

INFRASTRUCTURE PULSE – NEWSLETTER

M. S. PATEL DEPARTMENT OF CIVIL ENGINEERING, CSPIT, CHARUSAT

Volume 2 / Issue 1

January-June 2025

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Vision of the Department

“To be the center of excellence in education, consultancy & research having recognition at national and international level.”

Mission of the Department

“To impart the state-of-the-art education through innovative research and develop the graduates having abilities to handle integrated professional activities.”

From the Desk of HOD

At the outset, I would like to complement the editorial team for successfully bringing out the current issue of "INFRASTRUCTURE PULSE". The topics covered are relevant and give an account of the events and activities that have taken place within the Civil Engineering Department in the recent past.

Regular issues of the INFRASTRUCTURE PULSE will give an opportunity to stakeholders of the Civil Engineering Department to contribute to various aspects of Civil Engineering, besides helping to keep a record of departmental activities.

I would urge all staff members to actively contribute to making the INFRASTRUCTURE PULSE a success.

I once again congratulate all for the current issue of INFRASTRUCTURE PULSE.



Event Organized

Department Activities

1. FDP on “New Draft of IS 13920-2016 and IS 1893-2023 with Software Implications and Hands-on Sessions”

January 20-22, 2025

Objective: To cover the changes and updates in Indian standards, their software implications, and their practical application.

Description: The FDP was conducted by Mr. Bhavin Shah, Founder of SQVe Consultants to spread knowledge about practical and theoretical knowledge of the updated Indian standards, IS 13920-2016 and IS 1893-2023, using software and hands-on exercises. Day 1 began with an overview of both IS 13920-2016 and IS 1893-2023. The session then moved into a detailed review of changes and updates in IS 13920-2016. Day 2 included a detailed review of changes and updates in IS 1893-2023. This was followed by a session on the application of both IS 13920-2016 and IS 1893-2023 in design software. This suggests an emphasis on how to implement these standards using relevant software tools. Day 3 was dedicated to hands-on practical design exercises using the two standards, IS 13920-2016 and IS 1893-2023. The FDP concluded with a Q&A and problem-solving session.

Objective: To provide students with practical exposure to structural analysis concepts and software applications used in the industry.

Description: The workshop was conducted by Ms. Neha Rajput, Ms. Dipali Patel, and Ms. Pinal Patel, Assistant Professors, M. S. Patel Department of Civil Engineering, CSPIT, CHARUSAT, for students of Government Polytechnic, Godhara. It included a hands-on software demonstration on modeling and analyzing structural systems, helping students connect theoretical knowledge with practical applications and reinforcing key structural analysis concepts.



3. Online expert talk on “Sustainable Water Management”

February 28, 2025

Objective: To educate the students about sustainable water management practices.

Description: An online expert lecture was delivered by Mr. Nitin Mishra, Founder of Sustainovate Centre for Climate Solutions and lead corporate sustainability practitioner for renowned MNCs including Havells, Dabur, RSPL, and Honda, across sectors such as FMEG, Water Utilities, Automobile, Chemical, and FMCG. In the expert talk he discussed about the water audit in various industries, water conservation techniques, water management and sustainable use of water. He has also explained the case study of how the cement factories worked towards water neutrality. He talked about the 3M-7R approach of efficient water use. He also talked about the water balance in various industries.



2. One-day workshop on "Structural Analysis System"

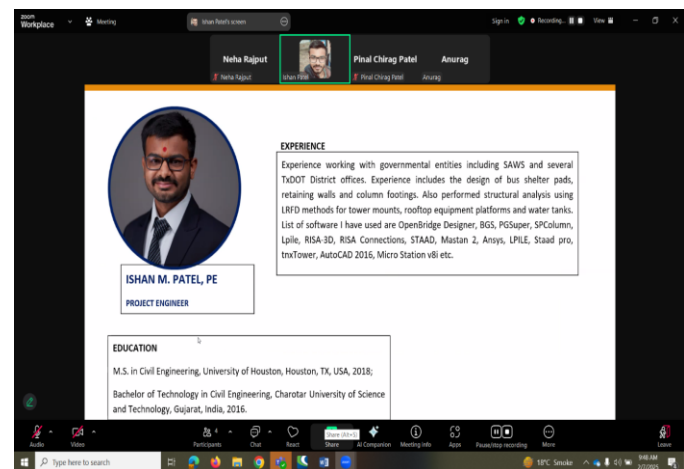
February 25, 2025

Alumni Activity

1. Expert talk on 'Global Insights: Loads and Structural Analysis with International Standards' February 7, 2025

Objective: To familiarize students with global structural engineering standards, such as the AASHTO LRFD Bridge Design Specifications, highlighting their role in ensuring safety and efficiency in infrastructure projects. The workshop also aimed to connect academic concepts with real-world applications through demonstrations of structural load analysis, including dead, live, wind, and seismic loads in bridge design.

