh  
Principal**



**Principal  
Bharati Vidyapeeth  
College of Architecture  
Belpada Complex, Opp. Kharghar  
Rly. Station C.B.D, Navi Mumbai**



**BHARATI VIDYAPEETH  
COLLEGE OF ARCHITECTURE  
NAVI MUMBAI**



**ACADEMIC YEAR: 20 18 - 20 19**

**This Certificate is awarded to**

**KADU TUSHAR MANOJKUMAR**

**in recognition of their successful completion of**

**BIOMIMICRY AND TENSEGRITY**

**conducted from**

**3<sup>RD</sup> DEC 18 TO 7<sup>TH</sup> DEC 18**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**

**Prof. Ritu Deshmukh  
Principal**



**Principal**  
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**Bharati Vidyapeeth**  
**COLLEGE OF ARCHITECTURE**  
Affiliated to the University of Mumbai



Founder :  
**Dr. Patangrao Kadam**  
M.A., L.L.B., Ph.D.

Belpada Complex, Opp. Kharghar Rly. Station,  
Sec.7, C. B. D. Belapur, Navi Mumbai- 400 614 - India

Principal  
**Prof. Satish Dhale**  
(G.D.D.I.D., P.G.D.I.D., IIA, M.Sc.ID, M.Arch)

Ref. No. : BV / COA / N.M./

Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2018-19**

**Course 4- Certificate Course on Building Skin for High-rise Smart Façade:  
Collaborative Design Approach**



  
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**Building Skin for Highrise  
Smart Facade: Collaborative  
Design Approach  
3rd-7th December 2018**

This course will offer deeper insights into smart way of facade design instead of looking at it only from the aesthetic & pleasure point of view.

Coordinators:

Ar.Varsha Annadate Ar.Smita Gupta  
Ar.Vinita Deshmukh Ar.Shilpa Zabak



**BHARATI VIDYAPEETH COLLEGE OF ARCHITECTURE,  
NAVI MUMBAI**

Belpada Education Complex, Opp. Kharghar Railway Station, Sector No. - 7, C.B.D. Belapur,  
Navi Mumbai - 400 614.  
Ph: (022) 2757 1451, 2756 4646



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### **Introduction:**

The main goal of the course is to offer deeper insights into smart way of façade design helping to control the indoor environmental conditions instead of looking at it only from the aesthetic & sensory pleasures point of view.

### **The topics of the course:**

To achieve the goal, the course was designed to include the study of facades w.r.t various parameters and the exercises were framed to provide the students the insight of façade parameters, design aspects and use of software as a tool for design of facades using parametric. The course culminate with the design of a building façade for buildings of different typologies.

#### **• The methodology includes-**

- Study of facades.
- Analysis of facades.
- Study of design tools as parametric for façade design.
- Design of façade.

The class was divided in 8 groups for the group exercises.

### **Date and Period:**

The course started on **3<sup>rd</sup> Dec 2018 and completed on 7<sup>th</sup> Dec 2018.**

Timing- 9:00 a.m. to 4:30 p.m with half an hour lunch break (Duration of the course is 35 hours during 5 days)

**Participants-** The course was intended for 5<sup>th</sup> yr. B.Arch students. The number of students =40.

**Place of Course:** The activity took place in the computer lab and site visits for case studies.

**Coordinator-** Prof. Varsha Annadate and Prof. Vinita Deshmukh

**The experts:** 1) Ar. Pankaja Bagul on "Parametric /Dynamic design approach for building façades. 2) Guest lecture on Façade systems by Mr. Govindrajan from BES Consultants, Mumbai.

**Outcome:** The course was conducted successfully. The students understood the role of a building façade and how it can be perceived. It is not merely for the aesthetic purpose but acts like a skin which breathes and modulates the indoor environment.



  
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A handwritten signature in blue ink, appearing to be the name of the Principal.

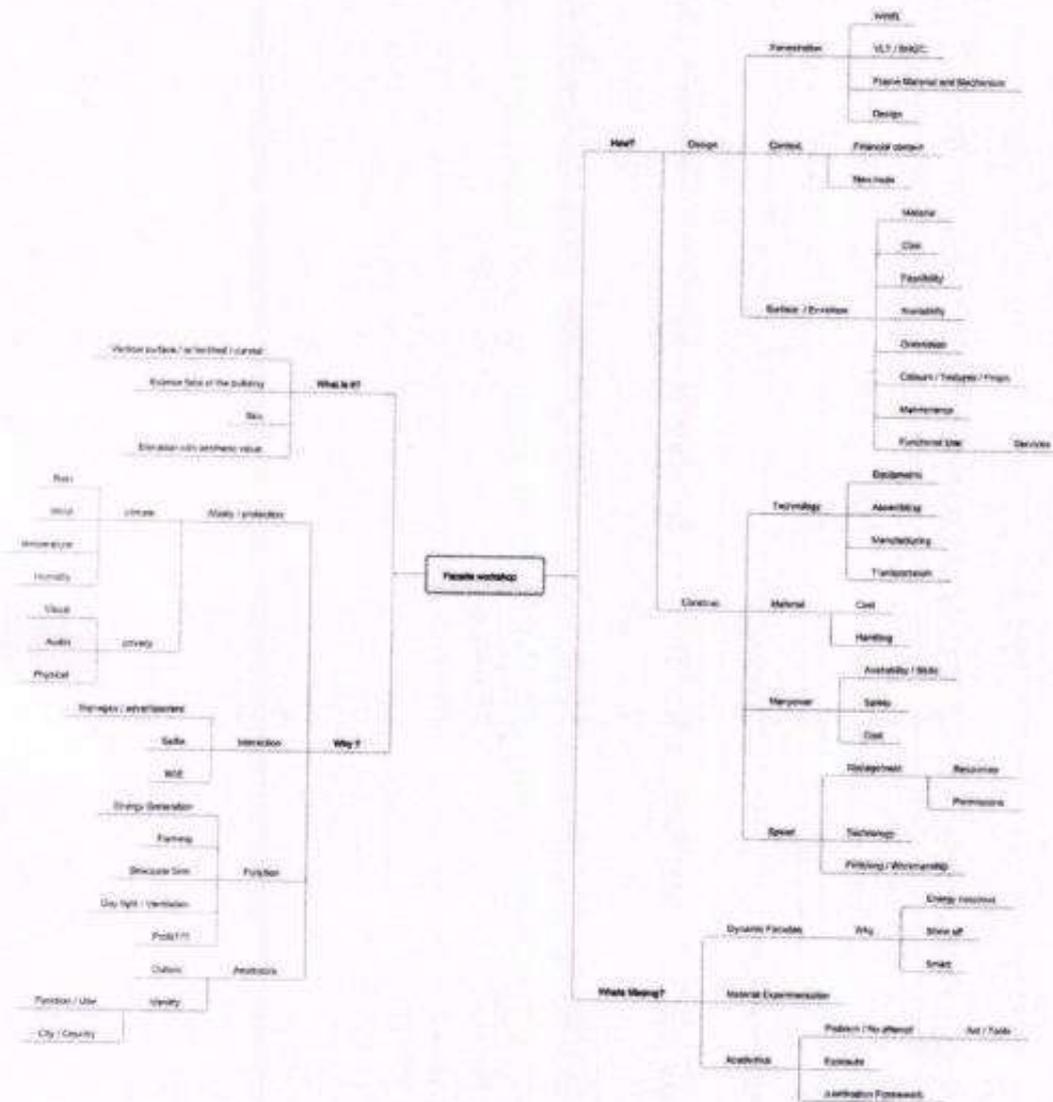
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Students Outcomes:

**MIND MAPPING EXERCISE FOR FACADE DESIGN**

Aims & Objectives:

To find the standard technical data on various facade design parameters for the site the student has selected for the dissertation project.  
 To study and assimilate the related standard technical data.



*(Signature)*  
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Activity 1 - Case Study

**Tel Aviv Arcades**  
 Design by: Penda Architecture & Design  
 Type: Residential  
 Location: Tel Aviv, Israel  
 Year: 2017-Present  
 Size: 21000 sqm

The proposed high-rise residential tower in Tel Aviv, features brick arches and cascading terraces influenced by the materiality of its Old Town of Tel Aviv. The 116-meter-high scheme is designed to house a range of one to four bedroom apartments, as well as double-height penthouses. As a response to the city's Mediterranean climate, Penda rejected the "generic glass tower" in favor of a form and materiality.

**Modularity:**

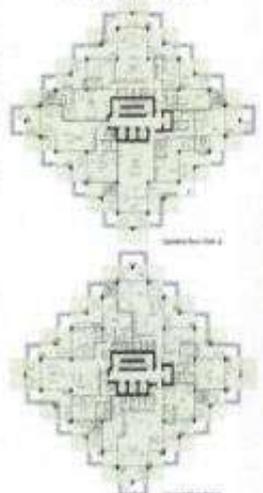
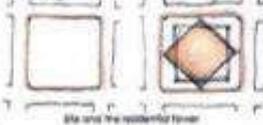


The tower is designed in a modular system, allowing structural elements to be prefabricated at lower construction and maintenance costs.



The building is mainly defined by one element: the arch, the architectural form with a broad history and meaning in the region.

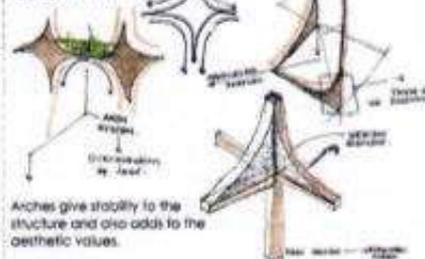
**Planning:**



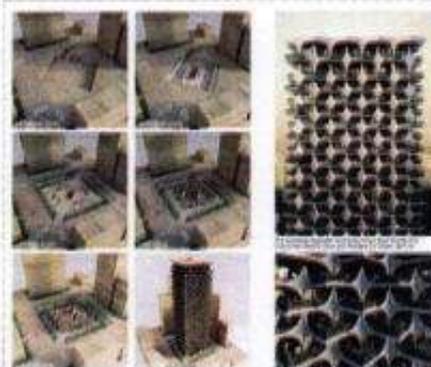
Alternating floor plans creates terraces that shield off direct sunlight and cool down the interiors in a natural way.

**Structural System:**

Arches: How does it help in loading system?



Arches give stability to the structure and also adds to the aesthetic values.



