Volume: II

2022–2023

TERRA NIRMAN

Building Foundations, Shaping Futures

Smart Cities and Digital Transformation in Infrastructure

DEPARTMENT OF CIVIL ENGINEERING

VISSON

To impart quality education in Civil Engineering.

Mission:

M1: To provide an experiential teaching-learning environment and promote research culture.
M2: To establish a center of excellence and research culture by providing training of modern tools and emerging technologies.
M3: To instill social and ethical values among the students.

Program-specific objectives (PSOs):

Our students will able to do -

PSO1: Plan & design civil engineering structures using modern tools in compliance with Indian standard codes.
PSO2: Address & give engineering solutions for environmental challenges & sustainable development.
PSO3: Apply management tools & techniques to plan, execute, and monitor civil engineering projects, ensuring timely completion and cost-effectiveness.

Program Educational Objectives: (PEOs):

Our graduates will able to do -

PEO1: Apply integrated knowledge and skills to solve complex civil engineering problems.
PEO2: Pursue entrepreneurship and innovation in civil engineering while upholding professional integrity, social responsibility, and ethical values.
PEO3: Excel in professional careers exhibiting leadership qualities.

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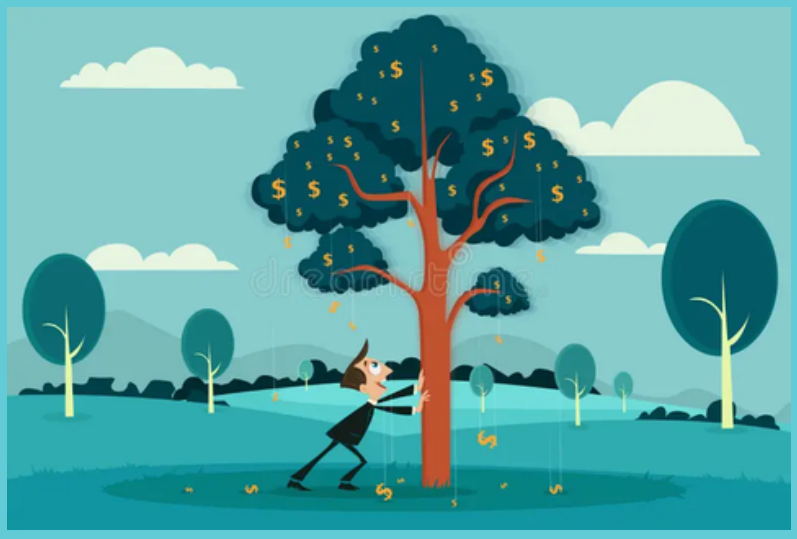
TERRA NIRMAN

Building Foundations, Shaping Futures

The Department of Civil Engineering proudly presents the inaugural edition of its annual magazine, Terra Nirman — a platform that reflects our department's unwavering commitment to sustainability, innovation, and academic excellence.

Rooted in the idea of "solid ground," Terra Nirman symbolizes the strong foundations on which we build not only structures, but also ideas, values, and futures. With

The tagline "Building Shaping Futures," this encapsulates our collective



THIS MAGAZINE SERVES AS A WINDOW INTO THE DYNAMIC WORLD OF CIVIL ENGINEERING, SHOWCASING A RICH BLEND OF ACADEMIC ACCOMPLISHMENTS, CUTTING-EDGE RESEARCH, STUDENT INITIATIVES, FACULTY INSIGHTS, AND INDUSTRY ENGAGEMENT.

IT CELEBRATES THE CREATIVITY, RESILIENCE, AND TECHNICAL EXPERTISE THAT DEFINE OUR DEPARTMENT, WHILE ALSO ENCOURAGING DIALOGUE AND COLLABORATION WITHIN AND BEYOND THE ACADEMIC SPHERE. THROUGH TERRA NIRMAN, WE ASPIRE TO INSPIRE, INFORM, AND BUILD A LEGACY OF KNOWLEDGE AND INNOVATION THAT SUPPORTS A MORE SUSTAINABLE AND IMPACTFUL FUTURE.

The magazine also documents our various activities throughout the academic year, including workshops, expert sessions, site visits, competitions, and social outreach programs.
Each section of this edition demonstrates how our department continues to grow while staying grounded in its commitment to sustainability, knowledge-sharing, and industry relevance.
As you explore Terra Nirman, we invite you to walk through the efforts, aspirations, and accomplishments of our civil engineering community — a community that is not just constructing the world around us, but also shaping a more resilient and responsible tomorrow.

Welcome to Terra Nirman — where learning takes root and legacies are built.

Happy Reading!

