

VIVEKANAND EDUCATION SOCIETY'S POLYTECHNIC

# Newsletter 2023-2024

## CIVIL ENGINEERING



"Building Tomorrow, Brick by Brick: Our Civil Engineering Program, est. 2018-2019. With 60 seats and a commitment to societal and environmental sensitivity, we mold technocrats for a multidisciplinary world, fostering leadership and ethical responsibility."

<https://ves.ac.in/polytechnic/>



VIVEKANAND  
EDUCATION  
SOCIETY'S  
POLYTECHNIC

# Civil-Constro

2023 - 24  
Vol.1

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Vivekanand Education Society's Polytechnic, Chembur

## Civil Engineering Department

### ABOUT DEPARTMENT:

Civil Engineering program established in the year 2018-2019 with the intake of 60 seats and has the distinction of being the one of the core departments in the institute. Civil Engineering is recognized as the mother branch of Engineering and has kept pace with the growing technological world. The department have modern, well equipped and adequate laboratories to fulfill the academic requirements as well as students need beyond the curriculum.

### VISION:

Provide sound civil engineering technocrats having sensitivity towards society and environment.

### MISSION:

Impart competency and right attitude to work in multidisciplinary environment. Develop cognitive and psychomotor skills and imbibe leadership attitude to be an entrepreneur. Inculcate ethical education fostering societal responsibilities

## Program Educational Objectives

### PEO 1:

Provide socially responsible, environment friendly solutions to Civil engineering related broad-based problems adapting professional ethics.

### PEO 2:

Adapt state-of-the-art Civil engineering broad-based technologies to work in multi-disciplinary work environments

### PEO 3:

Solve broad-based problems individually and as a team member communicating effectively in the world of work



## Program Specific Objectives

### PSO 1:

Construction Planning and Designing: Perform optimal civil engineering construction, planning and designing activities of desired quality at optimal cost.

### PSO 2:

Construction Execution and Maintenance: Execute civil engineering construction and maintenance using relevant materials and equipment.



*"The education that you are getting now has some good points, but it has a tremendous disadvantage which is so great that the good things are all weighed down."*



## Result Analysis

Analysis for the Academic Year 2023-2024



**CHAUDHARI MANISH ANIL**

1st Year  
70.94%  
Rank 1st



**VISHE VEDANT JANARDAN**

1st Year  
69.29%  
Rank 2nd



**SHAIKH AWAIZ MASJID**

1st Year  
68.70%  
Rank 3rd



## Result Analysis

Analysis for the Academic Year 2023-2024



**SUMITKUMAR CHAURASIYA**

2nd Year

84.89%

Rank 1



**LAKSHAY JAIN**

2nd Year

82.89%

Rank 2



**ADITYA KHARAT**

2nd Year

75.44%

Rank 3



**MANCHEKAR SUDEEPA RAJENDRA**

3rd Year

87.80%

Rank 1



**SHUKLA RADHIKA AJAYKUMAR**

3rd Year

85.30%

Rank 2



**THAKUR SANCHIT**

3rd Year

83.90%

Rank 3

## Activities | Guest Lectures

Guest Lectures conducted by industrial experts for the academic year  
2023-2024

Sr. No.	Date	Program Code	Topic	Name of the Industrial Expert/Guest	Designation	Organization	No of students attended / participated
1	04/08/2023	CE3I, CE5I	Talk show with Women Entrepreneuers	Mrs. Bharati Bhandarkar, Mrs. Jaishree Anerao, Mrs. Sonali Dhumne.	Editor, Co-founder, Founder respectively.	Bhandarkar Shipping news and events, DECOCOAT, Hardik Collections.	4
2	25/08/2023	CE5I	Personality Development	Ms. S. S. Vaidya	Team member	VESLARC	24
3	28/08/2023	CE5I	Investment/ VC funding opportunity for early stage Entrepreneuers	Mr Sameer Karna	Founder of profit curve	The Profit Curve	16
4	28/08/2023	CE5I	Learn Start-up and Minimum viable product/ Bussiness	Mr Sameer Karna	Founder of profit curve	The Profit Curve	11
5	30/10/2023	CE1K, CE3I, CE5I	Time Management and Imporntance of Networking	Ms. Akshada Patel	Test Engineer	Infosys.	90
6	01/11/2023	CE1K, CE3I, CE5I	Bussiness Mindset for Civil Engineering Students.	Mr. Rahul Jain.	Co-Founder	Bussiness Magnet	81