Group Members: Sagar Nipurte, Ishani Pradhan, Krishna Shah, Rikunj Shah

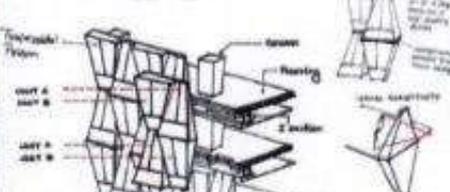
Activity 1 - Case Study

**BEIJING GREENLAND CENTER, BEIJING**

LOCATION: BEIJING, CHINA  
 PROJECT COMPLETION: 2018  
 SITE AREA: 14,872 M<sup>2</sup>  
 PROJECT AREA: 172,734 M<sup>2</sup>  
 NUMBER OF STORIES: 55  
 BUILDING HEIGHT: 260 M  
 MARKET: COMMERCIAL + OFFICE, MIXED USE, RESIDENTIAL



**CONCEPT**  
 MODULAR UNIT ORGANIZATION



**MATERIAL**



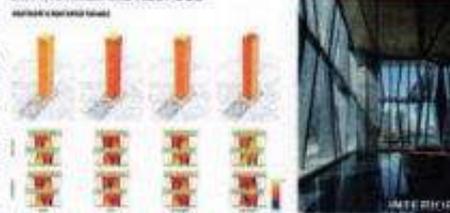
SKIDMORE, OWINGS & MERRILL HAS COMPLETED A 55-STORY TOWER IN BEIJING WITH EXTERIOR GLASS PANELS THAT FUNCTION AS PRISMS, CAPTURING AND REFRACTING DAYLIGHT.

THE MIXED-USE BEIJING GREENLAND CENTER IS A HIGHLY SUSTAINABLE LANDMARK BUILDING EQUIDISTANT FROM BEIJING'S BUSTLING CORE AND THE AIRPORT. THE 260-METER-TALL, 55-STORY TOWER PRIORITIZES SUSTAINABILITY AND EFFICIENCY AND IS CLAD IN A PRISMATIC TRAPEZOIDAL GLASS FACADE THAT GENERATES SELF-SHADING TO ENHANCE THE BUILDING'S ENVIRONMENTAL PERFORMANCE.



BEIJING DAKANGJING IS A NEW DISTRICT ON THE CITY'S NORTHEAST SIDE THAT WAS MASTER-PLANNED BY SOM. IT WAS CONCEIVED AS A "WALKABLE, GREEN DISTRICT THAT PRIORITIZES QUALITY OF LIFE AND RESPONSIBLE USE OF NATURAL RESOURCES."

**ENVIRONMENTAL RESPONSE**

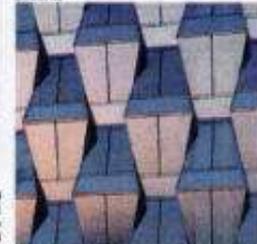


THE TOWER IS DESIGNED TO CONSUME 30 PER CENT LESS ENERGY AND WATER COMPARED TO A BASELINE BUILDING. IN ADDITION TO THE SHADE-PROVIDING SKIN, THE SKYSCRAPER'S SUSTAINABLE ELEMENTS INCLUDE A HEAT RECLAIM WHEEL, VARIABLE SPEED PUMPS FOR HEATING AND COOLING, AND A WATER-SIDE ECONOMISER TO UTILISE EVAPORATIVE COOLING.

"ADDRESSING A NEED FOR ENVIRONMENTALLY RESPONSIBLE, MIXED-USE URBAN DEVELOPMENT, BEIJING GREENLAND CENTER IS A HIGHLY VISIBLE EXAMPLE OF HOW VISUALLY STRIKING DESIGN CAN ALSO BE HIGHLY FLEXIBLE AND SUSTAINABLE." THE FIRM SAID.

RISING 260 METRES, THE TOWER IS SHEATHED IN A CURTAIN WALL CONSISTING OF LOW-E GLASS PANELS THAT ARE CONFIGURED IN A WAY THAT PROVIDES SHADE AND REDIRECTS SUNLIGHT.

**SHAPE**



TWO DIFFERENT TRAPEZOIDAL MODULES WERE USED: WITH ONE TAPERING UPWARD AND THE OTHER TAPERING DOWNWARD. THE MODULES ALTERNATE IN A REGULAR PATTERN ON ALL SIDES OF THE BUILDING.



Group Members: Komal Shinde, Amit Shinde, Aarfi Thakore & Grish Thakore



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Activity 2 - Parametric Pavilion Design

"LOOK DEEP INTO NATURE, AND YOU WILL UNDERSTAND EVERYTHING BETTER" - ALBERT EINSTEIN

NATURE HAS ANSWERS TO ALL THE QUESTIONS AND ARCHITECTURE IS ONE OF THEM. THIS PAVILLION WAS INSPIRED BY ONE SUCH ELEMENT FROM THE NATURE WHICH IS THE PINEAPPLE.

THE PINEAPPLE SKIN WHEN FOCUSED, GIVES A PATTERN FROM WHICH THE MODULE OF THE PLAN IS DERIVED.

THE MATERIAL USED TO CREATE THIS PAVILLION IS TENSILE FABRIC. THE REASON BEHIND USING TENSILE FABRIC IS TO ADAPT THE FORM AND REFLECT THE SKIN OF THE PINEAPPLE.

EVOLUTION OF SKIN MODULE

REPETATION OF MODULE

PLAN

ELEVATION

SECTION

VIEWS

Group Members: Somik Beura, Rasika Palli, Dhruj Nidhe, Harsh Nag, Sameer Jadhav

Activity 2 - Parametric Pavilion Design

**BAS-RELIEF:** A BAS-RELIEF IS A FORM OF SCULPTURE THAT IS CARVED FROM A FLAT TWO-DIMENSIONAL PLANE CREATING A THREE-DIMENSIONAL APPEARANCE. THE BACKGROUNDS ARE KEPT SHALLOW FROM THE RAISED FEATURES, USUALLY BETWEEN A FRACTION OF AN INCH TO A FEW INCHES DEEP. IT WAS PREDOMINATELY USED AS A DECORATIVE FEATURE IN THE ANCIENT ARCHITECTURE OF COUNTRIES SUCH AS EGYPT, GREECE AND ITALY.

PLAN

ELEVATION

STRUCTURAL SYSTEM

COMPONENT OF THE PAVILLION

PYRAMID

Group Members: Komal Shinde, Amil Shinde, Aarti Thakore & Grish Thakore

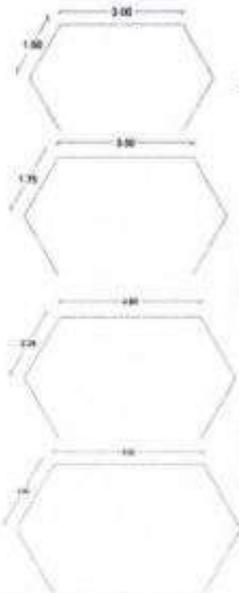


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### Activity 2 - Parametric Pavilion Design

FOR THE PARAMETRIC DESIGN OF THE PAVILION AN IRREGULAR HEXAGON HAS BEEN CONSIDERED KEEPING THE TOP AND BOTTOM SPAN SAME AND THE EDGES OF ANOTHER DIMENSION. THE RULE THAT HAS BEEN APPLIED IN A CURVILINEAR PATHWAY INVOLVES THE SCALING OF THE EDGES AND THE SPANS HAS BEEN SHOWN BELOW:

**RULE 3** +0.5, 3.5, 4.5, 1.5, 6, 1.5, 4.5, 1, 3.5, 0.5, 3

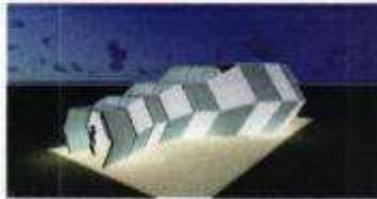


SIDE ELEVATION SHOWING VARIATION IN HEIGHTS

#### DESIGN PROCESS



MODEL OF THE STRUCTURAL MEMBERS SHOWING THE VARIATIONS IN HEIGHT

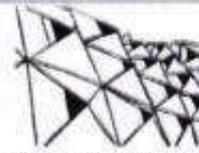


DESIGN PROGRESSING VIEW OF THE PAVILION

#### COMPONENTS

FOR DESIGNING THE SKIN OF THE PARAMETRIC PAVILION THREE PYRAMIDS OF DIFFERENT SIZES ARE TAKEN. THE DESIGN STARTED WITH AN ALGORITHM - PYRAMIDAL SHAPED COMPONENTS WAS PLACED ACROSS THE HEXAGONAL STRUCTURAL MEMBERS, CREATING A STRONG DIFFERENTIATION BY CHANGING ITS HEIGHT. THE VOIDS CREATED ARE OF SAME SIZE AS IT IS FOR THE SMALLEST PYRAMID.

**RULE** 0.75, +0.25, 1, +0.5, 1.5, 0.5, 1, 0.25, 0.75



PYRAMIDAL SHAPED COMPONENTS WITH VOIDS ACTING AS THE SKIN OF THE PAVILION



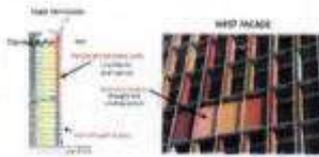
EXPLODED VIEW OF THE PAVILION



Group Members: Dhvani Talati, Reshma S Kumar, Sonali Gupta, Shreejita Maitly

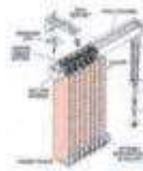
### Activity 3 - Facade Design

SATIYA GALLERY / SUDHAKAR PAI ASSOCIATES  
 ARCHITECTS - SUDHAKAR PAI ASSOCIATES  
 LOCATION - BYTARAYANAPURA, BANGALORE, KARNATAKA  
 LEAD ARCHITECTS - SUDHAKAR PAI, SVARAJA PRAGADA  
 STRUCTURAL ENGINEERS - WJS DESIGN TREE  
 AREA - 27011.0 FT<sup>2</sup>  
 PROJECT YEAR - 2018  
 PHOTOGRAPHS - SHAMANTH PATE  
 MANUFACTURERS - FINDERMAX, SAINT-GOBAIN

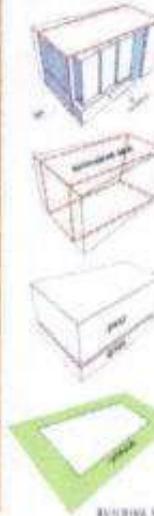


DESIGN

#### DETAILS



DETAILS



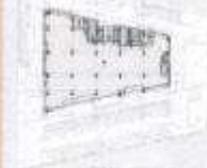
BUILDING FORMATION



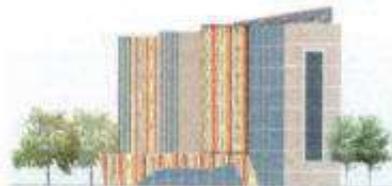
VIEW



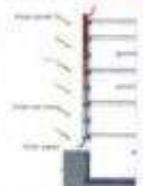
SECOND FLOOR PLAN



THIRD FLOOR PLAN



WED FACAD



SECTION



Group Members: AARTI SHAIKAR, AMIT SHINDE, SONAL SHINDE, SONAM SHAIKAR



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Activity 1 - Case Study for Facade Design.