Reimagining Growth: Message from our Director

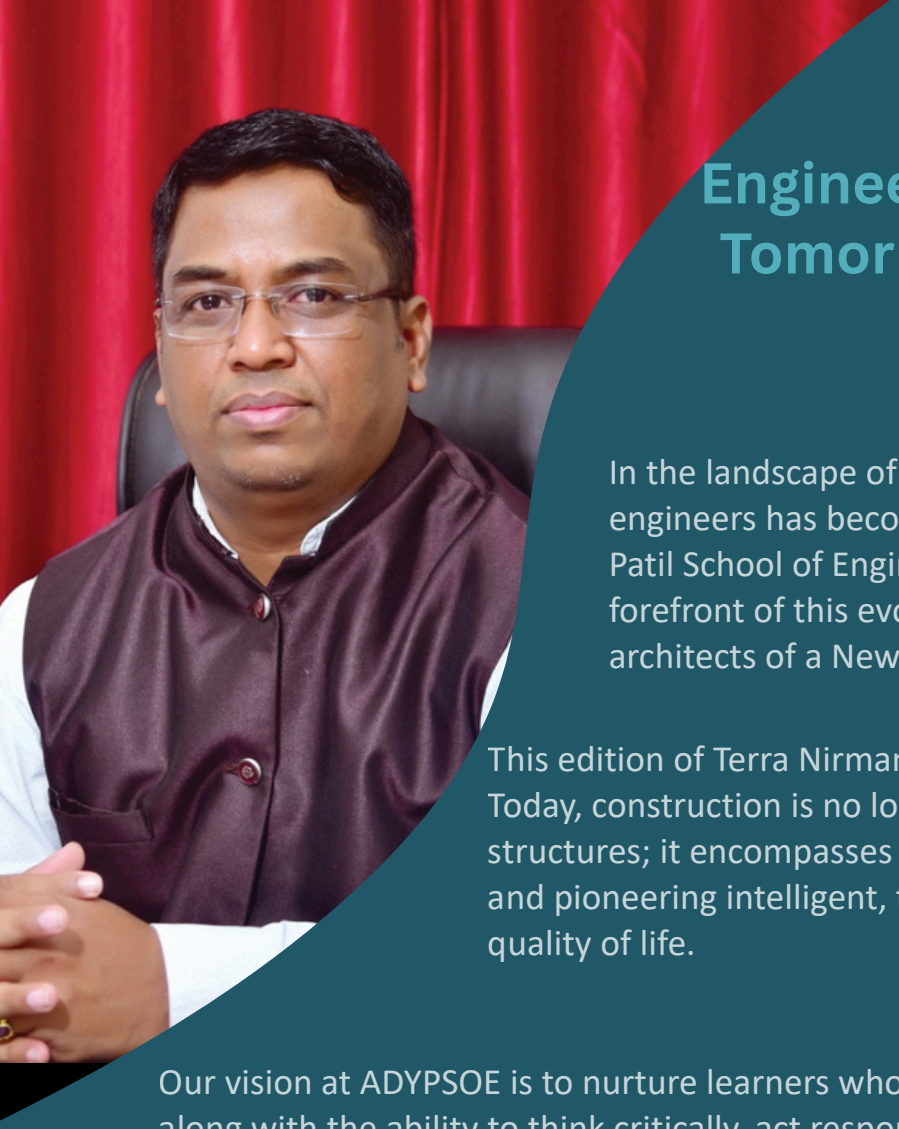
India is undergoing a remarkable transformation—one built not only on steel and concrete but also on vision, innovation, and purpose. In this spirit of progress, I extend my heartfelt congratulations to the Department of Civil Engineering for conceptualising Terra Nirman, a vibrant reflection of New India in Construction.

This edition signifies how civil engineering education is embracing futuristic thinking, sustainable technologies, and bold experimentation to shape tomorrow's India. Our students and faculty are not just learners and educators; they are pioneers and problem-solvers, actively contributing to the creation of a nation that is inclusive, intelligent, and innovative

At Ajeenkya D Y Patil School of Engineering (ADYPSOE), we remain committed to fostering such forward-thinking platforms. We believe in empowering students to think independently, act responsibly, and engineer solutions that address real-world challenges.

Let this edition of Terra Nirman stand as a testament to what we can achieve when education, research, industry, and nation-building work together in harmony.I applaud the editorial team, faculty mentors, and student contributors for capturing this spirit so meaningfully. May this be the beginning of many more such inspiring initiatives.

Dr. Kamaljeet Kaur
Director, Technical Campus, Ajeenkya D. Y. Patil Knowledge City



Engineering for a Transformed Tomorrow: A Vision from Our Principal

In the landscape of a rapidly evolving nation, the role of engineers has become more vital than ever. Ajeenkya D Y Patil School of Engineering (ADYPSOE) stands at the forefront of this evolution, preparing students to be the architects of a New India.

This edition of Terra Nirman reflects this dynamic transformation. Today, construction is no longer limited to creating physical structures; it encompasses building values, integrating sustainability, and pioneering intelligent, technology-driven designs that enhance quality of life.

Our vision at ADYPSOE is to nurture learners who possess strong technical expertise along with the ability to think critically, act responsibly, and innovate fearlessly. We believe that the future of construction and infrastructure lies in harnessing the power of digital transformation and sustainable practices to meet the challenges of modern society.

The theme “New India in Construction” is not a distant dream; it is a reality unfolding every day through the work and commitment of our students and faculty.

I extend my heartfelt congratulations to the Department of Civil Engineering and the editorial team for this remarkable initiative. May you continue to inspire and lead the way toward a smarter, more resilient India.