## Activities | Guest Lectures

Guest Lectures conducted by industrial experts for the academic year  
2023-2024

Sr. No.	Date	Program Code	Topic	Name of the Industrial Expert/Guest	Designation	Organization	No of students attended / participated
7	02/11/2023	CE1K, CE3I, CE5I	Development of Leadership Qualities and other soft Skills.	Ms. Mansi Thakkar	Director	Windplus	77
8	04/11/2023	CE3I, CE5I	How to write and publish paper in IEEE format.	Mr. Monu Shetty	CEO	Axenous.	52

## Activities | Industrial Visits

Industrial Visits (IVs) for the academic year 2023-2024

Sr No	Date	Program Code	Name of the Company	Company Address	Staff Incharge	Name of Course with Paper Code
1	13/10/2023	CE5I	Homi Baba National Institute	2 nd Floor , BARC Training School Complex , Anushakti Nagar , Mumbai 400094	Sanskriti Dhamale / Mayur Suryawanshi	PHE 22504
2	02/11/2023	CE5I	BARC Biogas plant	BARC,trombay, Mumbai 400085	Mayur M Suryawanshi	PHE 22504

## Teachers Corner | Staff Activities

Staff activities conducted for the academic year 2023-2024

Sr No	Date	Name of the faculty	Title of the training/ workshop/ Seminar/ Webinar attended	Organized by	Duration	Starting date	Ending date
1	21/10/2023	Sanskruti Dharmale	Advance Concrete Technology and sustainable Construction Practices	Civil Engineering Department of Thakur Polytechnic	One week	09/10/2023	14/10/2023
2	2/12/2023	Bharat jayant patil	Advance concrete technology and sastainable construction practice	Thakur polytechnic	One week	09/10/2023	14/10/2023
3	2/12/2023	Mayur Mohan Suryawanshi	Advanced concrete technology and sustainable construction	Thakur polytechnic	One week	09/10/2023	14/10/2023
4	14/12/2023	Mayur M Suryawanshi	Emerging Technologies for sustainable development in civil engineering	Rizvi college of engineering	One week	30/11/2023	07/12/2023

## Students Corner | Achievements

Staff activities conducted for the academic year 2023-2024

Sr. No.	Class	Dates	Name of students	Event Name	Organized by	Achievement
1	CE3I	19/08/2023	Atharv Raut, Varun Sandge	Chhatrapati Shivaji Maharaj Rajyabhishek Sohala Celebration	VES Polytechnic, Chembur, Mumbai-400071	Participation
2	CE5I	15/09/2023	Radhika Shukla, Archita Bagwe, Harshvardhan Roundhal, Mrunal Agawane, Kunal Chauhan	Engineer's Day Group Discussion: "Artificial Intelligence boon or a bane"	VES Polytechnic, Chembur, Mumbai-400072	First
3	CE5I	15/09/2023	Sudeepa Manchekar, Sanchit Thakur, Kaushal Lad, Anay Prabhu, Avishkar, Jadhav, Dipesh Dhadve, Viraj Waghmare, Kaushik Rathod, Avishkar Jadhav	Engineer's Day Group Discussion: "Artificial Intelligence boon or a bane"	VES Polytechnic, Chembur, Mumbai-400073	Participation
4	CE5I	26/09/2023	Radhika Shukla, Archita Bagwe, Sudeepa Manchekar, Sanchit Thakur, Harshvardhan Roundhal	Meri Maati, Mera Desh Celebration	VES Polytechnic, Chembur, Mumbai-400074	Participation
5	CE3I	26/09/2023	Hanchate Lakshmi, Aryan Sable, Priyanshu Arde, Bhunik Mhatre, Vikas Sawant	Meri Maati, Mera Desh Celebration	VES Polytechnic, Chembur, Mumbai-400075	Participation
6	CE5I	04/10/2023	Archita Bagwe	Gandhi Jayanti Celebration- Elocution Competition	VES Polytechnic, Chembur, Mumbai-400076	First