LOCATION

The Capital Gate is an iconic structure on the skyline of the Emirate of Abu Dhabi.



ARCHITECTS: RMJM architects  
 LOCATION: Abu Dhabi, United Arab Emirates  
 COORDINATES: 24.4167° N, 54.4047° E  
 Completion date: 2011 building user: hybrid hotel, commercial spaces and mixed use. Height: 164 m  
 Floors: 35  
 Built up area: 53,100 sqm  
 Office area: 14,394 sqm  
 Hotel area: 25,050 sqm

It is the only tower in the world that has the degree of inclination. It consists of an astounding 18 degrees and holds the Guinness World record for the furthest leaning manmade tower in the world.

Its location plays a vital role is one of the many reasons why it is considered iconic. It dominates the waterfront area, overlooking an urban highway and rising above other developments in its immediate vicinity.

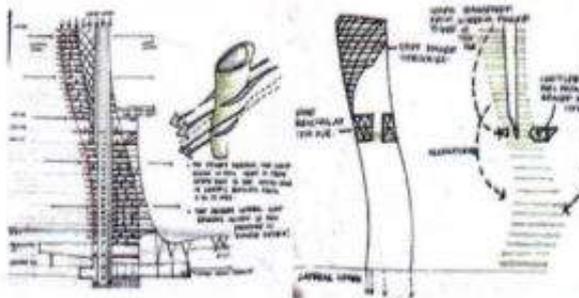
CAPITAL GATE, ABU DHABI



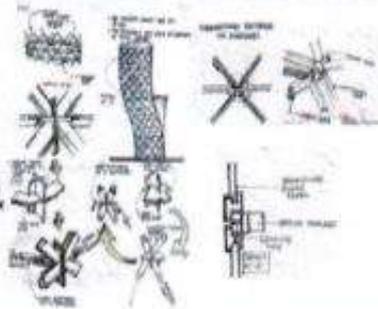
FACADE

The facade consists of the steel diagonal bracing system (diagrid), and diamond-shaped glass modules.  
 The Diagrid was made up of steel cross-sections called cruciforms, has different curvatures, length and thickness.  
 The interlocking part of the cruciforms called the diagrid node, and on horizontal the beam connect all nodes together horizontally through the circumference of the building. The give a strong bracing system.  
 The external cruciforms were made up of 600 x 600 mm hollow sections, and the thickness of the sections ranged from 80 mm at the bottom to 40 mm at the top of the tower.

CLIMATIC STRATEGIES



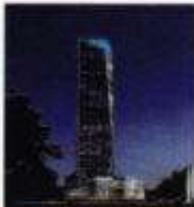
CONSTRUCTION DETAILS



Group Members: Hrishikesh Shetty, Ajay Teumala, Shruti Ture, Om Kane.

Activity 3 - Facade Design

KOHINOOR SQUARE



LOCATION: DADAR, MUMBAI  
 ARCHITECT: SAARAA ARCHITECTS, MUMBAI  
 CLIENT: THE KOHINOOR GROUP  
 PROGRAM: MIXED USE  
 FLOOR AREA: 18,615 SQ.M.  
 FLOOR AREA: 10,000 SQ.M FOR COMMERCIAL  
 HEIGHT: 205 M MAIN BLDG. 140 M RESIDENCE BLDG.  
 FLOOR COUNTS: 32 STORES, 28 STORES  
 COST US \$: 0.33 BILLION.  
 LIFTS: 38  
 STATUS: UNDER-CONSTRUCTED



CLIMATE OF MUMBAI

THE CLIMATE OF MUMBAI IS A TROPICAL WET AND DRY CLIMATE.  
 MUMBAI'S CLIMATE CAN BE BEST DESCRIBED AS MODERATELY HOT WITH HIGH LEVEL OF HUMIDITY.  
 ITS COASTAL NATURE AND TROPICAL LOCATION ENSURES TEMPERATURES WON'T FLUCTUATE MUCH THROUGHOUT MUCH THROUGHOUT THE YEAR.  
 THE MEAN AVERAGE IS 27.2 CELSIUS



CURRENT FAÇADE

THE FAÇADE CONSISTS OF FACETED UNITIZED ALUMINIUM CURTAIN WALLS WITH PROVISIONS FOR HIGH PERFORMANCE DOUBLE GLASS FACADES ON THE TOWER.  
 DIAMOND EDGES OF THE BUILDING HAVING ALUMINIUM FLASHING WITH LED LIGHTING ARE THE UNIQUE FEATURE AND MAKE IT A COMPLICATED FAÇADE DESIGN.  
 ALL THE GLASSES ARE ARTICULATED GLASSES AND CAN SUSTAIN DESIGN WIND PRESSURE OF 4.5 TO 5.0 KPA.

SUSTAINABLE FEATURES



THE BUILDING DESIGN MAKES IT ENVIRONMENTALLY FRIENDLY USING TECHNOLOGIES AS FLOOR TO CEILING INSULATED GLAZING TO CONTAIN THE HEAT AND MAXIMIZE NATURAL LIGHT AND AN AUTOMATIC DAYLIGHT DIMMING SYSTEM.  
 13 DOUBLE HEIGHT LANDSCAPED RKY GARDENS AND MORE THAN A DOZEN DOUBLE HEIGHT TERRACES.

Group Members: AISHWARYA V, TAMANNA H. RASIKA A

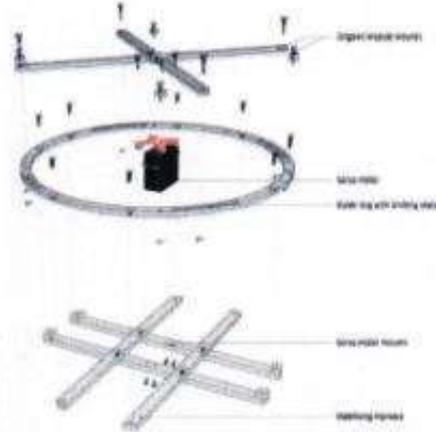


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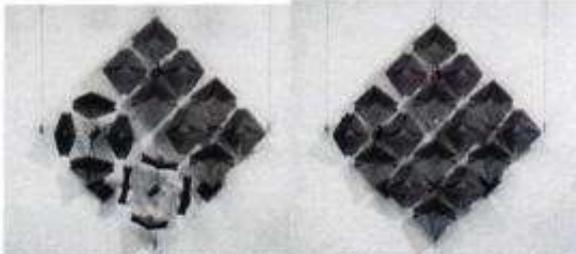
## KINETIC FACADE

### KINETIC FAÇADE DESIGN:

- THE SHADING SCREEN WOULD BE COMPUTER CONTROLLED USING A SUN TRACKING SOFTWARE THE OPENING AND CLOSING OF THE UNITS WOULD BE DETERMINED ACCORDING TO THE SUN'S ANGLE.
- THIS WILL BE PRE PROGRAMMED TO PREVENT DIRECT SOLAR RADIATION.
- ON OVERCAST OR HIGH WIND CONDITIONS THE SERIES OF SENSORS WILL SEND ITS LOGGED IN SIGNALS TO OPEN ALL UNITS.
- ALL THESE UNITS WOULD BE CONTROLLED THROUGH A BUILDING MANAGEMENT SYSTEM, THAT CAN CONTROL THE UNITS INDIVIDUALLY OR IN GROUPS.



THE MATERIALS AND COMPONENTS WOULD BETHE SAME AS THIS IMAGE

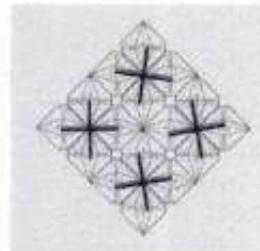


Group Members: AISHWARYA V . TAMANNA H, RASIKA A

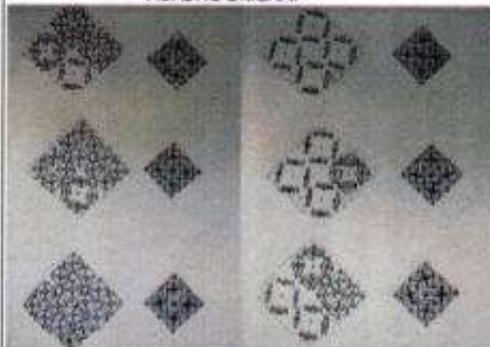
## KINETIC FACADE

### KINETIC FAÇADE DESIGN:

- FOR KINHINDOOR SQAIRE THE PATTERN HAS A SQUARE SHAPE INSTEAD WHICH OPENS AND CLOSES.
- THE COCEPT IS **AUXETIC ORIGAMI**.
- THE ENVELOPE WOULD HAVE A WEATHER TIGHT GLASS CURTAIN WALL.
- THE CURTAIN WALL IS COMPRISED OF UNITIZED PANELS WITH A FLOOR-TO-FLOOR HEIGHT.
- THE CURTAIN WALL AND THE KINETIC FACADE ARE SEPERATED BY A SUBSTRUCTURE BY MEANS OF MOVEMENT JOINTS.
- THE FIXATION OF THE SUBSTRUCTURE MOVEMENT JOINTS ( CANTILEVER STRUTS) WOULD BE PLACED AT DIFFERENT LEVELS THUS ALLOWING THEM TO RESPOND INDEPENDENTLY.
- THE KINETIC FACADE IS A SCREEN COMPRISED OF SQUARE UMBRELLA LIKE UNITS WHICH OPEN AND CLOSE IN RESPONSE TO THE SUN'S MOVEMENT.
- EACH UNIT IS CONCIIVED AS A UNITIZED SYSTEM, CANTILEVERING 2.8 M FROM THE PRIMARY STRAUCURE.
- THE UNIT CONSISTS OF STEEL SUPPORTING FRAMES, ALUMINIUM DYNAMIC FRAMES AND FIBERGLASS MESH INFILL.
- EACH SHADING DEVICE COMPRISES OF STRETCHED POLYTETRAFLUOROETHYLENE PANELS.