Dr. F.B.Sayyad
Principal, Ajeenkya D Y Patil School of Engineering

The Blueprint of Progress: Thoughts from the HOD

It gives me immense pleasure to present Terra Nirman — a platform that embodies the forward-thinking spirit of civil engineering, where tradition meets cutting-edge innovation.

Today, civil engineering is at the forefront of one of the most exciting transformations of our time: the rise of smart cities and digital infrastructure.

Our role now extends beyond constructing roads and bridges to designing intelligent, interconnected, and resilient systems that enhance the quality of urban life. From sensor-enabled water networks and energy-efficient buildings to data-driven transportation and disaster-resilient infrastructure, we are shaping the cities of tomorrow.

This edition of Terra Nirman captures the remarkable journey of our students and faculty as they embrace this evolution. It showcases research, projects, and ideas that integrate digital technologies with civil engineering practices to address real-world challenges. I am proud of the collective efforts of the editorial team, faculty mentors, and student contributors who have brought this vision to life.

Let this magazine inspire us all to explore new frontiers, champion sustainability, and lead with responsibility and innovation. Together, we are not just building structures; we are building smarter, more inclusive, and future-ready communities.

Lt. Col. Sanjay Karodpati (Retd.)
Head of the Department, Civil Engineering
ADYPSOE

Framing the Future: From the Editor's Desk

Construction today goes beyond creating physical infrastructure — it is about building a future grounded in resilience, sustainability, and innovation. New India in Construction represents a bold shift towards smart technologies, eco-conscious planning, and inclusive development.

This edition of Terra Nirman is a tribute to that vision. It captures the voices of our students — future engineers who are thinking critically, designing responsibly, and acting with purpose. Their ideas reflect how modern construction can be adaptive, sustainable, and globally aligned, while staying rooted in India's values and identity.

From green buildings and digital water management to disaster-resilient design and smart city infrastructure, the contributions featured in this magazine highlight the evolving role of civil engineers as nation builders.

I hope the articles, insights, and innovations shared in this edition spark new thoughts and deeper conversations. Let this platform continue to inspire creative minds to build not just structures, but a better tomorrow.

Together, let us engineer a New India that rises with strength, integrity, and vision.

Dr. Aakanksha Ingle
Editor-in-Chief

ABOUT THE DEPARTMENT

An affectionate welcome to the Civil Engineering discipline. The Department of Civil Engineering strives for excellence in teaching and learning along with professional development. The department has state-of-the-art laboratories which are NABL accredited with 150 tests. Ours is the first private engineering college in Maharashtra to get NABL accreditation.

The department, with its experienced faculties, offers practice-based education with the latest techniques, thereby preparing our students for a successful and rewarding career. The department maintains its strong links with the construction industry by engaging in consultancy activities. The students here are encouraged to engage extra-curricular and co-curricular activities, which are essential for personality development, nurturing of team spirit and development of organisational skills.

The field of Civil Engineering is very broad, covering many areas such as planning, design and construction of buildings, highways and bridges, irrigation schemes, water supply and sewerage schemes, powerhouses and transmission systems, tunnels and underground structures, etc. It is our aim to provide you with the necessary education to face these challenges with confidence

Meet Our CESA Team

Mr. Shubham Kad
President

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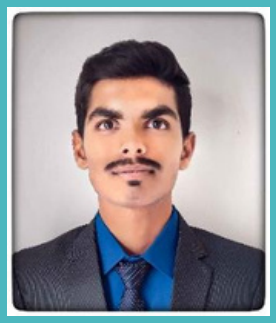
Vice president

Mr. Rakesh Chavan
General Secretory



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Mr. Pawan Mokale
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Miss. Anuradha Sontakke
Committee Member

Mr. Yash Shirke
Committee Member

Theme about the Magazine

Advanced Construction Materials and Technique

In the 21st century, cities around the world are undergoing a powerful evolution—one driven not by concrete and steel alone, but by data, connectivity, and intelligent systems. This transformation is giving rise to smart cities—urban environments that leverage digital technologies to enhance the quality of life, optimize resource use, and create more sustainable and efficient infrastructures.

As global populations grow and urban challenges intensify, the need for smarter infrastructure becomes critical. From intelligent traffic management and IoT-enabled waste systems to AI-driven energy grids and sensor-based water monitoring, digital transformation is reshaping how cities function and how citizens interact with their surroundings.

The Role of Artificial Intelligence in Revolutionizing Civil Engineering - Prof. Ajitesh Pagare

Artificial Intelligence (AI) is reshaping industries across the globe, and Civil Engineering is no exception. Over the past few years, AI has started to make significant inroads into the construction and infrastructure sectors, offering innovative solutions that enhance the design, planning, construction, and maintenance of civil engineering projects. From improving safety and reducing costs to optimising efficiency and sustainability, AI's potential in Civil Engineering is vast, and it promises to fundamentally change how projects are conceived and executed.

Key Applications of AI in Civil Engineering:

1. AI in Design and Planning:

One of the most promising applications of AI in civil engineering is in the early stages of project design and planning. AI tools can assist in the creation of architectural designs, structural analysis, and simulation models that are more efficient and cost-effective.

