



FEBRUARY 2025

# NEWSLETTER

## IMPULSE

FEBRUARY 2025

### *Table of content*

### *Page No.*

- |   |           |
|---|-----------|
| • <i>Message from HoD</i>                                       | <i>02</i> |
| • <i>Vision, Mission, PSO &amp; PEO of Civil<br/>Department</i> | <i>03</i> |
| • <i>Guest Lectures</i>   | <i>04</i> |
| • <i>Industrial Visits</i>                                      | <i>06</i> |
| • <i>Parent Meeting</i>   | <i>08</i> |
| • <i>Research Publication</i>                                   | <i>09</i> |
| • <i>Clubs</i>  | <i>10</i> |
| • <i>T&amp;P Activity</i>                                       | <i>11</i> |
| • <i>IIC, Startup Innovation Cell activity</i>                  | <i>12</i> |



FEBRUARY 2025

# NEWSLETTER

Written By : Dr. Atul Khatri

## Message From HoD

Welcome to the Civil Engineering Department. Civil Engineering is one of the core branches of Engineering and involves planning, designing, structural work, construction and Management. The Civil Department has been one of the growing Departments in MMIT since 2019. It provides the platform to showcase all activities related to students, faculties and several other interactive programs.

The department has a well-established infrastructure having laboratories of Concrete Technology, Fluid Mechanics, Environmental Engineering, Geotechnical Engineering, Engineering Geology, Surveying, Strength of Material, Transportation and Civil CADD Laboratory with good quality equipment to enhance the quality of education and Research.

Departments have MoUs with industries to impart technical knowledge and skill to students in the field of Civil Engineering. The department also encourages the students for competitive exams like Maharashtra Engineering Services (MES), IES and in the private sector.

**Dr. Atul Khatri**  
**Head of the Civil Engineering**  
**Department**



## Message from the Editor :

We are presenting you with our newsletter. We believe that the session was too informative and will help immensely in the development of student's field knowledge. It was a splendid presentation, which exposed students to the digital world of technologies in the field of construction. This Newsletter also allows our student and staff to spotlight their insights, ideas and innovations and to show how this can be applied in almost any organization. The success of this newsletter depends on your response. I would appreciate your feedback.



Written By : Dr. Atul Khatri

## Vision, Mission, PSO & PEO

### ● Department Vision:

"To establish the department in the field of "Civil Engineering" focused on quality education, center of excellence, and innovative research."

### ● Department Mission:

M1: To promote quality education, research, and consultancy for industry and society.

M2: To establish a center of excellence in the field of research.

M3: To train students in industrial interactions and innovative thinking with relevance to entrepreneurship.

### ● Programme Specific Outcome (PSO) :

1: To promote quality education, research, and consultancy for industry and society.

2: To establish a center of excellence in the field of research.

3: To train students in industrial interactions and innovative thinking with relevance to entrepreneurship.

### ● Programme Educational Objectives (PEO) :

1: Civil graduates will be engaged in problem solving using Engineering Principles to overcome the need of society.

2: Civil graduates will deal with wide variety of engineering tasks like designing, supervision, construction and maintenance activity.

3: Civil graduate pursue lifelong learning both in their choose profession and other activity.



**FEBRUARY 2025**

## GUEST LECTURES

Event By : Asst. Prof. Leena Deshmukh &  
Asst. Prof. P.D. Shinde  
Event Date : 08 Feb 2025



### EXPERT LECTURE ON HYDROPOWER ENGINEERING & HYDRAULIC STRUCTURES

Event Title: Expert Lecture on Hydropower Engineering & Dams & Hydraulic Structures  
Date: February 8, 2025  
Venue: MMIT, Classroom B-104  
Speaker: Mr. V. S. Ramarao Scientist-C, Central Water and Power Research Station (CWPRS), Pune  
Organizer: Department of Civil Engineering, Marathwada Mitramandal's Institute of Technology (MMIT), Pune  
Attendees: 28 students and 5 faculty members

#### Session Highlights:

- Hydropower Systems: Components, energy conversion, and efficiency optimization
- Design & Operation: Site selection and operational challenges
- Dams & Hydraulic Structures: Types, functions, design principles, and risk management
- Innovations: New materials, construction techniques, and monitoring technologies