AUXETIC ORIGAMI



DIFFERENT MOVEMENTS OF THE PANEL, AT DIFFERENT STAGES OF OPENING AND CLOSING

Group Members: AISHWARYA V . TAMANNA H, RASIKA A



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# KINETIC FACADE

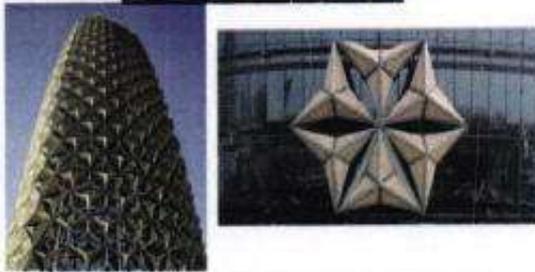
**REASON FOR KINETIC:**

- TO RESPOND TO CLIMATIC FACTORS TO IMPROVE ENERGY EFFICIENCY, TO REDUCE SOLAR HEAT GAIN AND AESTHETIC REASONS
- FACADE PANELS OPEN PARTIALLY OR FULLY ACCORDING TO HEAT AND LIGHT LEVELS.
- THE BUILDING HAS A HVAC SYSTEM AND WITH THE KINETIC FACADE THE HEAT GAIN WOULD BE LESS THUS PUTTING LESS LOAD ON THE MECHANICAL VENTILATION.
- INSTEAD OF DOUBLE GLAZING WE WOULD HAVE SINGLE SKIN OF CURTAIN WALL WITH THE SECOND SKIN BEING THE KINETIC FACADE.



**KINETIC FACADE DESIGN:**

- THE FACADE DESIGN IDEA IS INSPIRED BY THE AL BAHR TOWERS KINETIC FACADE.
- THE COMPUTER CONTROLLED FACADE OPENS AND CLOSES BASED ON THE HEAT LEVELS.
- IT EVEN IS AESTHETICALLY PLEASING.
- AS EVEN ABU DHABI HAS A HOT AND HUMID CLIMATE THIS KIND OF DESIGN WAS USED.
- THE CONCEPT BEHIND OF THE AL BAHR TOWERS IS THE COMBINATION OF A LATTICE DESIGN ALONG WITH THE HONEYCOMB PATTERN.



Group Members: AISHWARYA V., TAMANNA H., RASIKA A.

PARAMETERS		EVOLUTION OF DESIGN			
<p>NOISE ODOUR</p>	<p>NATURAL LIGHT MODULARITY HEAT GAIN</p>	<p><b>STATIC</b> (stays the same over a long period of time)</p>	<p>DOUBLE SKIN FACADE</p> <p>DOUBLE GLAZING FACADE</p> <p>VENTILATED FACADE</p> <p>GLAZED FACADE</p> <p>INTELLIGENT FACADE</p> <p>TRANSFORMING FACADE</p> <p>LIVING FACADE</p>	<p>Ventilated facade</p> <p>Double skin facade</p>	
<p>AESTHETICS ENERGY GENERATION SAFETY AND PROTECTION</p>	<p>WIND   RAIN HUMIDITY</p>	<p><b>KINETIC</b> (dynamic facades which change over time)</p>		<p>Ventilated facade</p>	
		<p><b>COMBINATION</b> (contains elements of both static and kinetic)</p>		<p>Combination facade</p>	
<p>The idea is to devise a modular system where the primary function is to factor the basic reasons to create a comfortable living space for the users. The secondary is to employ existing appropriate technologies so as to increase the performance of the building.</p>					
Modularity	<p>LIVING ROOM</p> <p>diffused light no heat gain connection with outdoors interaction with nature</p>	<p>KITCHEN</p> <p>north sun preferable orientation to the east ventilation, continuous air flow</p>	<p>BEDROOM</p> <p>diffused light privacy</p>	<p>TOILET</p> <p>ventilation, no odour</p>	<p>CORE AREA</p> <p>diffused light connection with outdoors natural ventilation</p>

Group Members: Sagor Nipurte, Ishani Pradhan, Krisha Shah, Rikunj Shah



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Activity 3 - Facade Design



**Modularity**

**Spatial responsiveness**

**Kitchen**

Kitchen spaces are bound to generate heat. These spaces should be located in such a manner that it receives minimum radiation.

Overhangs/shades should be provided to cut the horizontal sun angle.

Adjustable louvers can be introduced as they can cope well with the sun's changing attitude and can also be adjusted as per the angle of sun's attitude.

Hot air rises, therefore openings should be made in the upper areas to allow the hot air to exit.

Besides ventilating the space, these openings provide a softer and more diffused light.

**Living**

Summer can be exceedingly hot in warm & humid climate hence, the siting and location of the fenestrations should be carefully determined.

Since earlier times, openings in buildings are partially closed by means of fixed shades and/or movable louvers.

It is also important to make openings in the lower walls for cool air to enter. Openings should also be made, on the upper level to allow the hot air to exit.

For the slats/fin, round rods should be used instead of square ones. The round shapes allow more light to filter in and provides better visibility towards the outside.

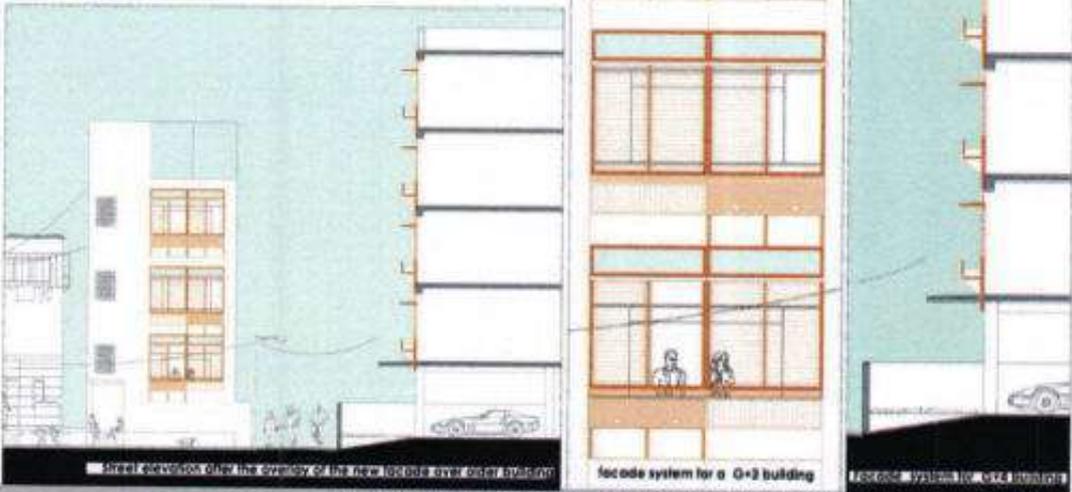
Providing plant beds to ensure the air entering is cooler and establish a connect with nature.

Group Members: Sagar Nipurte, Ishani Pradhan, Krishna Shah, Rikunj Shah

Activity 3 - Facade Design

A typical suburban scenario in Mumbai

Before	After
spaces are modular and least interactive with each other, there is <b>no interaction</b> between neighbours.	common spaces like balconies and verandah <b>encouraged interaction</b> increasing bonding amongst the residents.
spaces are heavily designed to accommodate nature, hence, there is <b>no relation with nature</b> .	section and design of fenestrations encouraged a <b>comfortable micro climate</b>
unintegrated ventilation systems which lack <b>flexibility</b> are used in all housing units. This gives limited control to the user to modify spaces according to his/her needs.	traditional structures had <b>distinct architectural features</b> which enhanced the aesthetics



Group Members: Sagar Nipurte, Ishani Pradhan, Krishna Shah, Rikunj Shah



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Evaluation criteria – Min. attendance for 3 days out of 5 days.

Active participation in the group assignments. Completion and submission of assignment.

Certificates will be given to students fulfilling the above criteria.

Exercise no. 1- Individual work, Exercise no. 2, 3 & 4 – Group work

S.No.	Group nos.	Name	Exercise 1 (15)	Exercise 2 (20)	Exercise 3 (25)	Exercise 4 (30)	Performance (10)	Total (100)
1	Group 1	Nipurte Sagar	12	14	18	26	10	80
2		Pradhan Ishani	10	14	18	26	10	78
3		Shah Krisha	11	14	18	26	10	79
4		Shah Rikunj	10	14	18	26	6	74
5	Group 2	Somik Beura	11	15	20	18	8	72
6		Nidhe Dhiraj	8	15	20	18	7	68
7		Jadnav Sameer	8	15	20	18	10	71
8		Nag Harsh	8	15	20	18	7	68
9		Patil Rasika	8	15	20	18	6	67
10	Group 3	Solanki Ajit	10	12	16	18	10	66
11		Singh Alakh	9	12	16	18	10	65
12		Tike Nandan	10	12	16	18	10	66
13		Vaidya Tejas	11	12	16	18	8	65
14	Group 4	Shinde Amit	9	16	23	25	10	83
15		Shinde Komal	10	16	23	25	10	84
16		Thakare Aarti	10	16	23	25	10	84
17		Thakare Girish	9	16	23	25	7	80
18	Group 5	Talati Dhvani	8	13	23	19	6	69
19		Reshma S. Kumar	10	13	23	19	10	75
20		Gupta Sonali	9	13	23	19	10	74
21		Maity Shreejita	11	13	23	19	8	74
22	Group 6	Shetty Hrishikesh	10	16	22	19	10	77
23		Tirumala Ajay	9	16	22	19	10	76
24		Ture Shruti	10	16	22	19	10	77
25		Rane Om	10	16	22	19	10	77
25	Group 7	Vengurlekar Aishwarya	9	12	20	24	9	74
26		Harani Tamanna	8	12	20	24	6	70
27		Ayarkar Rasika	8	12	20	24	8	72
28	Group 8	Wajpe Ayushi	12	13	20	18	10	73
29		Wani Snehal	10	13	20	18	10	71
30		Thorve Swarali	10	13	20	18	10	71
31		Gaur Aditi	9	13	20	18	6	66