Generative Design: AI-driven generative design software uses algorithms to generate multiple design alternatives based on a set of constraints and parameters. The system can suggest creative and optimal designs that humans may not have considered, ultimately reducing material waste and improving structural integrity.

Building Information Modelling (BIM): AI can augment BIM systems, which are widely used in civil engineering to create 3D models of buildings and infrastructure. AI enhances BIM by analysing vast amounts of data, predicting issues in design, and suggesting improvements. It also helps with clash detection, making sure that designs are free of conflicts before construction begins.

2. AI for Construction Site Management

Construction projects are dynamic and require real-time decision-making to manage timelines, budgets, resources, and safety. AI-powered tools can significantly improve site management and overall project execution.

Predictive Analytics: AI can analyse historical data and current project metrics to forecast future events, such as delays, cost overruns, or potential safety risks. By using machine learning algorithms, AI helps project managers identify potential issues. before they become major problems, leading to smoother project timelines and reduced risks.

Robotics and Automation: Drones and robotic machines powered by AI are being increasingly used to monitor construction sites, perform progress of construction and ensure adherence to inspection, and carry out repetitive tasks. Drones equipped with AI can conduct aerial surveys, providing real-time data about the design specifications. Similarly, robotic construction machines can automate bricklaying, excavation, and material handling, improving labour efficiency and reducing human error.

3. AI in Structural Health Monitoring

After a building or infrastructure project is completed, maintaining its structural integrity becomes paramount. AI plays a crucial role in monitoring and analysing the condition of structures in real time, ensuring their safety over the years.

Smart Sensors: AI-powered sensors embedded in structures can detect anomalies such as cracks, temperature changes, or vibrations that may signal potential issues like fatigue or corrosion. These sensors send data to AI systems that analyze it to predict possible failures, allowing engineers to intervene proactively before issues become critical. Predictive Maintenance: AI's ability to forecast when a structure or piece of equipment might fail is a game-changer for maintenance schedules.

By using machine learning algorithms to analyse data from sensors and past maintenance records, AI can optimise maintenance cycles and reduce costs associated with emergency repairs or replacements.

4. AI in Traffic Management and Urban Planning

With urbanisation on the rise, cities are facing mounting challenges related to traffic congestion, public transportation, and infrastructure development. AI is transforming how cities are planned and managed, leading to smarter, more sustainable urban environments.

Traffic Flow Optimisation: AI can optimise traffic management by using data from cameras, sensors, and GPS devices to analyse traffic patterns in real-time. Machine learning algorithms can predict congestion and adjust traffic signals accordingly to improve flow and reduce delays. This can not only save time but also reduce fuel consumption and air pollution.

Urban Infrastructure Planning: AI can help civil engineers design and plan urban infrastructure projects that are more efficient, cost-effective, and sustainable. By analyzing data such as population density, land use, and environmental factors, AI systems can assist in the design of roads, utilities, and public transportation systems that meet the needs of growing urban populations while minimising environmental impact.

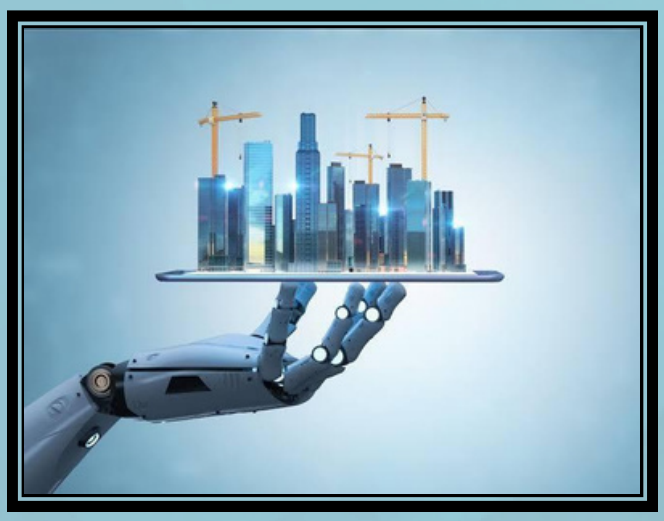
5. AI in Environmental Impact Assessment

Civil engineering projects often have significant environmental impacts. AI helps engineers assess and mitigate these impacts by analysing large datasets related to environmental conditions, such as air and water quality, soil health, and climate conditions.

Environmental Simulation Models: AI can be used to simulate environmental impacts such as noise pollution, traffic emissions, or water contamination.

These models provide insights into the effects of construction on the surrounding environment and help engineers design projects that minimize negative consequences.

Sustainability Optimization: AI can optimize sustainable construction practices by recommending energy-efficient building materials, water conservation techniques, and waste-reduction strategies. This helps ensure that civil engineering projects contribute to sustainable development goals and adhere to green building standards like LEED.



The Benefits of AI in Civil Engineering

Increased Efficiency and Productivity: AI helps automate tedious, repetitive tasks and enhances decision-making, leading to faster project completion and optimised resource use.