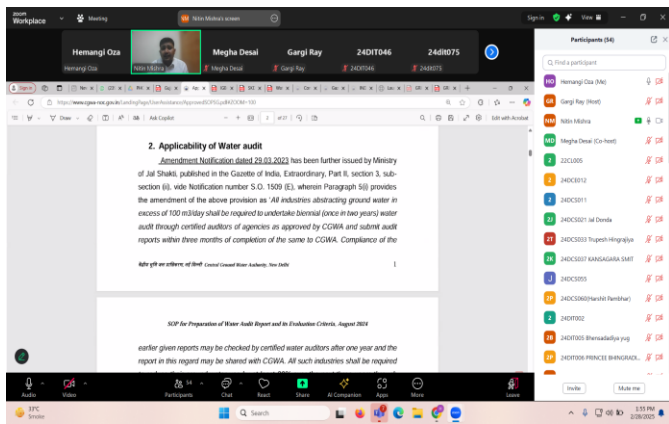
Description: This expert lecture, categorized as an Alumni Activity, was organized by the Civil Department of CSPIT and coordinated by Neha Rajput, Pinal Patel, Gargi Ray, and Megha Desai, Assistant Professors, M. S. Patel Department of Civil Engineering. It provided CHARUSAT students and faculty with insights into international structural engineering standards and their practical applications.



2. One-Day Workshop on 'Structural Design Using STAAD Pro & RCDC' March 9, 2025

Objective: To familiarize M.Tech. students with industrial practices in the structural engineering field through real projects.

Description: This workshop, categorized as an Alumni Activity, was organized by the Civil Department of CSPIT for CHARUSAT Students. It was coordinated by Vipul Vyas and Mehulkumar Katakiya, Assistant Professors, M. S. Patel Department of Civil Engg., CSPIT.



4. Poster Presentation Competition on 'Assistive Technology' February 28, 2025

Objective: To encourage innovation and awareness in assistive technology, fostering inclusivity for differently abled individuals.

Description: The competition was organized by Mr. Vipul Vyas, Assistant Professor, M. S. Patel Department of Civil Engineering, CSPIT, and Mr. Jivanadhar Joshi, Assistant Professor, M & V Patel Department of Electrical Engineering, CSPIT. The event served as a platform for students and faculty members to exchange ideas, engage in meaningful discussions, and showcase innovative solutions to real-world problems. Participants presented posters that were evaluated on storyline, creativity, technical content, and originality, ensuring a holistic assessment of their efforts. The top three entries were awarded cash prizes in recognition of their excellence. Overall, the competition successfully met its objectives by promoting awareness of emerging issues, strengthening collaboration between academia and industry, fostering creativity, and appreciating students' innovative contributions to the field.



The workshop aimed to provide practical exposure to M.Tech. students on structural design using industry-standard software and real-world projects.



3. Expert Talk on ‘BIM and Industry Readiness’

March 9, 2025

Objective: To provide a comprehensive understanding of Building Information Modeling (BIM) and its significance in modern construction and design. The talk also aimed to explore how BIM enhances structural analysis, design optimization, and project coordination, and to discuss case studies and practical applications of BIM in real construction projects.

Description: This expert lecture, categorized as an Alumni Activity, was organized by the Civil Department of CSPIT for CHARUSAT Students. It was coordinated by Vipul Vyas and Mehulkumar Katakiya, Assistant Professors, M. S. Patel Department of Civil Engg., CSPIT. The session focused on educating students about Building Information Modeling (BIM), its applications in structural engineering, and its role in enhancing design, analysis, and project coordination through practical case studies.



Industrial Visits

1. Field Visit to ‘Central Soil and Water Conservation Research and Training Institute (CSWCRTI), Vasad’

February 21, 2025

Objective: To gain practical knowledge of surface water hydrology, understand the interdependence of hydrological cycle units, learn about rainwater collection, and familiarize with hydrological terms such as rainfall depth, discharge volume, and losses due to infiltration, evaporation, and evapotranspiration. Additionally, to familiarize with the field working of rain gauges and other meteorological instruments for weather data recording.

