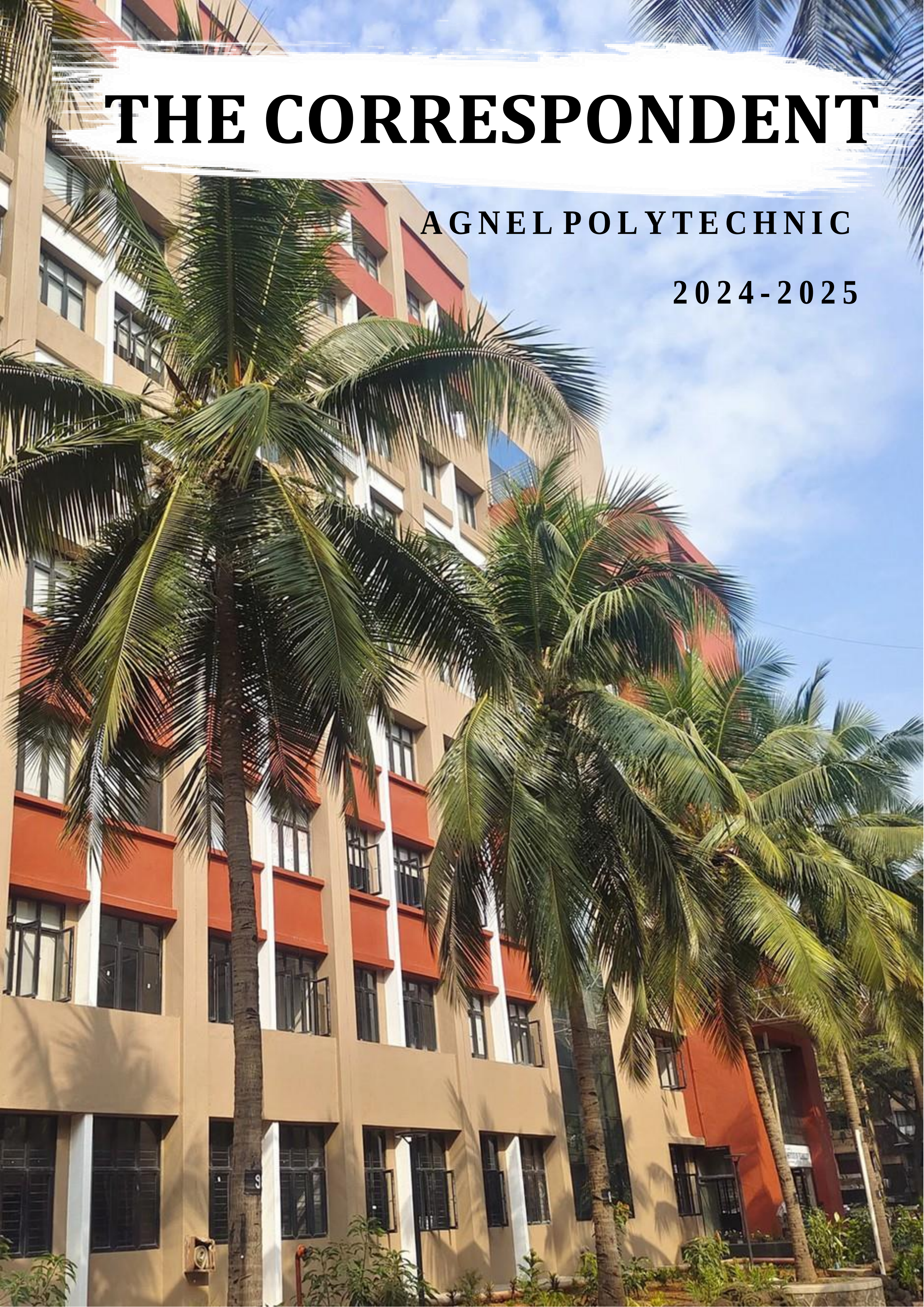
THE CORRESPONDENT

AGNEL POLYTECHNIC

2024-2025



AGNEL POLYTECHNIC
• VASHI, NAVI MUMBAI •
LOVE YOUR NEIGHBOUR AS YOURSELF

CIVIL DEPARTMENT

VISION

Be a premier department of Civil Engineering, producing ethically strong professional civil engineers to contribute in the development of the nation.

