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NEWSLETTER BY DEPARTMENT OF CIVIL ENGINEERING
ADI SHANKARA INSTITUTE OF ENGINEERING AND TECHNOLOGY, KALADY
APPROVED BY AICTE, NEW DELHI. AFFLIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, KERALA

DEPARTMENT VISION

•"TO EMERGE AS A CENTRE OF EXCELLENCE IN CIVIL ENGINEERING WITH GLOBAL PERSPECTIVES."

IN THIS ISSUE

DEPARTMENT MISSION

- TO IMPART QUALITY PROFESSIONAL EDUCATION SO THAT THE STUDENTS EMERGE AS A COMPETENT PROFESSIONAL IN THE AREA OF CIVIL ENGINEERING.
- TO PROMOTE INNOVATIVE THINKING AND LIFELONG LEARNING IN BUDDING ENGINEERS.
- TO PRODUCE CIVIL ENGINEERS WHO HAVE IMBIBED ETHICAL VALUES TO SERVE THE SOCIETY AND NATION.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- GRADUATES WILL HAVE A POTENTIAL TO PURSUE HIGHER STUDIES AND RESEARCH IN THE FIELD OF CIVIL ENGINEERING.
- GRADUATES WILL BE ABLE TO PRODUCE SUSTAINABLE SOLUTIONS WITH PROFESSIONAL ETHICS FOR REAL TIME CIVIL ENGINEERING PROBLEMS.
- GRADUATES WILL HAVE MANAGERIAL SKILLS AND LEADERSHIP QUALITIES IN EXECUTION OF CIVIL ENGINEERING PROJECTS.
- GRADUATES WILL BE ABLE TO WORK WITH INTEGRITY AND ETHICAL VALUES.

PROGRAM SPECIFIC OUTCOMES (PSOs)

AFTER SUCCESSFUL COMPLETION OF B.TECH IN CIVIL ENGINEERING, THE STUDENTS WILL BE ABLE TO:

- CHECK THE FEASIBILITY AND SUSTAINABILITY OF CIVIL ENGINEERING PROJECTS BY CONDUCTING GEOTECHNICAL INVESTIGATION, CIVIL ENGINEERING SURVEY AND ENVIRONMENTAL IMPACT ASSESSMENT.
- ANALYSE AND DESIGN BUILDINGS, HYDRAULIC STRUCTURES AND WATER DISTRIBUTION, WASTE MANAGEMENT AND TRANSPORTATION SYSTEMS.
- EXECUTE CIVIL ENGINEERING PROJECTS WITH THEIR KNOWLEDGE IN ESTIMATION, PROJECT MANAGEMENT, CONSTRUCTION MATERIALS AND TECHNOLOGIES.

DEPARTMENT OF CIVIL ENGINEERING

ASIET PROJECT EXPO – ASPREN '26

The ASIET Project Expo, ASPREN '26, was successfully conducted on 6th April 2026 with enthusiastic participation from students, faculty, and staff members across the institution. The event served as a vibrant platform for showcasing innovation, creativity, and technical excellence among undergraduate students.

A total of 22 innovative projects from 8 undergraduate departments were exhibited during the expo. The projects reflected the students' problem-solving abilities, practical knowledge, research aptitude, and commitment to developing solutions for real-world challenges. The exhibition covered diverse domains of engineering and technology, attracting significant attention and appreciation from the audience.

The projects were evaluated by a distinguished judging panel comprising three external experts and one internal judge nominated by the respective Heads of Departments. The evaluation was carried out based on innovation, technical implementation, practicality, presentation, and societal relevance.

CHAMPIONS OF KERALA STAFF CRICKET TOURNAMENT 2026

We are delighted to announce that the Adi Shankara Staff Cricket Team has emerged as the Champions of the All Kerala Staff Cricket Tournament conducted by Ilahia College of Engineering and Technology on 12th April 2026.

The team delivered an outstanding performance throughout the tournament, securing impressive victories against Christ College (Autonomous) and UKF College of Engineering in the earlier rounds. In the grand finale, they triumphed over Government Engineering College Thrissur to clinch the championship title. Among the proud members of the championship-winning team were Mr. Abin Joy, Assistant Professor and Mr. Parthasarathy P N, Techical Staff of the department, whose valuable contributions added to the team's success.

INSTITUTE EVENTS

VIRTUAL GUEST LECTURE

The Department of Civil Engineering at ASIET successfully organized a virtual guest lecture on the topic “AI Revolution in Civil Engineering” on 6th April 2026 from 10:00 AM to 11:30 AM through an online platform.

The session was delivered by Prof. Hossam Abuel-Naga, Head of the Engineering Department at La Trobe University. The expert interaction provided participants with valuable insights into the transformative role of Artificial Intelligence in the field of Civil Engineering.