Description: An industrial visit was organized by the Civil Department of CSPIT for CHARUSAT Students. The visit aimed to provide practical exposure to surface water hydrology, including rainwater collection methods and various hydrological terms. Students gained familiarity with meteorological instruments like rain gauges, learning how to record essential weather data in a field setting.



2. Field Visit to ‘Karai Canal Syphon’

March 1, 2025

Objective: To understand the working principle and engineering design of a canal syphon, study the interaction between surface water and canal networks along with flow regulation techniques, analyze how hydraulic structures aid in efficient water distribution and management, and gain practical exposure to water flow measurement techniques and syphon performance evaluation.

Description: An industrial visit was organized by the Civil Department of CSPIT for CHARUSAT Students. This

visit provided practical insights into the engineering design and operational principles of a canal syphon. Students were able to observe hydraulic structures in action, understanding their role in water distribution, flow regulation, and gaining exposure to various water flow measurement techniques.



3. Industrial Visit to ‘SARDAR SAROVAR DAM’ March 5, 2025

Objective: To bridge the gap between theoretical knowledge and practical application, enabling students to observe how concepts learned in the classroom are applied in real-world scenarios.

Description: An industrial visit was organized by the Civil Department of CSPIT for CHARUSAT Students. The visit to the Sardar Sarovar Dam aimed to provide students with a real-world perspective on large-scale civil engineering projects. It offered an opportunity to witness the practical application of theoretical concepts related to structural analysis, water resources engineering, and construction technology in a significant infrastructure project.



4. Industrial Visit to ‘CETP Vatva’

April 19, 2025

Objective: To provide practical knowledge to students about Common Effluent Treatment Plants.

Description: An industrial visit was organized by the Civil Department of CSPIT for CHARUSAT Students, Teaching Staff, and Non-Teaching Staff. The visit to CETP Vatva focused on giving participants hands-on knowledge about the operations and significance of Common Effluent Treatment Plants, which is crucial for understanding environmental management systems and laboratory analysis in the context of industrial waste treatment.



Club Activity

1. One day Workshop on ‘OpenRoads Designer’ Software

March 8, 2025

Objective: To understand the menus, features, and functionalities of Bentley ‘OpenRoads Designer’ and its application in surveying, drainage, subsurface utilities, and roadway design.

Description: This offline workshop was categorized as a Student/Faculty Club Activity and was organized by the Civil Engineering Department for the students of CHARUSAT. The event aimed to enhance the technical knowledge and collaborative learning of participants through interactive sessions and practical insights. It was coordinated by Dr. Vijaykumar Panchal, Neha Rajput, Pinal Patel, Gargi Ray, Megha Desai, and Dipali Patel, faculty members of the M. S. Patel Department of Civil Engineering, CSPIT.



Description: This offline event, categorized as a Student/Faculty Club Activity, was organized by the Civil Department. It was coordinated by Jaymin Desai, Nayan Patel, Dr. Jay Bhavsar, Prijesh Patel, Maulik Patel, Vijaykumar Panchal, Naitik Patel, Ravi Patel, Hemangi Oza, Dilipbhai Patel, and Dipali Patel. Targeted participants included CHARUSAT Students, Teaching Staff, and Non-Teaching Staff.



2. World Environment Day Celebration 2025 - Tree plantation drive 2025

June 5, 2025

Objective: To make people aware of environmental conservation; To keep CHARUSAT campus green and sustainable.

Consultancy Services

Details of Consultancy Activity	Revenue Generated (INR)	Client	Staff Members Involved
Environmental Audit	20,95,782/-	GPCB allotted industries	Environment Audit Team, CHARUSAT

Research & Development Activities

(A) List of Research Papers Published in Journals

Name of Authors	Title of Paper	Journal Title	Publication Month
Amit Kumar and D. Basu	Optimization and prediction of SO ₂ - removal in electrocoagulation process with rotating electrodes using Taguchi and ANN approach	Journal of Environmental Chemical Engineering	May 2025
Rupesh Kumar Tipu, Vijaykumar Panchal, Preeti Rathi and Kartik S. Pandya	Optimizing sustainable blended concrete mixes using deep learning and multi-objective optimization	Scientific Reports	May 2025

Rupesh Kumar Tipu, Vijaykumar Panchal, Ruchika Bhakhar and Kartik S. Pandya	Physics-informed neural networks for predicting sediment transport in pressurized pipe flows	Environmental Earth Sciences	May 2025
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(B) List of Research Papers Published in Conferences