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**ACADEMIC YEAR: 20 18 - 20 19**

**This Certificate is awarded to**

**BEURA SOMIK RANJAN**

**in recognition of their successful completion of  
BUILDING SKIN FOR HIGHRISE SMART FACADE  
conducted from**

**3<sup>RD</sup> DEC 18 TO 7<sup>TH</sup> DEC 18**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**

  
**Prof. Ritu Deshmukh**  
**Principal**



  
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**College of Architecture**  
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**Rly Station C.B.D, Navi Mumbai**



**ACADEMIC YEAR: 20 18 - 20 19**

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**NILDHE DHIRAJ ANANT**

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conducted from**

**3<sup>RD</sup> DEC 18 TO 7<sup>TH</sup> DEC 18**

**at**

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**Prof. Satish Dhale**  
(G.D.D.D., P.G.D.D., IIA, M.Sc.ID, M.Arch)

Ref. No. : BV/COA/N.M./

Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

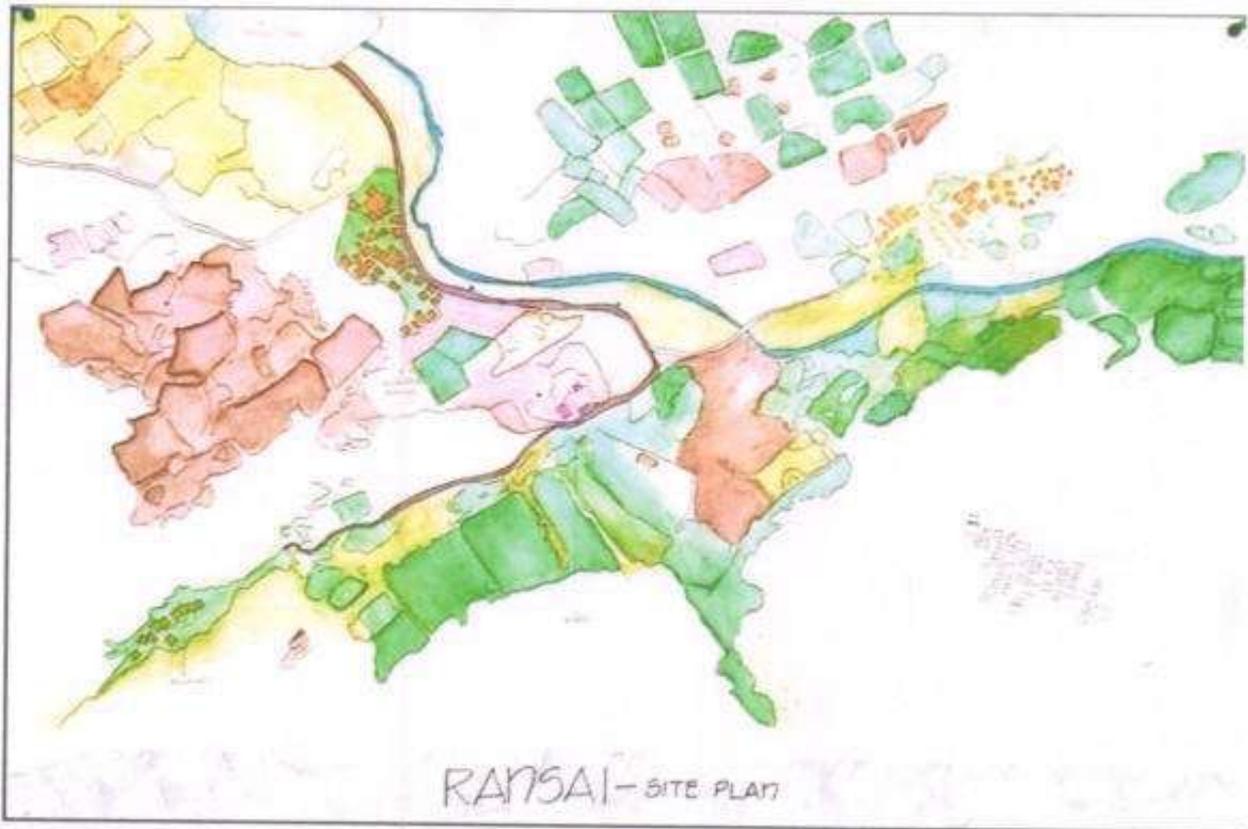
**AY 2018-19**

**Course 5- Certificate Course on Mind-mapping for Design Thinking**



  
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## Students Outcomes



With the aim of understanding the settlement pattern and its people as a part of Mind Mapping and Design Thinking which undertook a study of the Ransai village. The student understood the needs of the community in terms of facilities provided and analyze the gaps. They collected and analyzed information with the help of mind maps, a tool to visually organize information and put them in a hierarchy.

### Learning outcomes

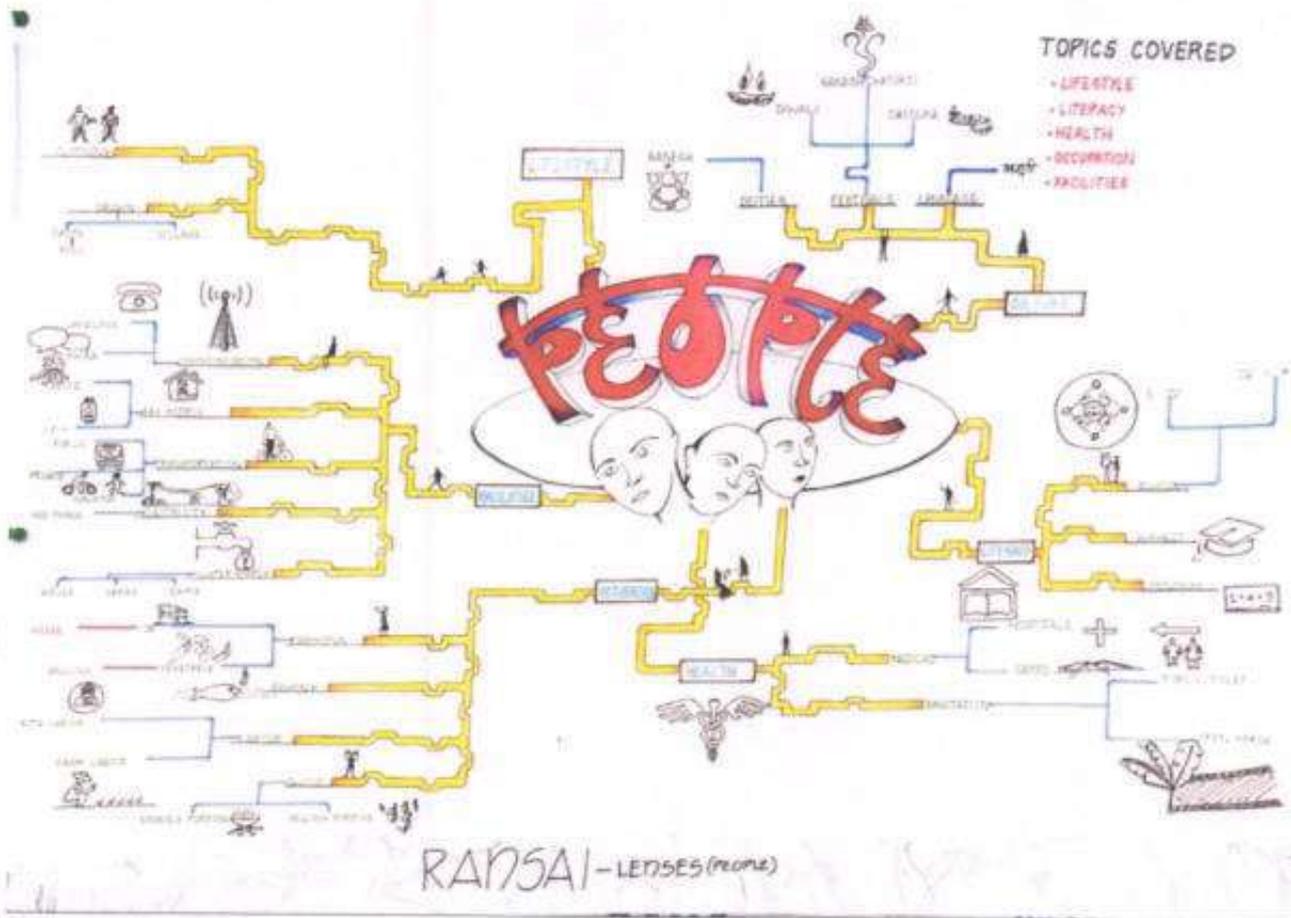
- Ability to distil complicated events and issues into understandable functions and analogies.
- An aptitude for creating visual narratives.
- Ability to create connections and interconnections rather than operating in siloed areas. Establish clarity in thinking and problem solving.