Cost Savings: By improving planning, reducing waste, and avoiding costly mistakes, AI can significantly reduce the overall cost of construction projects.

Improved Safety: AI-driven predictive analytics can identify potential safety hazards on construction sites and in operational infrastructure. reducing the risk of accidents.

Better Quality and Precision: AI's ability to analyze data at scale ensures that designs are more precise, resulting in better quality construction and fewer defects

Sustainability: AI contributes to more sustainable practices by reducing material waste, energy consumption, and carbon emissions in the construction and operation of buildings and infrastructure.

Challenges and the Future of AI in Civil Engineering While the benefits of AI in civil engineering are clear, there are challenges to its widespread adoption. These include the high initial cost of AI technology, the need for skilled workers to manage and operate AI systems, and concerns about data privacy and security. Additionally, AI systems require vast amounts of quality data to be effective, which can be a limitation in some regions or projects. However, as AI technology continues to evolve and become more affordable, it is expected that its applications in civil engineering will expand, making construction smarter, safer, and more sustainable. Collaboration between AI experts, civil engineers, and policymakers will be essential in overcoming these challenges and fully realising AI's potential in the industry.

CONCLUSION

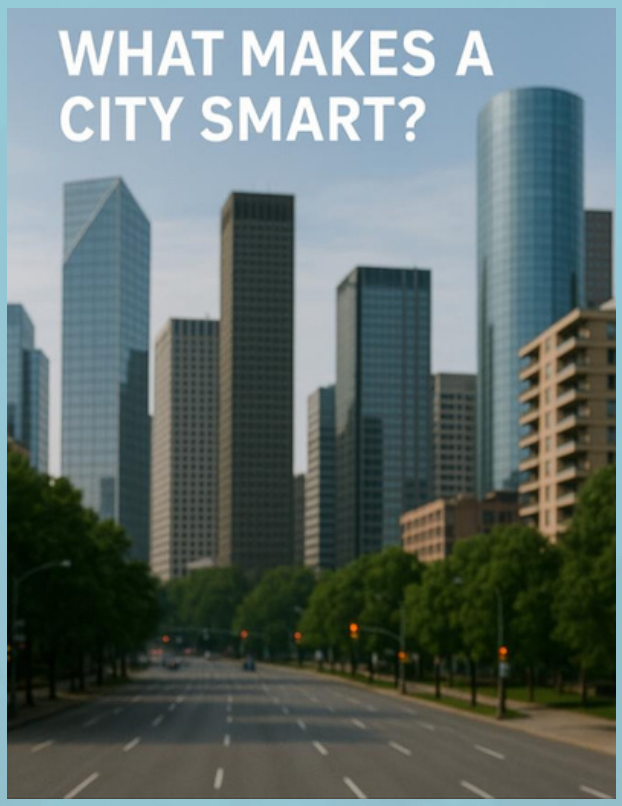
Artificial intelligence is undoubtedly changing the landscape of civil engineering, providing solutions to challenges that have long plagued the industry. By improving efficiency, safety, sustainability, and cost-effectiveness, AI is paving the way for smarter construction practices and infrastructure. management. As technology continues to advance, the potential for AI in civil engineering will only grow, offering exciting possibilities for the future of urban planning, construction, and maintenance. Embracing AI in civil engineering is no longer a matter of "when" but "if", and the industry stands on the brink of a new era of innovation and progress.

Building the Future – What Makes a City Smart?

Imagine a city that thinks like a human brain — anticipating needs, preventing disasters, and continuously learning. In this digital age, cities are evolving from concrete jungles into connected ecosystems, giving rise to what we now call smart cities.

Defined: Smart City

A smart city uses digital technology to improve public services, manage resources efficiently and enhance the quality of life for its residents. It's where infrastructure meets innovation — with a civil engineering foundation and a digital brain.



Infrastructure is the Backbone:

Civil infrastructure plays a key role in this transformation. Roads, bridges, drainage systems, and buildings are being upgraded to include digital components. These assets are becoming interactive, data-driven, and more resilient.

Core Features:

Urban Informatics: The integration of ICT (Information & Communication Technology) in city systems to collect and analyse data.

Real-Time Decision-Making: Smart grids and AI-powered platforms

Manage traffic, lighting, energy, and emergency services.

Smart Zoning and Land Use Planning: GIS tools help in planning urban growth by analyzing terrain, flood zones, and population density.

Indian cities leading the way:

Under the Smart Cities Mission, cities like Surat, Bhubaneswar, and Indore has embraced.

digital command centres to manage traffic, waste, and water supply in real time.