Jay Bhavsar and Vijaykumar Panchal	Effects of Ceramic Polishing Waste on Fly Ash Geopolymer Concrete	International Conference on Climate Resilient Construction and Building Materials (ICRCBM-2023), March 3-5, 2023, National Institute of Technology, Karnataka, Surathkal, Mangalore, India
Pinal Patel, Megha Desai, Dipali Patel and Vijaykumar Panchal	Ultra-High-Performance Fiber-Reinforced Concrete: A Comprehensive Review	First International Conference on Research Communications in Engineering, Science, and Management (ICRCESM-2025), May 30-31, 2025, Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India & RSP Research Hub, Coimbatore, Tamil Nadu, India
Megha Desai, Pinal Patel, Vijaykumar Panchal and Dipali Patel	Recycled Plastics in Construction: A Pathway to Sustainable Infrastructure	First International Conference on Research Communications in Engineering, Science, and Management (ICRCESM-2025), May 30-31, 2025, Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India & RSP Research Hub, Coimbatore, Tamil Nadu, India

(c) List of Research Papers Presented in Conferences

Jay Bhavsar, Rathwa Rahul and Vijaykumar Panchal	Self-Compacting Concrete Using Alccofine 1203 and Brass Coated Micro Steel Fiber	First International Conference on Research Communications in Engineering, Science and Management” - (ICRCESM) 2025, May 30-31, 2025, Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India & RSP Research Hub, Coimbatore, Tamil Nadu, India.
Jay Bhavsar, Vaghela Parv and Vijaykumar Panchal	Experimental study on self-compacting concrete with plastic bottle waste as partial replacement of sand	International Conference on “Synergetic Development through Smart Technologies & Digital Transformation-2025 (SDSTD2025, June 25-26, 2025, Faculty of Technology and Engineerin, Charotar Vidhya Mandal University

Amit Kumar and Rakshita Roy	Sustainable Wastewater Management in Academic Institutions: A Case Study of CHARUSAT University, Gujarat	2nd International Conference on Sustainable Water 2025 (ICSW 2025), March 21-22, 2025, KPR Institute of Engineering Technology, Coimbatore
Soumya Tripathi, Amit Kumar, Debolina Basu and R. M. Singh	Treatment of Synthetic Wastewater containing Phenolic-Syntan using Electrochemical Process	4th International Conference on New Frontiers in Chemical, Energy and Environmental Engineering (INCEEE-2025), June 25-26, 2025, Department of Chemical Engineering, NIT Warangal, India
Mehulkumar Katakia, and Vijaykumar Ramanlal Panchal	Effect of Sand Gradation on Relation between DCP Index and Void Ratio	International Conference on Structural Engineering and Construction Management (SECON'25), June 4-6, 2025, Department of Civil Engineering, Federal Institute of Science and Technology (FISAT)
Shah Vishantkumar, Nirpex Patel, Vijaykumar Panchal and Harish Sheth	Scalable Predictive Equation for BFRP Sheet Laminated Concrete Beams: A Finite Element Investigation	International Conference on Structural Engineering and Construction Management (SECON'25), June 4-6, 2025, Department of Civil Engineering, Federal Institute of Science and Technology (FISAT)
Patel Abhiraj, Nirpex Patel, Neha Rajput and Vijaykumar Panchal	Analytical Study on PSWC-Bar as Reinforcement in RCC Beam-Column Junction	International Conference on Artificial Intelligence, Communication Technologies & Smart Cities (ICACS 2025), March 1, 2025, Charotar University of Science and Technology
Vipul Vyas, Devesh Soni and Vijaykumar Panchal	Comparative Seismic Performance of LNG (Liquefied Natural Gas) Storage Tanks Isolated using Triple Friction Pendulum and Single Friction Pendulum Systems under varying Earthquake Hazard Levels	International Conference on Structural Engineering and Construction Management (SECON'25), June 4-6, 2025, Department of Civil Engineering, Federal Institute of Science and Technology (FISAT)