MISSION

Empower the students to become diploma civil engineers of high caliber.

To provide sustained environment for learning, co-curricular and extra-curricular activities for overall personality development.

To develop students with skills of employability, entrepreneurship potential and professional ethics.

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PIEZOELECTRIC PAVEMENT

by Dnyanesh Mulik
CE6I

Rapid urbanization and rising energy demands have spurred the search for innovative renewable energy solutions. One promising technology is piezoelectric pavement, which converts the mechanical stress from vehicles and pedestrians into electrical energy. By embedding piezoelectric materials into road surfaces, the everyday vibrations caused by traffic can be harvested to generate power for various applications.

Piezoelectric materials produce an electric charge when subjected to pressure. In pavement systems, these materials are integrated either within or beneath the road. As a vehicle drives over the surface, the resulting pressure compresses the piezoelectric elements, creating small bursts of electricity. While the energy output from a single vehicle is modest, the cumulative effect on busy roads can be significant. This harvested energy can power streetlights, traffic signals, or even contribute to the local electrical grid, promoting decentralized energy production and reducing dependence on traditional power sources. .

India is incorporating piezoelectric technology into its sustainability goals, with a pilot project in Pune demonstrating the potential of piezoelectric pavement as a renewable energy source. The project used piezoelectric sensors beneath pavement to capture energy from daily traffic, generating enough energy to power LED streetlights and traffic monitoring systems,the technology has the potential to transform everyday traffic into a renewable energy source.

CONNECTED TRANSPORT

by Manthan Mhatre
CE6I

Connected transport is a transformative revolution in transportation systems, integrating advanced communication technologies, smart infrastructure, and data analytics to reduce traffic congestion and enhance road safety. It involves real-time data exchange between vehicles, infrastructure, and pedestrians, allowing for dynamic responses to traffic conditions, emergency situations, and routine travel needs. Key technologies behind connected transport include the Internet of Things (IoT) and sensors, high-speed communication networks, artificial intelligence and big data analytics, and cloud computing.

Benefits of connected transport include enhanced safety, improved traffic efficiency, environmental sustainability, economic benefits, and cybersecurity and data privacy concerns. Cybersecurity and data privacy are essential, as vehicles and infrastructure become more vulnerable to cyber-attacks. Interoperability and standardization are crucial for seamless integration, and infrastructure investment is necessary for efficient use.

Connected transport applications include smart cities, autonomous vehicles, and public transportation networks. Cities like Singapore and Amsterdam integrate solutions, while the automotive industry develops communication vehicles. Future advancements include autonomous vehicles, smart infrastructure expansion, enhanced mobility services, and renewable energy integration, reducing carbon footprints.

TRUSSES

by Atharv Gaikwad
CE4I

Trusses are integral in modern structural design due to their geometric efficiency and load distribution capabilities. Their strength lies in the use of interconnected straight members, typically forming triangular units that ensure forces are channeled as axial tension or compression rather than bending moments. This configuration minimizes material usage while maximizing structural stability, enabling the design of long-span bridges, roofs, and towers.

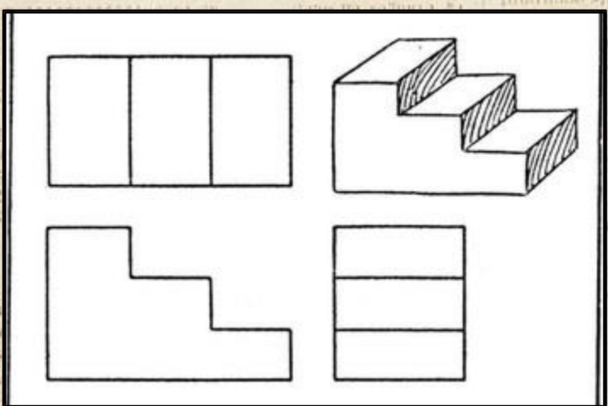
The analysis of trusses often employs methods such as the joint method or the method of sections, which simplify complex force systems into manageable calculations by assuming idealized pin-connected joints. This allows engineers to predict the behavior of each component under various loading conditions with remarkable precision.