Challenges to Overcome:

Interoperability between legacy infrastructure and new tech

Skilled workforce gaps in tech-integrated construction

Cybersecurity in municipal data management

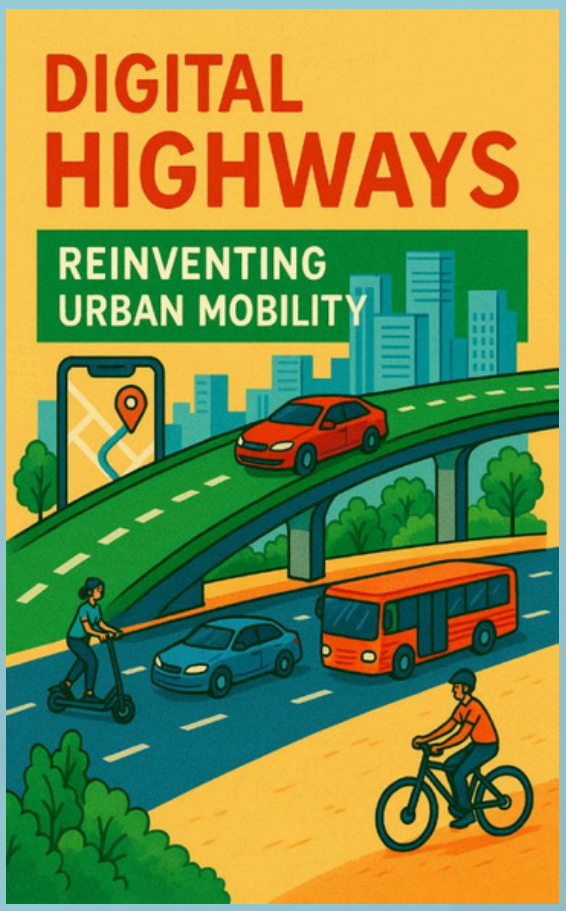
A smart city is not just about having better technology — it's about building better lives. For civil engineers, this means designing infrastructure that is both physically robust and digitally intelligent. The blueprint of tomorrow's city lies in how well we blend bricks with bytes.

~By Mr Chinmay Solat B.E

Digital Highways – Reinventing Urban Mobility

It's 8:30 AM. You open an app and see your bus arriving in three minutes. Traffic signals turn green just in time to let your vehicle pass. This isn't a futuristic film — it's the vision of digital mobility in smart cities.

The urban transport crisis: India's cities face mounting pressure on roads due to rapid urbanisation. With rising vehicle congestion and pollution, our traditional transport systems are buckling under the strain.



Civil Engineering meets Technology:

Civil engineers are now designing transport infrastructure that doesn't just carry vehicles—it communicates, adapts, and evolves. This is made possible by:

ITS (Intelligent Transport Systems):

These systems collect data via CCTV, GPS, RFID, and wireless sensors to control traffic flow. Smart Intersections: Adaptive traffic signals optimize signal timing based on real-time traffic load. Vehicle-to-Infrastructure

(V2I) Communication:

Smart roadways that send alerts to approaching vehicles about conditions ahead.

Case in point—Pune:

Pune smart city development The implemented area-based corporation and multimodal transport. development with smart traffic systems, digital ticketing, and integration, resulting in improved travel time and safety.

Design shift:

Roads are now planned with sensor-embedded pavements. Non-motorized transport corridors include provisions for bicycle sharing and pedestrian tracking. Smart parking systems reduce search time for vehicles and decrease urban emissions.

~By Ms. Diksha Shinde

Bridges That Speak – Infrastructure Monitoring Goes Digital

In 2016, the sudden collapse of the Vivekananda flyover in Kolkata was a grim reminder of how vulnerable our aging infrastructure is. What if that bridge had spoken — sent an alert days before the tragedy? Thanks to digital transformation, now it can.

The Importance of Structural Health Monitoring (SHM):

Traditionally, civil engineers relied on visual inspections or scheduled testing to assess infrastructure safety. But with the advent of embedded sensors, the game has changed. Structures can now self-monitor and communicate their condition in real time.

Components of Smart Monitoring:

Strain Gauges & Load Cells: Measure deformation under load.

Accelerometers: Detect unusual vibrations caused by seismic activity or structural weakness.

Fiber Optic Cables: Embedded into concrete to monitor tension and temperature.

Data Analytics Dashboards: Provide engineers with early warnings of fatigue or damage.

Applications in India:

The Mumbai Trans Harbour Link, one of India's largest sea bridges, incorporates SHM systems for real-time performance tracking using IoT sensors and cloud-based data analytics.

Integration in Civil Design:

Civil engineers are now embedding SHM systems during the foundation and superstructure design phase. Maintenance planning is being driven by predictive models rather than reactive actions.

When bridges, dams, and buildings speak — we must listen. Digital tools allow infrastructure to report its own health, reducing human error and extending life cycles. This shift is not just smart; it's life-saving.

~By Prof. Hindola Shah

From Blueprints to Smart Sites – Construction in the Digital Age

Gone are the days of stacks of paper blueprints, tape measures, and chalk markings. Today's construction sites hum with drones, 3D printers, and tablets. The digital site is here—and it's revolutionising how we build.

Why Construction Needs a Digital Shift:

India's construction sector is the second-largest employer, yet it remains one of the least digitized. Delays, budget overruns, and material waste are common. Smart construction aims to fix this.

Core Technologies:

BIM (Building Information Modelling): A digital twin of the building that evolves through its design, execution, and maintenance.
Drones & LiDAR Scanning: Used for land surveys, progress mapping, and material audits.

3D Printing & Prefabrication: Reduces human error and construction time.