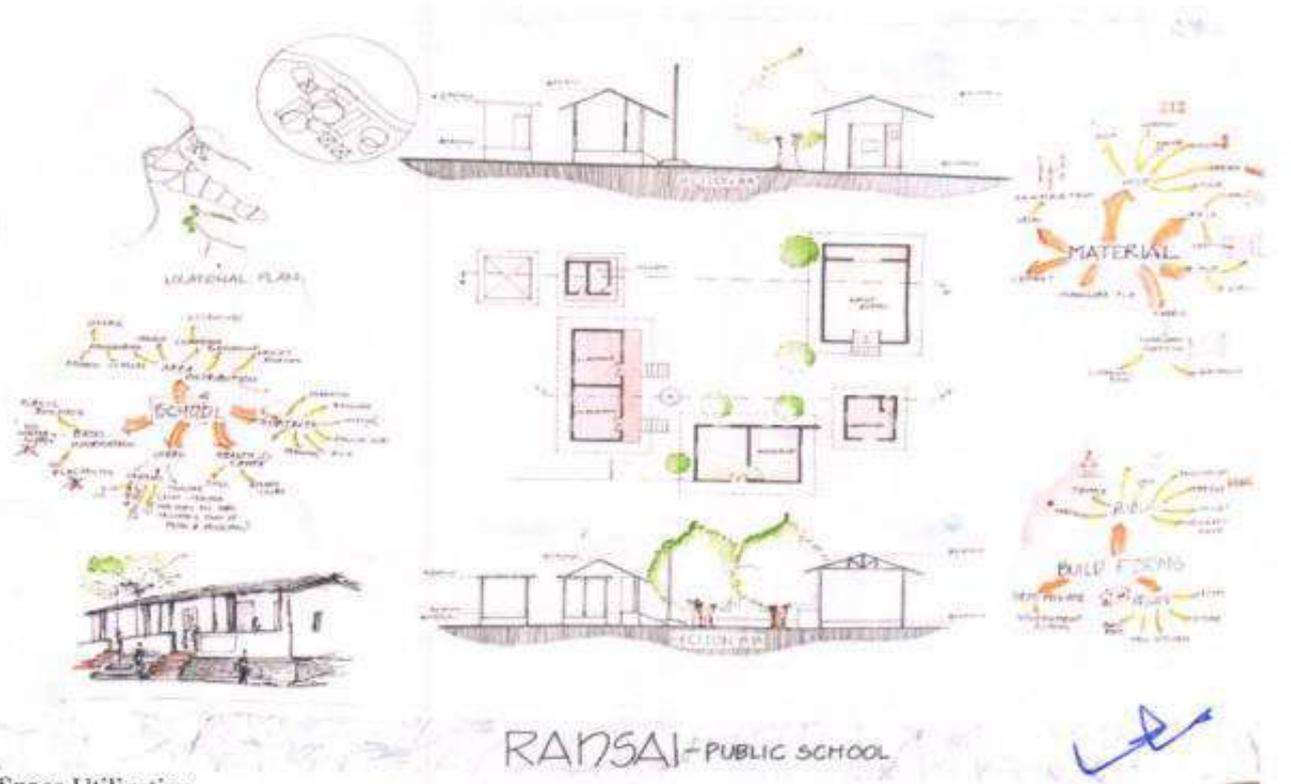
  
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**Built and Unbuilt**



**Space Utilization**



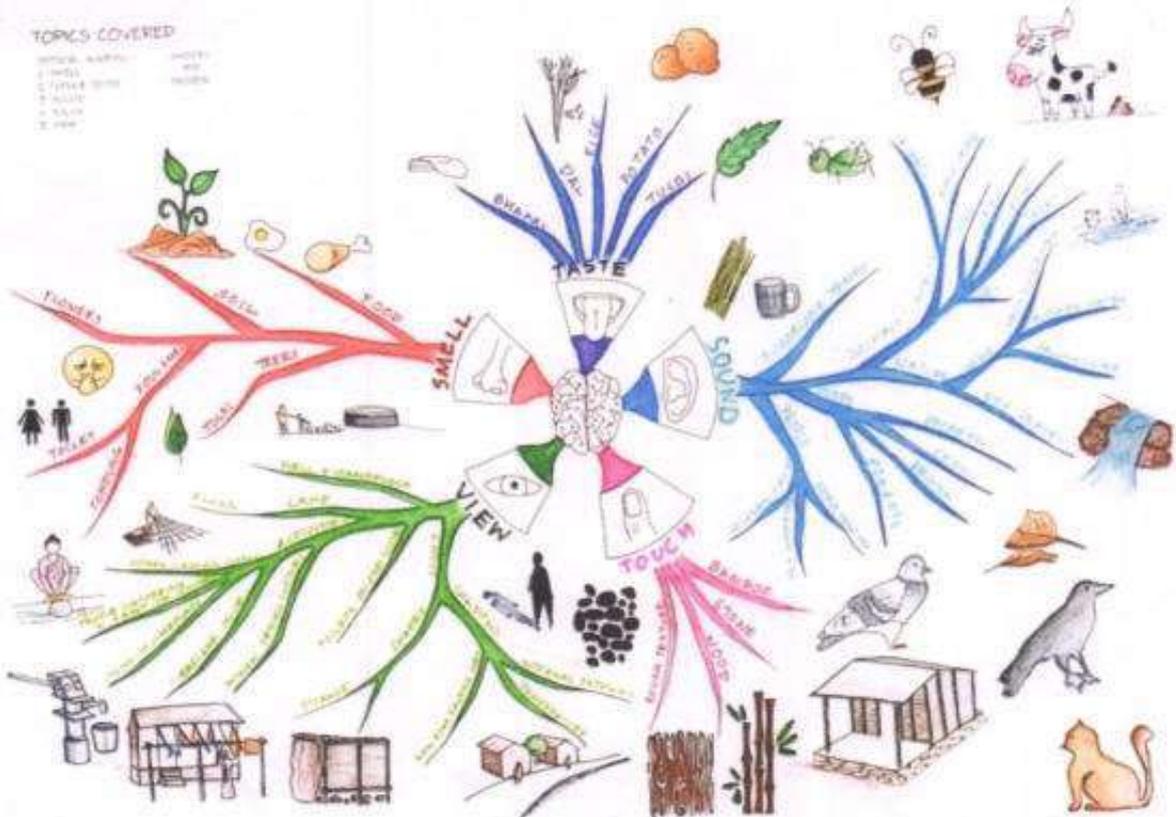
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RANSAI - LENSES (NATURAL RESOURCES)

Flora and Fauna

- TOPICS COVERED
- 1. PLANTS
  - 2. ANIMALS
  - 3. ECOSYSTEMS
  - 4. ENVIRONMENT
  - 5. CLIMATE
  - 6. POLLUTION
  - 7. BIODIVERSITY
  - 8. CONSERVATION



RANSAI - LENSES (SENSORY)

Sensory Perceptions



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GAIKAR MANSI KISHOR

**in recognition of their successful completion of**  
**MIND MAPPING FOR DESIGN THINKING**  
**conducted from**

10<sup>th</sup> DEC 18 TO 14<sup>th</sup> DEC 18

**at**

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**Prof. Ritu Deshmukh**  
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**Rly Station C.B.D, Navi Mumbai**



**ACADEMIC YEAR: 20 18 - 20 19**

**This Certificate is awarded to**

BAGWE MADHURA DINESH

**in recognition of their successful completion of  
MIND MAPPING FOR DESIGN THINKING**

**conducted from**

10<sup>th</sup> DEC 18 TO 14<sup>th</sup> DEC 18

**at**

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Principal

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Date :

## 1.2 Academic Flexibility

**1.2.1 Number of Add on / Certificate / Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. during the last five years**

**AY 2018-19**

**Course 6- Certificate Course on Parametric Design Thinking**



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# Parametric Design Thinking

Computation and Design Course

17th-21st December 2018

Course Report



**BHARATI VIDYAPEETH COLLEGE OF ARCHITECTURE, NAVI MUMBAI**

Belpada Education Complex, Opp. Kharghar Railway Station, Sector No. - 7, C.B.D. Belapur,  
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# Acknowledgement

We would like to acknowledge the contributions from the participants of the course 'Parametric Design Thinking' held on 17th to 21st December 2018 in Bharati Vidyapeeth College of Architecture, Navi Mumbai for their involvement and dedication for learning. The abundant recommendations and cooperation from the faculty for assistance in designing the structure of the course itself and Principal Ritu Deshmukh ma'am for her immense support throughout the duration of the course.

We thank Ritu ma'am, Faculty members and all the participants of the course for their benevolent support to make this venture a success.

*Thanking you*

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Assistant Professor(BVCOA)

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M.Arch(Digital Architecture). BNCA.Pune

B.Arch. SGD College of Architecture.Jalgaon

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## Overview

The five-day course has been designed for students with no previous experience in Rhino+Grasshopper or parametric design techniques. The course has been structured to teach students not only the use of grasshopper as a generative tool, but also how to integrate it within real design process.

The first three days of the course were spent learning the fundamentals of working with Rhino & Grasshopper interface and establishing logic of definitions, build and manage parametric data structures. On the fourth day the architectural installation design work was executed as well as the students were introduced to digital fabrication techniques. The final out-come of the course reflects the concept of disruption between the form and patterns and represents the student's aesthetic sensibility.

### Software Platform

Rhino software was used as the main modelling platform, whilst Grasshopper as the generative design medium, along with few other plug-ins mainly LunchBox(exploring mathematical shapes, surface subdivision, paneling system)

DAY 1: 17 December 2018 |  
Introduction to Parametric Design Thinking



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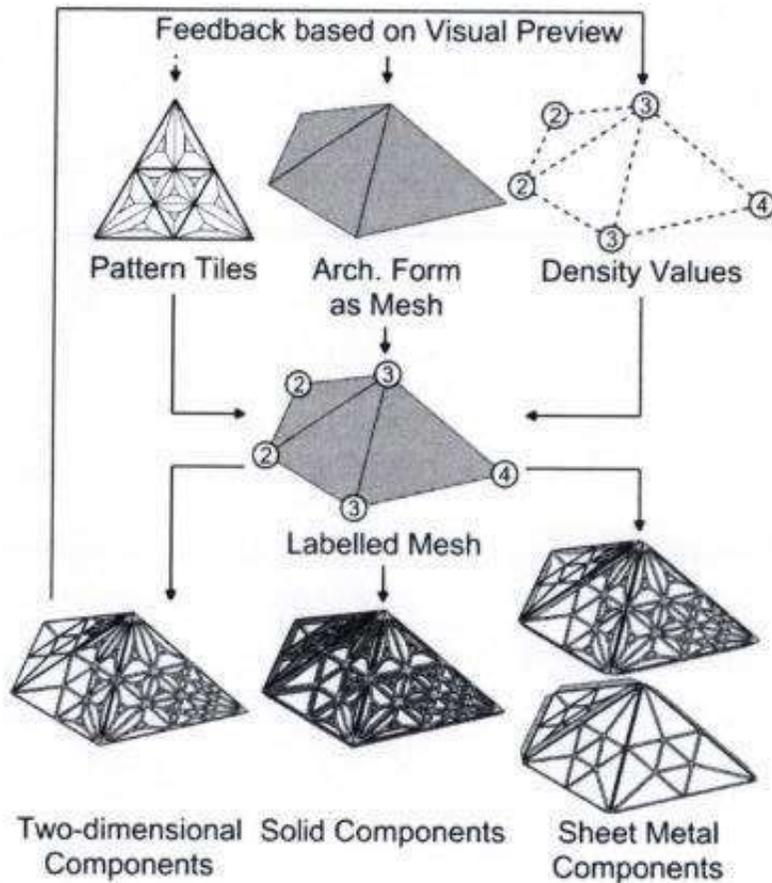
# Methodology

The course introduced the students to parametric design techniques as a new medium for architectural design. After covering few exercises on the logic and the principles of this design medium, students applied the learned techniques in a design exercise of modelling any daily use object in the Rhino Workspace. Students analyzed the peculiar forms and developed a three dimensional model of it and developed data sets for the form and mapped these data to generate an algorithm to form various iterations of the basic form.