## Students Corner | Achievements

Staff activities conducted for the academic year 2023-2024

Sr. No.	Dates	Class	Name of students	Event Name	Organized by	Achievement
7	04/10/2023	CE5I	Sanchit Thakur	Gandhi Jayanti Celebration- Elocution Competition	VES Polytechnic, Chembur, Mumbai-400077	Second
8	04/10/2023	CE5I	Radhika Shukla	Gandhi Jayanti Celebration- Elocution Competition	VES Polytechnic, Chembur, Mumbai-400078	Second
9	04/10/2023	CE3I	Anish Kesarkar	Gandhi Jayanti Celebration- Creative Poster Making	VES Polytechnic, Chembur, Mumbai-400079	First
10	21/10/2023	CE5I	Sudepa Manchekar, Harshada Khatate	Birth Anniversary of former Dr APJ Abdul Kalam Celebration- Essay Writing	VES Polytechnic, Chembur, Mumbai-400080	Participation
11	22/10/2023	CE3I	Atharv Raut, Sumit Chourasiya, Deepak Yadav, Anuj Bhagat	Birth Anniversary of former Dr APJ Abdul Kalam Celebration- Essay Writing	VES Polytechnic, Chembur, Mumbai-400081	Participation
12	31/10/2023	CE1K	Awaiz Shaikh, Afeef Kazi, Yogesh Kamble	Innovative Slogan Writing on topic "Say No to Corruption"	VES Polytechnic, Chembur, Mumbai-400082	Participation
13	31/10/2023	CE3I	Hanchate Lakshmi, Deppak Yadav, Vitthal Gupta, Anish Kesarkar, Anirudh Konduilkar	Innovative Slogan Writing on topic "Say No to Corruption"	VES Polytechnic, Chembur, Mumbai-400083	Participation
14	31/10/2023	CE5I	Radhika Shukla, Archita Bagwe, Kunal Chauhan	Innovative Slogan Writing on topic "Say No to Corruption"	VES Polytechnic, Chembur, Mumbai-400084	Participation

## **EXPLORING THE REVOLUTIONARY ROLE OF GEOSYNTHETICS IN MODERN ENGINEERING**

Geosynthetics, a class of synthetic materials, revolutionize civil engineering and environmental protection. With diverse types like geotextiles, geomembranes, geogrids, and geocomposites, these materials contribute significantly to infrastructure improvement, environmental conservation, and sustainability.

### 1. Types of Geosynthetics:

- a. Geotextiles: Permeable fabrics for soil stabilization and erosion control.
- b. Geomembranes: Impermeable liners for containment applications.
- c. Geogrids: High-strength materials for soil reinforcement.
- d. Geo composites: Multifunctional combinations addressing various engineering challenges.

### 2. Applications in Infrastructure:

- a. Road Construction: Enhances road performance and longevity.
- b. Retaining Walls: Improves stability by reinforcing soil.
- c. Landfills: Prevents seepage, protecting against contamination.
- d. Railway Construction: Used for stabilization, drainage, and erosion control.

### 3. Environmental Benefits:

- a. Erosion Control: Prevents soil erosion, protecting landscapes.
- b. Wastewater Treatment: Ensures impermeable liners, preventing contamination.
- c. Coastal Protection: Used for shoreline protection and erosion prevention.
- d. Vegetative Support: Stabilizes soil, aiding vegetation growth.