Augmented Reality (AR): Overlays project blueprints onto the physical site for real-time accuracy.

The Engineer's New Toolkit:

A civil engineer today needs to know:

Project Management Software like Primavera or AutoDesk Revit
Data interpretation from smart wearables and sensors.
Sustainable construction methods using AI to reduce carbon footprint.

Success Story – Andhra Pradesh's Housing Mission:
Using prefabricated technology and digital monitoring, over 15 lakh homes were constructed with improved speed and quality.

Construction is no longer about just concrete and steel—it's about data, precision, and innovation. Smart sites are building not just structures, but a smarter future.

~By Mr. Digambar Wagh

Smart Water – Managing the City's Lifeline with Tech

In a city of millions, ensuring clean, reliable water for every household is like conducting an orchestra. Each pipe, valve, and drop must be in harmony. Digital water infrastructure is making this symphony smarter.

India's Water Paradox:
Despite abundant rainfall, urban India struggles with water shortages due to leakage, poor planning, and outdated distribution systems. Civil engineers are turning to digital solutions to tackle this crisis.
Digital Water Management Tools:

- SCADA (Supervisory Control and Data Acquisition): Manages water treatment plants and distribution via automated control systems.
- Smart Meters: Allow remote reading, detect overuse and theft.
- GIS-Based Hydraulic Modeling: Visualizes flow and pressure across city pipelines.
- AI-Driven Leak Detection: Analyzes pressure drops and noise patterns to detect hidden leaks.

Integration in Smart Cities:
Cities like Ahmedabad have installed SCADA-controlled water supply networks, improving efficiency and drastically reducing non-revenue water.
The Civil Engineering Edge:
Water pipeline design now includes:

- Zonal-level monitoring points
- Backflow preventers
- Sensor nodes at pressure-critical junctions

Water is too vital to be wasted. Through smart infrastructure, we can ensure that every citizen receives what they need, without drop loss. For a water-secure future, civil engineering must flow with data.

~By Mr. Pushkar Somvanshi

स्मार्ट आणि शाश्वत पायाभूत सुविधा

स्मार्ट आणि टिकाऊ पायाभूत सुविधा म्हणजे माहिती आणि तंत्रज्ञानाचा वापर करून शहरांची कार्यक्षमता, सुरक्षितता आणि जीवनशैली सुधारणे. यात ऊर्जा-कार्यक्षम इमारती, स्मार्ट वाहतूक व्यवस्था, कचरा व्यवस्थापन आणि पाण्याच्या व्यवस्थापनासारख्या गोष्टींचा समावेश होतो. यासोबतच, नैसर्गिक संसाधनांचा योग्य वापर करणे आणि पर्यावरणावर होणारा नकारात्मक परिणाम कमी करणे देखील महत्त्वाचे आहे.

महाराष्ट्रातील स्मार्ट सिटी प्रकल्प:

शहरांची निवड:

केंद्र सरकारने निवडलेल्या १०० शहरांमध्ये महाराष्ट्रातील काही शहरांचा समावेश आहे. यामध्ये पुणे, सोलापूर, औरंगाबाद, कल्याण-डोंबिवली, नाशिक, नागपूर आणि ठाणे या शहरांचा समावेश आहे.

उद्दिष्ट्ये:

स्मार्ट सिटी प्रकल्पांचे मुख्य उद्दिष्ट म्हणजे शहरांमध्ये चांगली सार्वजनिक वाहतूक व्यवस्था, पिण्याच्या पाण्याची सुविधा, चांगले रस्ते, आरोग्य सेवा, शिक्षण आणि इतर आवश्यक सुविधा पुरवणे. तसेच, शहरांमध्ये माहिती तंत्रज्ञानाचा वापर करून कार्यक्षमता वाढवणे आणि नागरिकांचे जीवनमान सुधारणे, असे एका अहवालात म्हटले आहे.

प्रकल्पांचे स्वरूप:

स्मार्ट सिटीमध्ये विविध उपक्रम राबवले जातात, जसे की, कचरा व्यवस्थापन, पाणी व्यवस्थापन, ऊर्जा व्यवस्थापन, वाहतूक व्यवस्थापन, सांडपाणी व्यवस्थापन, सुरक्षित शहर आणि पर्यावरणपूरक विकास.

स्मार्ट सिटीमधील सुविधा:

पाणी व्यवस्थापन: पाण्याची गळती शोधणे, पाण्याची गुणवत्ता तपासणे आणि पाण्याची बचत करणे.

कचरा व्यवस्थापन: शहरांमध्ये कचरा व्यवस्थापनासाठी आधुनिक तंत्रज्ञान वापरणे आणि कचरा उचलण्याची व्यवस्था करणे.

सुरक्षित शहर: शहरांमध्ये सीसीटीव्ही कॅमेऱ्यांद्वारे सुरक्षा व्यवस्था करणे.

वाहतूक व्यवस्थापन: शहरांमध्ये स्मार्ट वाहतूक व्यवस्था आणि सार्वजनिक वाहतूक व्यवस्था सुधारणे.

माहिती तंत्रज्ञान: शहरांमध्ये माहिती तंत्रज्ञानाचा वापर करून विविध सेवा नागरिकांपर्यंत पोहोचवणे.