Event By : Prof. V.D. Sawant  
Event Date : 13 Feb 2025

### SEMINAR ON CAREER MOTIVATION IN CIVIL ENGINEERING

Event Title: Career Motivation: Building a Future in Civil Engineering  
Date: 13th February 2025  
Time: 9:30 AM onwards  
Venue: B104 Classroom, MMIT, Lohgaon, Pune  
Participants: 56 students  
Organizer: Department of Civil Engineering, MMIT  
Speaker: Mr. Sameer Alone, Founder Director & CEO, Centre Head and Internal Quality Auditor, EAL, UK



#### EVENT HIGHLIGHTS:

##### Objective

The seminar aimed to guide students in career planning, skill development, and industry expectations, helping them explore opportunities in the field of civil engineering.

##### Key Highlights

- Overview of career opportunities in different civil engineering sectors
- Importance of skill development and certifications
- Insights into global job market trends
- Guidance on interview preparation
- Interactive Q&A session with students





FEBRUARY 2025

## GUEST LECTURES

Event By : Asst. Prof. P.D. Shinde

Event Date : 27 Feb 2025



### EXPERT LECTURE ON HYDROPOWER ENGINEERING & HYDRAULIC STRUCTURES

Event: Women's Rights in India – Legal Awareness Session

Date: February 27, 2025

Mode: Offline

Time: 10:30 AM – 11:30 AM

Speaker: Adv. Mrs. Mitali Basu

Participants: 33

#### Objective:

- Legal Awareness & Advocacy: Educate women about their rights under Indian law, including protection against discrimination, domestic violence, workplace harassment, and dowry-related issues.
- Economic Empowerment: Encourage women's access to education, skill development, and employment for financial independence.
- Gender Equality & Social Justice: Promote equal opportunities in education, employment, and political participation.
- Health & Safety: Discuss maternal health, reproductive rights, and protection against gender-based violence.



**FEBRUARY 2025**

## INDUSTRIAL VISITS

**Event By : Dr. A.A. Thakre**  
**Event Date : 26 Feb 2025**



### FIELD VISIT TO GANGA NEWTOWN, PUNE

**Event:** Site Visit to a Building Under Construction  
**Date:** February 26, 2025  
**Venue:** Ganga Newtown, Dhanori, Pune  
**Organized by:** Department of Civil Engineering, MMIT  
**Participants:** 20 Civil Engineering students and 1 faculty member

#### Objective:

The visit aimed to provide hands-on exposure to reinforced concrete structures, focusing on structural components, bar bending schedules, and reinforcement arrangements.

#### Key Learnings:

- **Structural Components:** Students studied beams, slabs, columns, and reinforcement bars.
- **On-Site Arrangement:** Practical mapping of structural plans discussed in classrooms.
- **Bar Bending Schedule:** Understanding reinforcement placement and its significance.
- **Industry Exposure:** Awareness of career opportunities in structural engineering.

**Event By : Prof. V.D. Sawant**  
**Event Date : 26 Feb 2025**

### SITE VISIT ON BAR BENDING SCHEDULE (BBS)

**Event Title:** Site Visit on Bar Bending Schedule (BBS)  
**Date:** February 26, 2025  
**Location:** Ganga New Town, Dhanori, Pune  
**Organizer:** Department of Civil Engineering, MMIT, Lohgaon, Pune  
**Faculty Coordinator:** Prof. Vaibhav Sawant  
**Participants:** BE Civil Engineering students



#### Objective of the Visit

The visit aimed to provide practical exposure to students on Bar Bending Schedule (BBS), quantity estimation, contract types, and tendering procedures as part of the Quantity Surveying, Contracts & Tender (QSCT) Lab. It helped bridge the gap between theoretical knowledge and real-world construction practices.

#### Key Learnings from BBS Site Visit

- **Bar Bending Schedule (BBS):** Practical understanding of reinforcement detailing, cutting lengths, lap lengths, and anchorage.
- **Quantity Estimation:** Calculation of steel and concrete requirements, material optimization, and cost efficiency.
- **Construction Contracts & Tendering:** Insights into project bidding, contract types, and procurement processes.