### 4. Sustainability and Cost-Efficiency:

- a. Reduced Material Usage: Contributes to sustainable construction practices.
- b. Longevity: Longer lifespan compared to traditional materials.
- c. Energy Efficiency: Requires less energy for production and installation.

### 5. Challenges and Future Developments:

- a. Research and Innovation: Ongoing efforts to develop advanced materials.
- b. Regulatory Standards: Essential for ensuring optimal performance and safety.

### Conclusion:

Geosynthetics continue to transform civil engineering and environmental practices, offering versatile and sustainable solutions. As research advances, these materials will play a crucial role in building resilient infrastructure, safeguarding the environment, and promoting sustainable development.

-Archita Bagwe (CE51)

## ENHANCING STRUCTURAL RESILIENCE: THE ROLE OF SEISMIC ISOLATION DEVICES

In a world where natural disasters can strike without warning, safeguarding infrastructure against seismic events is paramount. Seismic isolation devices stand as innovative solutions, offering a shield of protection to buildings and bridges against the destructive forces of earthquakes. These devices employ sophisticated engineering principles to mitigate the impact of seismic waves, ensuring structural integrity and, ultimately, saving lives.

At its core, seismic isolation technology operates on the principle of decoupling the structure from the ground motion generated by an earthquake. Traditional buildings are rigidly anchored to their foundations, leaving them vulnerable to the lateral forces unleashed during seismic activity. In contrast, structures outfitted with seismic isolation devices are equipped to absorb and dissipate seismic energy, effectively breaking the connection between the ground and the building.

One of the most common types of seismic isolation devices is the base isolator, which typically consists of bearings made from materials such as rubber, steel, or a combination of both. These bearings act as shock absorbers, allowing the building to sway gently in response to ground motion while dissipating energy and reducing the transfer of forces to the superstructure. This controlled movement serves to minimize structural damage and ensures occupant safety.

Another innovative approach to seismic isolation involves the use of friction pendulum systems. These systems employ sliding bearings coupled with pendulum mechanisms to provide both isolation and damping capabilities. By leveraging the principles of friction and inertia, friction pendulum systems offer an effective means of protecting structures against a wide range of seismic intensities.

The benefits of seismic isolation devices extend beyond mere structural protection. By minimizing damage to buildings and infrastructure, these devices contribute to the overall resilience of communities in earthquake-prone regions. Moreover, the cost-effectiveness of seismic isolation solutions is increasingly recognized, as the expenses associated with retrofitting existing structures are often outweighed by the potential savings in terms of property damage and loss of life.

As seismic isolation technology continues to evolve, researchers and engineers are exploring new materials and design strategies to enhance performance and reliability. From advanced damping systems to innovative hybrid solutions, the future of seismic isolation holds great promise in ensuring the safety and resilience of built environments worldwide.

In conclusion, seismic isolation devices represent a vital component of modern earthquake engineering, offering a proactive approach to mitigating the devastating effects of seismic events. By incorporating these innovative technologies into the design and construction of buildings and infrastructure, we can build a safer, more resilient future for generations to come.

-Radhika Shukla (CE5I)

## **ENSURING SAFETY AND SUSTAINABILITY: BIOMEDICAL WASTE MANAGEMENT**

In the realm of healthcare, ensuring the safety of patients and medical staff goes beyond just treatment protocols; it extends to the proper management of biomedical waste. Biomedical waste, generated from healthcare facilities, research institutions, and laboratories, poses significant environmental and health risks if not handled and disposed of correctly.

Biomedical waste encompasses various materials, including used needles, syringes, bandages, cultures, and expired pharmaceuticals, all of which may carry infectious agents or hazardous chemicals.