समृद्धी महामार्गावरील स्मार्ट शहरे:

समृद्धी महामार्गालगत काही ठिकाणी स्मार्ट शहरे विकसित केली जात आहेत.

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-By Pallavi Lahane.
T.E

HAPPENINGS IN THE DEPARTMENT:

Parent-Teacher Meet for SE, TE & BE was held online with 60 parents in attendance.
The session focused on institute policies, teaching methods, and fostering student involvement in academics.

Guest Lecture on How to join Defence Forces as an Officer Person

HAPPENINGS IN THE DEPARTMENT:

Industrial Visits for Third-Year and Final-Year Students

HAPPENINGS IN THE DEPARTMENT:

Workshop on Traversing Using Total Station was conducted for SE & TE students, with 80 participants. Resource persons Mr. Omkar Lokhande and Mr. Bhupendra Pawar from Yogeshwar Associates, Pune, led the session.

~Captured By Mr. Rahul Jain B.E

Twin lamps stand tall with vintage grace,
Lighting up stories from a timeless place.

~Captured By Dr. Aakanksha Ingle

Golden hour whispers over tranquil sands.

~Captured By Mr. Mohit Bade B.E

The serene Bhutanatha temples stand gracefully by Agastya Lake, showcasing ancient Chalukyan architecture in Badami, Karnataka.

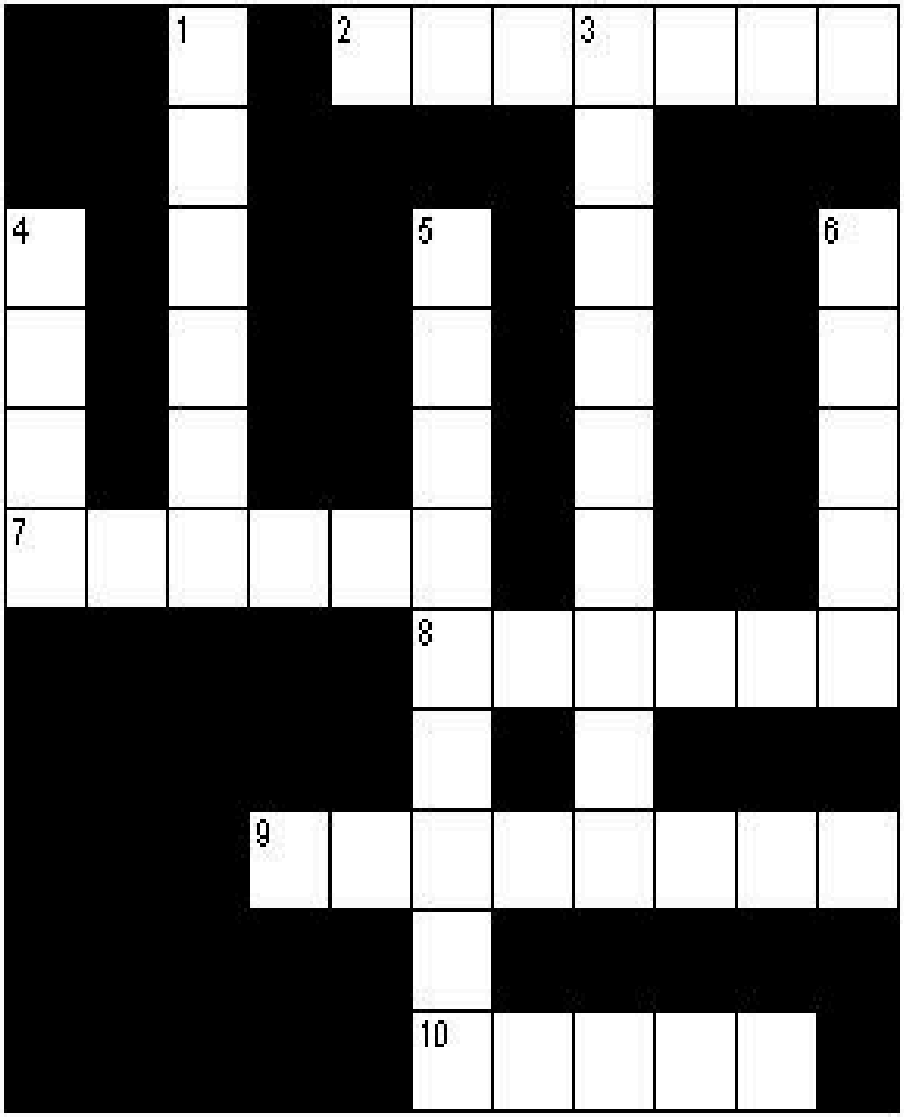
Quiz

What can fill up a room but take up no space?

thgiL :rewsnA

This has a neck but does not have a head. What is it?

trihs :rewsnA



Clues - Jobs

Across

2 Educator
7 Grower
8 Always drawing
9 You may give her a tip
10 Helps if you're sick

Down

1 Healer
3 Builder
4 Cook with a big hat
5 Takes care of the books
6 His head is in the clouds