**FEBRUARY 2025**

## INDUSTRIAL VISITS

Event By : Prof. M. P. Pawar

Event Date : 28 Feb 2025



### FIELD VISIT TO SURVEY OF INDIA, PUNE

- Event Date: 28th February 2025
- Venue: Survey of India, Maharashtra & Goa Geo-Spatial Directorate, Pune
- Organized by: Department of Civil Engineering, MMIT
- Faculty Coordinators: Asst. Prof. Madan P. Pawar, Asst. Prof. Kishor N. Narawade, Asso. Prof. Akshay Thakare
- Participants: Third and Second Year Civil Engineering Students

#### Objective of the Visit:

- To bridge the gap between theoretical learning and practical application in Remote Sensing & GIS.
- To gain insights into geospatial mapping, surveying techniques, and remote sensing technologies.
- To understand the role of Survey of India in national mapping and spatial data generation.

#### Key Highlights:

- Exhibition on National Science Day showcasing advanced survey and remote sensing equipment.
- Demonstration of GNSS, GPS, Digital Image Processing, and Visual Interpretation techniques.
- Hands-on exposure to RSGIS software and geospatial applications used in industry.
- Interaction with experts from the Survey of India, gaining knowledge about topographical mapping, geospatial data processing, and sustainable development applications.



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## PARENT MEETING

Event By : Dr. A.A. Thakre

Event Date : 15 Feb 2025



### PARENT-TEACHER MEETING (PTM) – SEMESTER II

Event: Parent-Teacher Meeting (PTM)

Date: February 21, 2025

Venue: Civil Engineering Department, MMIT, Pune

Organized by: Department of Civil Engineering

Coordinator: Asst. Prof. P.D. Shinde

#### Objective:

The PTM aimed to strengthen communication between faculty and parents, providing updates on students' academic performance, college activities, and future plans.

#### Program Highlights:

Welcome & Address: Conducted by faculty members and HoD.

Personal Interaction: Parents met with class teachers and teacher guardians to discuss their ward's progress.

Feedback Collection: Parents shared their suggestions and appreciation.

#### Parent Feedback & Suggestions:

Praised MMIT for its efforts and student-focused initiatives.

Appreciated faculty cooperation and personal interaction.

Suggested increased industry involvement for students.

Requested placement updates to be shared with parents.

Supported the continuation of offline classes for better learning.





## RESEARCH PUBLICATION

Event By : Dr. A.A. Thakre

Event Date : 15 Feb 2025

THE NEWS

Waste and Biomass Valorization  
<https://doi.org/10.1007/s12649-025-02953-6>

ORIGINAL PAPER



### Upcycling Food Wastes as a Cost-Effective Nutrient Media in Bacterial Rubberized Mortar for Carbon Sequestering

Sanchit Gupta<sup>1</sup> · Shivam Rajpoot<sup>1</sup> · Akshay Anil Thakare<sup>1,2</sup> · Hem Chandra Jha<sup>3</sup> · Sandeep Chaudhary<sup>1,4</sup>

Received: 2 August 2024 / Accepted: 2 February 2025  
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#### Abstract

Globally, about one-third of food production ends up as waste and is responsible for about 8% of global carbon emissions. The current waste management methods fall short of recycling this waste. The present study aims to upcycle food waste as a cost-effective nutrient media for carbon sequestration and bio-cementation in bacterial mortars. In this work, food wastes have been recycled using two different strategies to develop powder-based and pulp-based nutrient media. Powder-based nutrient media shows higher bacterial growth for *E. Coli* DH5  $\alpha$ , and was used for the preparation of bacterial solution. The bacterial solution prepared with food waste was used along with waste tyre rubber fibres for the development of different bacterial mortars. Bacterial mortars were experimentally compared with non-bacterial mortars. Bacterial mortar prepared with food waste shows improved microstructure, doubles the compressive strength (increase by 105.94%), shows self-healing ability, reduces carbon emissions/unit strength (decrease by 42.89–43.38%) and lowers the cost/unit strength (decrease by 26.80%). The present study demonstrates that food waste can be upcycled as a value-added raw material for both carbon sequestration and bio-cementation. Using food waste as nutrient media in bacterial mortars can contribute to sustainability by managing food waste and carbon sequestration.

#### Graphical Abstract

### ITLE: UPCYCLING FOOD WASTE AS A COST-EFFECTIVE NUTRIENT MEDIA IN BACTERIAL RUBBERIZED MORTAR FOR CARBON SEQUESTERING

- Published In: Waste and Biomass Valorization
- Authors: Sanchit Gupta, Shivam Rajpoot, Akshay Anil Thakare, Hem Chandra Jha, Sandeep Chaudhary

#### OBJECTIVE:

The study explores the potential of using food waste as a low-cost nutrient media in bacterial mortars to enhance strength, reduce carbon emissions, and promote sustainability.