Through the use of visual scripting with grasshopper, students learned how to build and manage parametric data structures and to develop data-driven three dimensional forms.

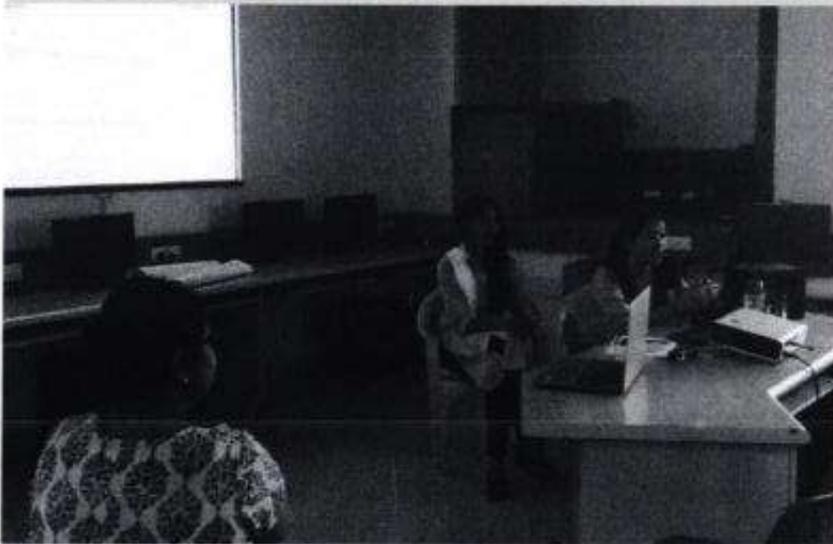
The course technical tutorials included:

- Software Interface
- Modelling Tools
- Grasshopper components
- Geometry generation from data stream
- Base exercises (Attractor, Surface subdivision, Morphing)



*(Signature)*

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Day 2: 18 December 2018 | Rhino Modeling Workspace

## Design Exercise

On the third day of the course, participants were given an assignment of modelling any complex geometric object. The design process had been divided into two stages. The first stage focused on the development of the three dimensional modelling. The second stage focused on the development of algorithmic principles and techniques to generate different iterations of the form. Different iterations were explored to create various possible outcomes of the geometric form. This exploration feed-back process breaks away from the traditional linear design methodology and arrives at a more bottom-up oriented approach to generate possible forms and spatial patterns.

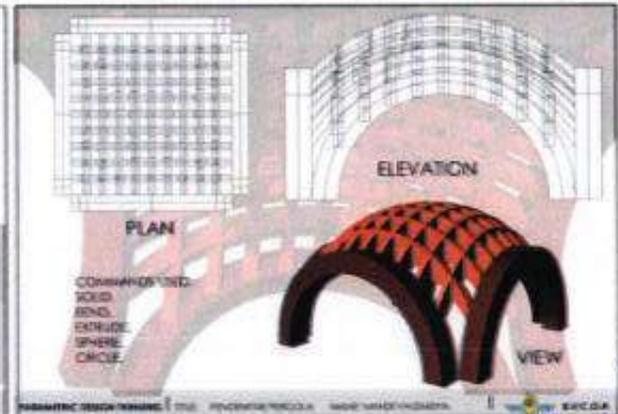
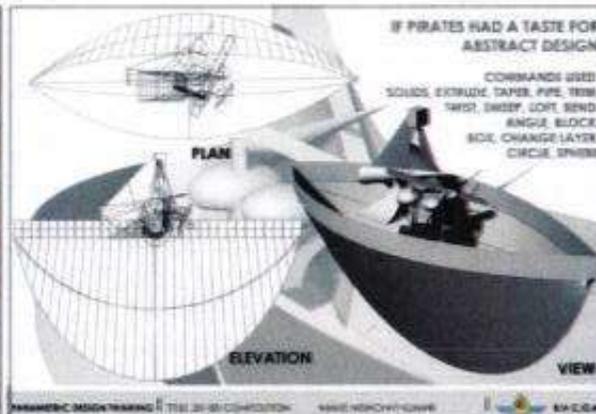
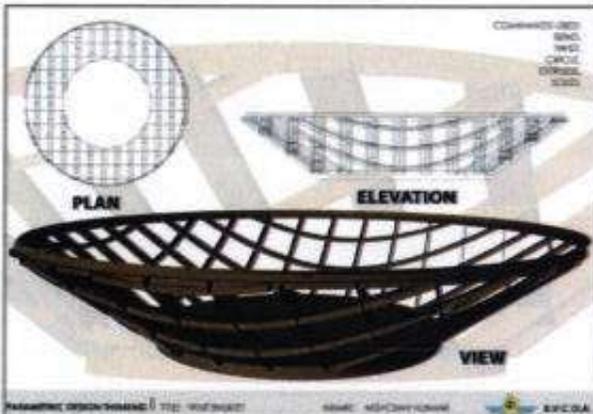
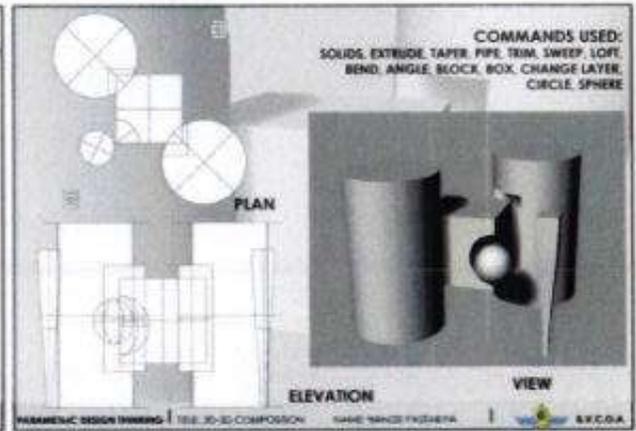
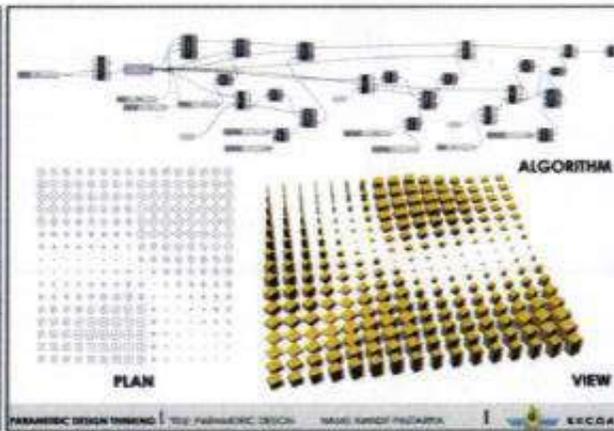
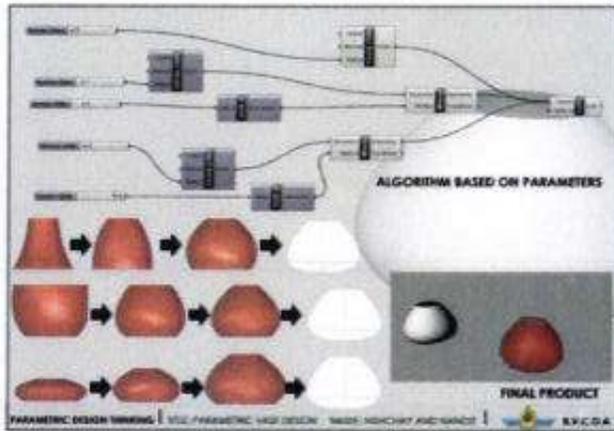
### Conceptual explorations

Students individually tackled the concept of disruption with various visual narratives of the three dimensional form that could represent the idea. Various suggestions of waves, ripples and splashes brought the students to look at water as the inspiration and go about design around it.



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# Student Work



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# T O U S L E | Architectural Installation

## Narrative

The concept emerged from a mere water droplet and how each drop resonates as it touches the surface. This effect creates a subtle ripple of waves, thus forming an astonishing phenomena that can be directly related to sociology. It can be noticed how the initial interaction of the droplet can disrupt the social interactions indirectly. After several discussions, the idea evolved into a drop of water splashing aggressively. This causes a sudden disturbance to a restless surface.

Since the location of the installation is the porch of the college, the design had to be ceiling hung. To give the illusion of splashing water, shattered glass like grid distortion was used to derive a triangular tessellation. Threads were incorporated by introducing a weaving pattern as a infill design for individual cells and monochrome colored threads were used to create patterns with colors as well.

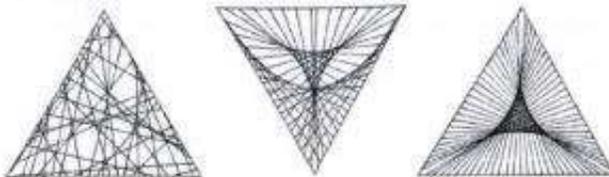


  
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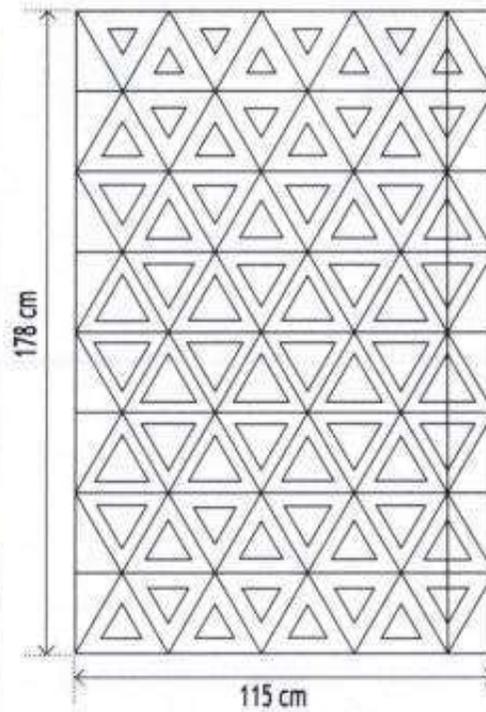
# Installation Location