During the session, Prof. Hossam Abuel-Naga discussed emerging AI technologies and their applications in infrastructure development, smart construction, geotechnical engineering, data-driven decision-making, and sustainable engineering practices. He also shared his expertise in areas such as geotechnical engineering, nuclear waste disposal technology, methane hydrate mining techniques, energy foundations, ground improvement, and landfill lining systems. The lecture highlighted how AI is revolutionizing the planning, design, monitoring, and maintenance of civil engineering projects, enabling engineers to improve efficiency, safety, and sustainability. The session was highly informative and inspired students and faculty members to explore innovative research opportunities in AI-integrated engineering solutions.

Faculty members, students, and research scholars actively participated in the interactive session and engaged in fruitful discussions with the speaker. The event provided an excellent opportunity for the participants to gain international exposure and understand current global trends in Civil Engineering research and practice.

VIRTUAL GUEST LECTURE

DEPARTMENT EVENTS

FAREWELL 2026

The farewell for the 2022–2026 batch was held on 1st April 2026 at the Department of Civil Engineering. It was a day filled with fun and joy as the students reminisced about their memorable time at the college. The event concluded with informal interactions, leaving everyone with fond memories and a strong sense of camaraderie.

Faculty members shared their best wishes and words of encouragement for the graduating batch as they prepared to step into the next phase of their lives. The atmosphere was vibrant and emotional, with laughter, music, and nostalgic memories creating a truly special occasion.

DEPARTMENT EVENTS

PLACEMENTS

STUDENT ACHIEVEMENTS

PLACEMENT

STUDENT ACHIEVEMENTS

INTERNSHIP CUM PLACEMENT PROGRAM

STUDENT ACHIEVEMENTS

ASPREN 2026 RESULTS

The Department of Civil Engineering proudly secured recognition at the ASPREN ’26 Project Exhibition held on 06 April 2026 at ASIET, Kalady. The department-level winning project titled “Intelligent System for Alert and Lifesaving in Micaceous Embankments” showcased an innovative approach towards improving safety and disaster preparedness in vulnerable embankment regions.

The project was developed by the talented student team comprising Abinraj M R, Ajith M S, Gopika Shanavas, and A V Ramanathan. Their work demonstrated creativity, technical excellence, and practical relevance in addressing real-world civil engineering challenges. The project team was guided by Mr. Abishek Kumar A A, Assistant Professor of the department.

STUDENT ACHIEVEMENTS

GREEN STEEL

Green steel is steel produced without the use of fossil fuels, employing green hydrogen, renewable electricity, or electric arc furnaces to drastically lower carbon emissions.

Green steel is emerging as a transformative material in sustainable structural engineering, aimed at drastically reducing the carbon footprint associated with conventional steel production. Traditional steel manufacturing, which relies heavily on coal-based blast furnaces, is one of the largest industrial sources of CO_2 emissions globally. Green steel addresses this issue by replacing fossil-fuel-intensive processes with cleaner alternatives such as hydrogen reduction and renewable-energy-powered electric arc furnaces, making it a cornerstone of low-carbon infrastructure development.

One of the most important production routes for green steel is hydrogen-based direct reduced iron (H-DRI). In this process, hydrogen is used instead of carbon monoxide to remove oxygen from iron ore, producing water vapor instead of carbon dioxide as a by-product. This significantly reduces greenhouse gas emissions. When combined with electric arc furnaces powered by renewable energy sources like solar or wind, the process can achieve near-zero-emission steel production, making it highly suitable for future-ready construction industries.

Another major pathway is the use of electric arc furnaces (EAF) that primarily rely on recycled scrap steel. This supports a circular economy by reusing existing steel materials instead of extracting new iron ore. Scrap-based steel production not only conserves natural resources but also requires less energy compared to primary steelmaking. As recycling systems improve globally, EAF-based green steel is expected to dominate urban infrastructure and modular construction projects.

In structural engineering applications, green steel maintains the same mechanical properties as conventional steel, including high tensile strength, ductility, and fatigue resistance. This makes it suitable for critical load-bearing systems such as high-rise building frames, long-span bridges, industrial structures, metro rail networks, and offshore platforms. Its compatibility with existing design codes ensures that engineers can adopt it without major changes to current structural practices.

The environmental advantages of green steel are significant. By reducing carbon emissions across the lifecycle of construction projects, it supports global climate goals and sustainable development frameworks.