Effective biomedical waste management is essential to mitigate these risks. Here are key aspects of a robust biomedical waste management system:

1. **Segregation:** The first step in proper waste management is segregation at the source. Healthcare facilities must separate different types of waste, such as infectious, sharp, chemical, and pharmaceutical waste, at the point of generation.
2. **Storage:** Once segregated, waste should be stored safely in designated containers that are leak-proof, puncture-resistant, and labeled appropriately to indicate the type of waste they contain. Secure storage prevents spillage and reduces the risk of accidental exposure.
3. **Transportation:** Transporting biomedical waste from healthcare facilities to treatment facilities requires adherence to strict guidelines. Dedicated vehicles equipped with safety measures like spill kits and trained personnel ensure safe transit without contamination or exposure.
4. **Treatment and Disposal:** Biomedical waste undergoes treatment processes tailored to its specific characteristics. Methods such as autoclaving, incineration, chemical treatment, and sterilization are employed to inactivate pathogens and reduce the volume of waste. Once treated, the waste is disposed of in compliance with local regulations, often through landfilling or alternative methods like waste-to-energy processes.
5. **Monitoring and Compliance:** Regular monitoring and audits are essential to ensure compliance with waste management regulations and standards. This includes documentation of waste generation, treatment, and disposal, as well as training staff on proper handling procedures.

By implementing comprehensive biomedical waste management practices, we can safeguard public health, protect the environment, and promote sustainability within the healthcare sector. It is imperative for stakeholders to collaborate, invest in infrastructure, and prioritize adherence to regulations to achieve effective waste management outcomes. Ultimately, by managing biomedical waste responsibly, we contribute to a safer, healthier, and more sustainable future for all.

-Mohit Choudhary (CE3I)

## **BUILDING THE FUTURE: ZERO ENERGY BUILDINGS LEAD THE WAY**

In the pursuit of sustainable development and combating climate change, the concept of zero energy buildings (ZEBs) has emerged as a beacon of hope. These structures represent a paradigm shift in the construction industry, offering a promising solution to reduce carbon emissions and energy consumption while promoting self-sufficiency and environmental stewardship.

Zero energy buildings are designed to produce as much energy as they consume over the course of a year, thus achieving net-zero energy consumption. This feat is accomplished through a combination of innovative design, advanced technologies, and renewable energy sources.

At the heart of every ZEB lies a commitment to energy efficiency. Builders employ a plethora of strategies to minimize energy demand, such as high-performance insulation, triple-glazed windows, passive solar design, and efficient HVAC systems. These measures drastically reduce the need for heating, cooling, and lighting, thereby slashing energy consumption.

Moreover, zero energy buildings harness renewable energy sources to meet their remaining energy needs. Solar panels, wind turbines, and geothermal systems are commonly integrated into the building's design to generate clean, renewable electricity on-site. Through careful planning and optimization, ZEBs can achieve a delicate balance between energy consumption and production, ensuring they contribute little to no carbon emissions over their operational lifespan.

The benefits of zero energy buildings extend beyond environmental stewardship. They also offer economic advantages, including reduced energy bills for occupants, increased property values, and lower operating costs for owners. Additionally, ZEBs foster healthier indoor environments by promoting superior air quality, natural lighting, and thermal comfort, thus enhancing occupants' well-being and productivity.

Furthermore, education and awareness play a crucial role in accelerating the transition to zero energy buildings. Governments, industry stakeholders, and advocacy groups must collaborate to promote ZEBs through incentives, policies, and public outreach campaigns. By fostering a supportive regulatory environment and incentivizing sustainable practices, policymakers can spur investment in zero energy buildings and pave the way for a more sustainable built environment.

In conclusion, zero energy buildings represent a groundbreaking solution to address the pressing challenges of climate change and energy sustainability. By embracing energy efficiency, renewable energy, and innovative design, ZEBs offer a pathway towards a more resilient and environmentally responsible future. As the world grapples with the urgency of reducing carbon emissions, zero energy buildings stand as a beacon of hope, illuminating the path towards a brighter, more sustainable tomorrow.

-Khushi Ghadigaonkar (CE1K)



## Students Corner | Sketches

Student Activities for the academic year 2023 - 2024



-Mrunal Agawane (CE6I)



-Siddhi Sathe (CE1K)



-Udayan Garud (CE6I)



-Archita Bagwe (CE6I)



# **Editorial Team**

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