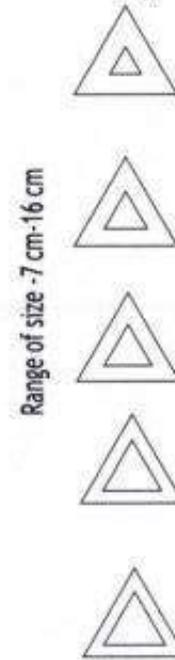
## In-fill Patterns



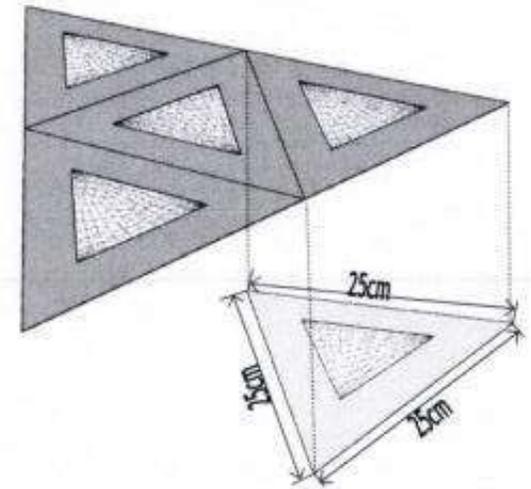
## Tessellation Pattern



## Range in sizes of Infill Triangle



## Individual Cell Arrangement



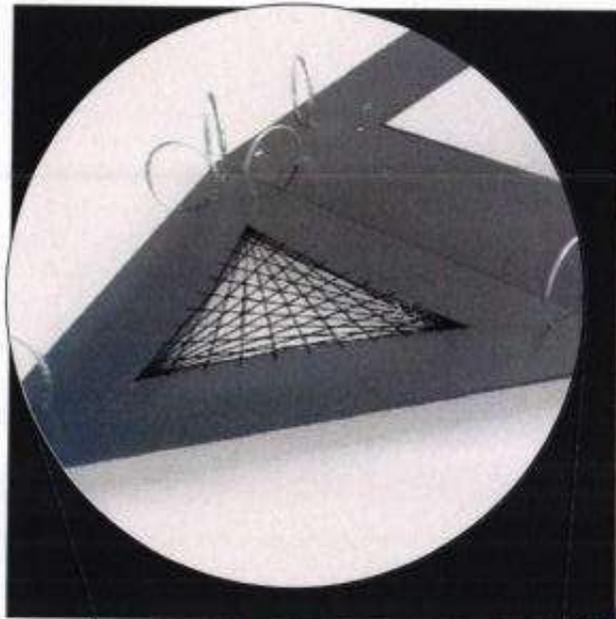
## Modelled Surface in Suspension



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## Fabrication Detail

Triangular components of acrylic sheet are joined by metal rings to create a hinged joint to make the surface flow to adapt to any free-form shape. Different colored threads are used to create a weaving pattern.



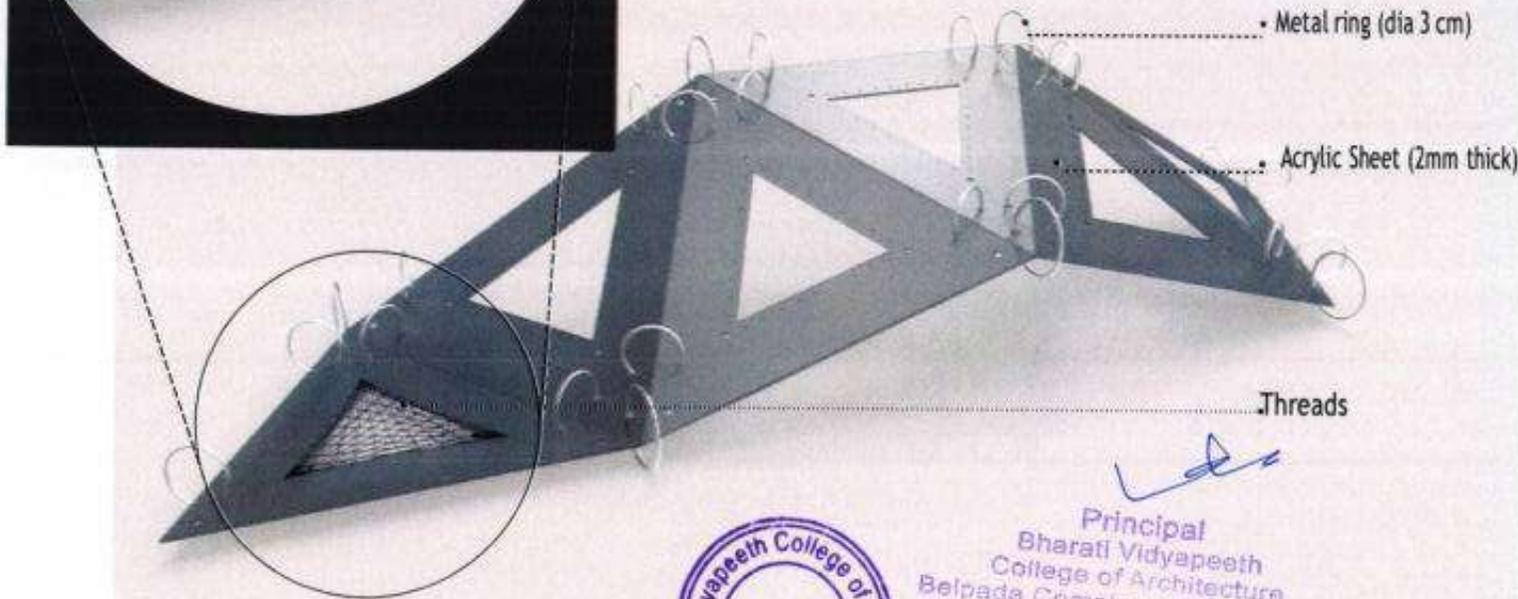
File Rings (Diameter 3 cm)



Acrylic Sheet (2mm Thick)



Woven Thread



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*[Handwritten signature]*

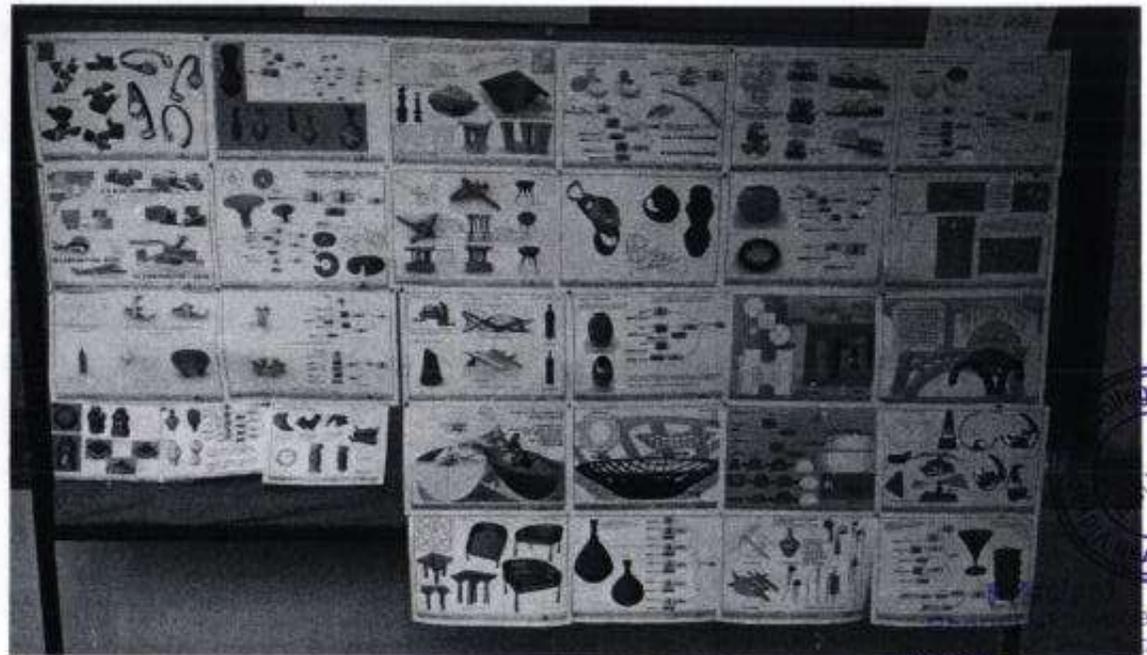
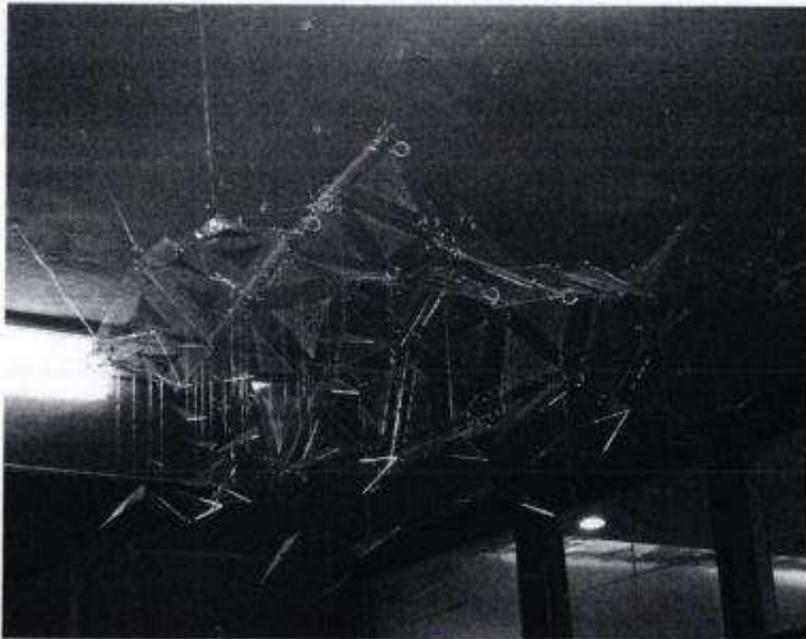
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# Installation

The effect of crease behaviour, drape and formability allowed fabric-like behaviour of the final surfaces due to the flexible joinery design for the installation allowed final form to be determined with the help of gravity.

*Student's display of Work*



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**PARAMETRIC DESIGN THINKING**

**conducted from**

**17<sup>TH</sup> DEC 18 TO 21<sup>ST</sup> DEC 18**

**at**

**Bharati Vidyapeeth College of Architecture, Navi-Mumbai**

  
**Prof. Ritu Deshmukh  
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