MoUs

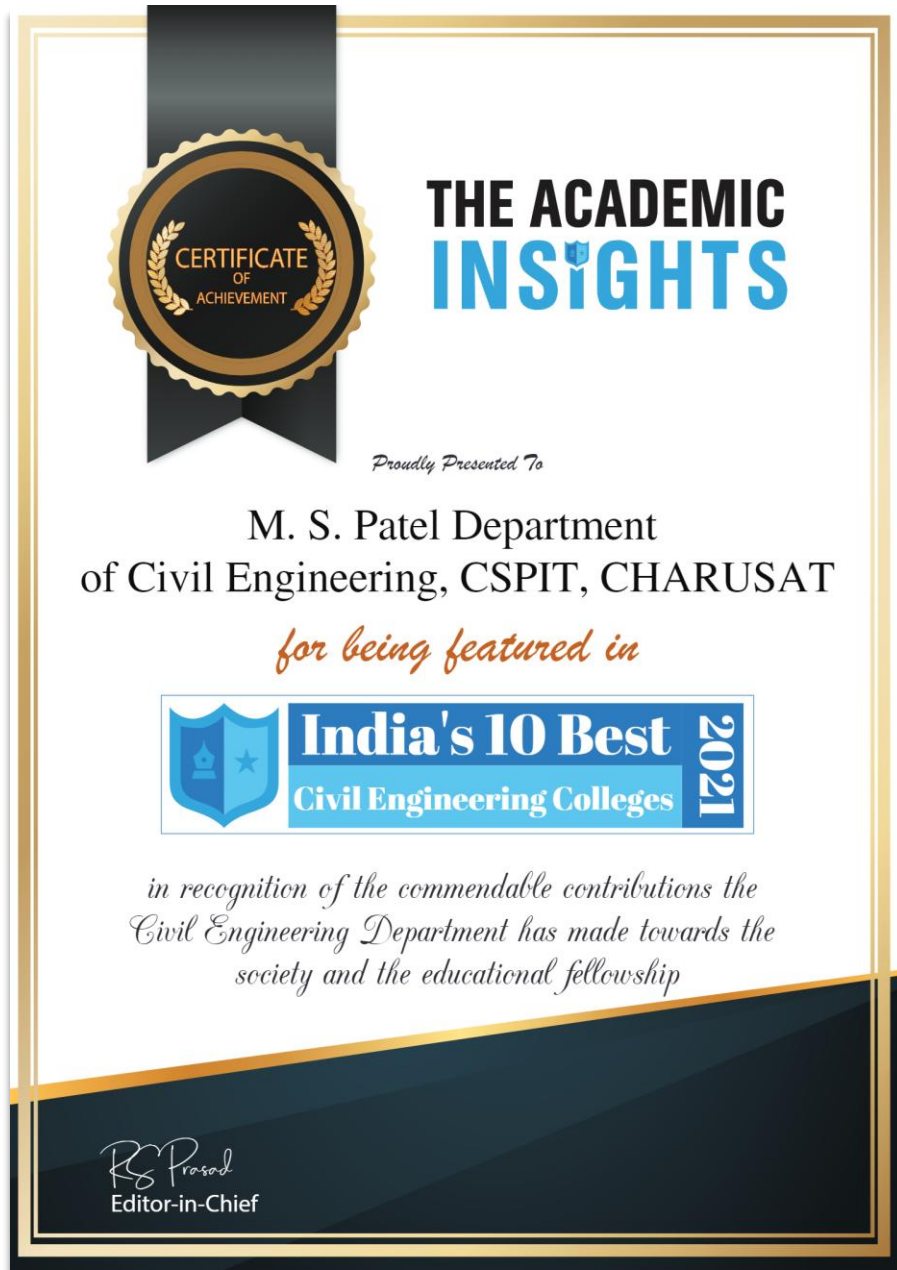
Charotar University of Science & Technology (CHARUSAT), Changa, and the Gujarat Pollution Control Board (GPCB) formally extended their partnership for the joint implementation of the Post Graduate Diploma in Environmental Auditing, Monitoring, and Technology (PGDEAMT). The Joint Declaration of Intent (JDI), initially executed in June 2023, laid the foundation for a robust collaboration aimed at promoting academic excellence and practical training in the field of environmental science.

Student Achievements

Palak Bhavsar (20CLO01) and Pradhyuman Vala (22PGCLO01), students of the Civil Engineering Department at Charotar University of Science and Technology (CHARUSAT), have been honored with the GICEA Gold Medal Award for their outstanding academic performance in the academic year 2022-23. This prestigious award, presented by the Gujarat Institute of Civil Engineers & Architects (GICEA), recognizes top-ranking students from reputed institutions in Gujarat for their

excellence in academics. Their achievements are a testament to their hard work, dedication, and commitment to excellence in the field of civil engineering.





Editorial Team:

Dr. V. R. Panchal | Mr. Mehul Katakiya | Mr. Nirpex Patel | Ms. Hemangi Oza





For any suggestions, please contact:

Professor & Head, M. S. Patel Department of Civil Engineering

Chandubhai S. Patel Institute of Technology, Charotar University of Science & Technology (CHARUSAT), Changa,

Anand, Gujarat, India

Email: hod.cv@charusat.ac.in