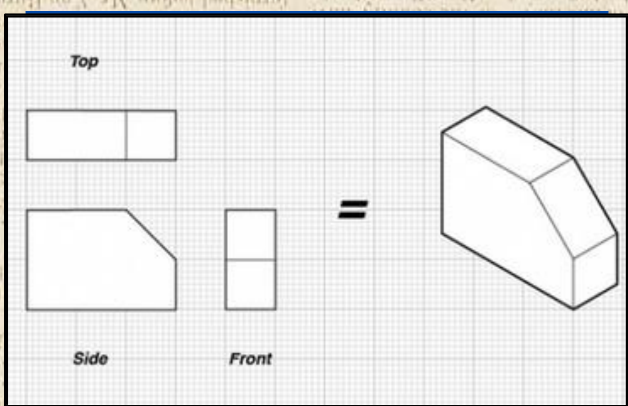
Furthermore, truss designs have evolved into numerous configurations—such as Pratt, Warren, and Howe trusses—each tailored for specific performance criteria and aesthetic considerations. Their adaptability makes them not only structurally efficient but also versatile for diverse architectural styles and environmental conditions. The advancements in computational modeling and fabrication techniques have further enhanced the reliability and optimization of truss systems. By enabling precise load distribution and material efficiency, trusses continue to play a critical role in achieving safe, sustainable, and innovative designs in contemporary engineering projects.

ORTHOGRAPHIC DRAWINGS

by Gargi Pathak
CE2I

Orthographic drawings are technical illustrations that depict different views of an object using projection methods, including front, top, side, and sometimes additional perspectives. They are ideal for precise measurements and construction as they do not include depth cues like vanishing points. The concept of orthographic projection dates back centuries, with roots in the Renaissance period when artists and engineers began exploring ways to represent the three-dimensional world on a flat surface. Today, orthographic drawings are created using both traditional drafting techniques and modern computer-aided design (CAD) software, ensuring accuracy and ease of revision Core principles of orthographic drawings include multiview representation, with two primary types: First-Angle Projection and Third- Angle Projection. Standardization and conventions ensure universal understanding, facilitating international collaboration. Applications of orthographic drawings include engineering and manufacturing, architecture, and product design. Traditional drafting involves precision and skill, while modern CAD software provides enhanced accuracy, ease of modification, and seamless integration with 3D models. Best practices for creating orthographic drawings include adhering to standards, using clear notations, maintaining scale, checking for completeness, and regularly reviewing and revising the drawing for errors or omissions. Challenges include complexity, interpretation, and consistency, which can be overcome by following relevant international or local standards, using clear notations, maintaining scale, checking for completeness, and regularly reviewing and revising the drawing.





ACADEMIC TOPPER WINTER - 2024

5th SEMESTER

Hiren Vaid

88.90%

Sumit Maurya

88.60%

3rd SEMESTER

Mohammed Imran Mukadam

90.47%

Arnav Jagdish Thumar

86.94%

1st SEMESTER

Dipshri Dipak Nhavkar

90.12%

Disha Vilas Sapate

85.25%

STUDENT

activities

TECHNOCRATZ- 2024

What's a civil engineer's favorite type of music?
Heavy metal — they're all about strong structures!

The Eiffel Tower can grow taller by about 15 cm in the summer due to the expansion of metal in the heat.

Why don't civil engineers ever tell secrets?
Because everything they do is built on trust!

John Smeaton, an English engineer, is considered the first self-proclaimed civil engineer.

ZEST-2024

Civil engineers use seismic dampers and base isolators to make buildings resistant to earthquakes.

Why do civil engineers make terrible secret agents?
Because they always leave a blueprint behind!

Civil engineers prevented the Leaning Tower of Pisa from toppling by adding counterweights and soil extraction techniques.

Why did the bridge get promoted?
Because it was always "supporting" the team!

Resonance- 2024

Engineers are developing "smart roads" with solar panels and LED lights to generate electricity and improve safety.

Why did the concrete mixer go to therapy?

* It couldn't handle the pressure anymore!

The first modern suspension bridge, the Menai Bridge, was completed in 1826 in Wales.

What do you call a civil engineer's favorite drink?

* Structural tea!