#### KEY FINDINGS:

- Upcycled Food Waste: Two types of nutrient media (powder-based and pulp-based) were created using food waste.
- Enhanced Bacterial Growth: The powder-based media proved more effective in supporting *E. Coli* growth, used for bacterial mortar development.
- Improved Properties of Bacterial Mortar:
- Compressive strength doubled (increase by 105.94%).
- Carbon emissions per unit strength reduced (by 42.89–43.38%).
- Cost per unit strength decreased (by 26.80%).
- Self-healing ability observed due to bio-cementation.

#### SUSTAINABILITY IMPACT:

- This method offers a novel way to manage food waste while reducing construction material costs and environmental impact.



FEBRUARY 2025

## CLUBS

Event By : Prof. K.B. Narawade

Event Date : 08 Feb 2025



### INAUGURATION OF COMPETITIVE EXAM & HIGHER EDUCATION CLUB

#### DETAILS:

- Event: Inauguration of the Competitive Exam & Higher Education (CEHE) Club
- Date: February 8, 2025
- Venue: B104, Civil Engineering Department, MMIT, Lohegaon

#### OBJECTIVE:

- The CEHE Club was launched to support students preparing for competitive exams like GATE, UPSC, MPSC, GRE, TOEFL, and higher education opportunities.

#### EVENT HIGHLIGHTS:

- Ribbon Cutting & Lamp Lighting: Marked the official opening of the club.
- Speech by Club Head: Explained the club's objectives, benefits, and support for students.
- Address by HoD: Encouraged students to utilize club resources for academic success.
- Guest Lecture by V. S. Ramrao: Covered exam strategies, time management, and career planning.
- Vote of Thanks: Expressed gratitude to dignitaries, faculty, and students.



FEBRUARY 2025

## T&P ACTIVITY

Event By : Asst. Prof. V.D. Sawant

Event Date : 10 Feb 2025



### RESUME PREPARATION SESSION

- Title: Resume Preparation Session
- Date: 10th February 2025
- Time: 3:00 PM
- Venue: AutoCAD Lab, MMIT, Pune
- Organizer: Department of Civil Engineering, MMIT
- Speaker: Mr. Vaibhav Sawant (TPC, Civil Engineering Department)
- Participants: 12 BE Civil Engineering students

#### OBJECTIVE:

- The session aimed to guide students in creating professional resumes for job applications, emphasizing formatting, content structuring, and highlighting key skills.

#### KEY LEARNINGS:

- Professional Resume Formatting: Importance of a clear, well-structured layout.
- Academic & Skill Highlighting: Showcasing achievements and technical expertise.
- Project & Industry Exposure: Effectively presenting internships and practical experience.
- Resume Customization: Tailoring resumes for different job profiles in civil engineering.
- Avoiding Common Mistakes: Tips on avoiding errors and improving clarity.





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**FEBRUARY 2025**

## START UP INNOVATION CELL (IIC)

Event By : Asst. Prof. V.D. Sawant  
& Asst. Prof. K.B. Narawade  
Event Date : 10 Feb 2025



### MENTORING EVENT: DEMO DAY & START-UP EXHIBITION

- Title: Mentoring Event: Demo Day/Exhibition/Poster Presentation of Start-Ups
- Dates: 24th, 25th & 27th February 2025
- Venue: B104 Classroom, MMIT, Pune
- Organizer: Department of Civil Engineering & Institution's Innovation Council (IIC), MMIT
- Participants: 29 students, 2 faculty members

#### OBJECTIVE:

The event aimed to provide students with a platform to develop, refine, and present start-up ideas while receiving mentorship from innovation ambassadors and industry experts. It focused on fostering entrepreneurial skills, business model development, and industry-academia collaboration.

#### KEY LEARNINGS:

Day 1 & Day 2 (24th & 25th February):

- Mentoring sessions by Innovation Ambassadors & industry experts.
- Discussions on business planning, ideation, and startup strategies.
- Interactive sessions where students refined their business models.

Day 3 (27th February):

- Start-Up Poster Presentation by students.
- Teams showcased their concepts, target markets, and value propositions.
- Expert panel evaluated presentations and provided feedback.