Hydrogen-based direct reduction technology has emerged as a highly promising solution in green steel manufacturing. In this method, green hydrogen produced through renewable-powered electrolysis is used to separate oxygen from iron ore. Unlike conventional processes that emit carbon dioxide, this reaction generates water vapor, making it environmentally friendly. Countries with abundant renewable energy resources are increasingly investing in hydrogen infrastructure to support large-scale green steel production. The combination of hydrogen-based reduction and electric arc furnace technology powered by renewable electricity can potentially eliminate most emissions associated with steelmaking. This transition represents a major step toward decarbonizing heavy industries worldwide.

Electric arc furnace technology also plays a crucial role in the growth of green steel production. EAF systems mainly use recycled steel scrap, reducing the demand for mining and extraction of fresh iron ore. Recycling steel not only conserves natural resources but also decreases energy consumption and industrial waste generation. Modern EAF systems are highly energy-efficient and can operate using electricity generated from renewable sources such as solar, wind, or hydropower. As urbanization increases and more steel structures reach the end of their service life, the availability of recyclable steel scrap will continue to grow, further supporting sustainable steel production and circular economy principles.

From a structural engineering perspective, green steel provides performance characteristics equivalent to traditional structural steel. It possesses excellent tensile strength, ductility, toughness, weldability, and fatigue resistance, making it suitable for a wide range of engineering applications. Green steel can be used in

skyscrapers, bridges, transportation systems, industrial plants, airports, stadiums, and offshore structures without compromising structural safety or durability. Since it complies with existing engineering standards and design specifications, structural engineers can incorporate green steel into projects using familiar design methodologies and construction practices.

The adoption of green steel also provides economic and social advantages. Although the initial production cost is currently higher than conventional steel due to expensive hydrogen generation and renewable energy infrastructure, long-term benefits are expected to outweigh these costs. As technology advances and production scales increase, the cost of green steel is likely to decrease significantly. Moreover, the development of green steel industries can create new employment opportunities in renewable energy, hydrogen production, recycling, and advanced manufacturing sectors. Governments across the world are introducing policies, incentives, and carbon reduction strategies to encourage industries to shift toward low-carbon steel production.

Despite its potential, several challenges remain in the widespread implementation of green steel technology. Large-scale hydrogen production requires substantial renewable energy capacity, advanced storage systems, and transportation infrastructure. Additionally, many developing countries still rely on coal-based steel industries due to economic and technological limitations. The transition to green steel therefore requires significant investment, international collaboration, and supportive government policies. Research is also ongoing to improve process efficiency, reduce production costs, and develop advanced materials for more sustainable steelmaking practices.

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In conclusion, green steel represents a transformative advancement in modern engineering and sustainable construction. By reducing greenhouse gas emissions, promoting resource efficiency, and supporting renewable energy integration, green steel has the potential to reshape the future of global infrastructure development. As environmental concerns continue to grow and industries seek cleaner production methods, green steel is expected to become a fundamental material in the transition toward carbon-neutral and environmentally responsible construction practices.

Reema Pius
Assistant Professor

BUILDING THE FUTURE, LAYER BY LAYER: THE 3D CONCRETE PRINTING REVOLUTION

The construction industry, often considered traditional and slow to adopt change, is currently undergoing a massive digital transformation. Among the most promising innovations is 3D Concrete Printing (3DCP)—a form of additive manufacturing that enables the creation of structures layer-by-layer based on digital blueprints. This technology is moving rapidly from academic research to practical, large-scale application, promising a future where construction is faster, cheaper, and far more sustainable.

How 3DCP Works?

3D concrete printing operates similar to desktop 3D printers, but on a massive scale. Specialized construction printers—typically large robotic arms or gantry systems—extrude a specially formulated dough-like concrete mix.

Slicing and Printing: The software slices the model into thousands of horizontal layers and guides the printer nozzle to deposit concrete precisely along these paths.

Layer Deposition: Concrete is deposited layer-by-layer, bonding together as it hardens to form walls, columns, and entire structural components.

Key Advantages in Civil Engineering

1. Unprecedented Speed and Efficiency

3D printing can reduce construction timelines by up to 50% compared to traditional methods. Entire 3D-printed homes have been completed in as little as 24–48 hours of print time. This rapid assembly is particularly valuable in creating affordable housing and disaster relief shelters.

2. Enhanced Design Freedom and Customization

Unlike traditional construction which relies on repetitiveo, rectangular formwork, 3D printing makes curved, organic, and intricate designs economically feasible. It allows architects to design optimized shapes, improving structural efficiency while minimizing material usage.

3. Material Efficiency and Sustainability

Construction waste is a significant environmental challenge. 3D printing produces up to 60–90% less waste by placing material only where it is needed. Moreover, it facilitates the use of eco-friendly materials like geopolymers or recycled aggregates.

4. Reduced Labor and Enhanced Safety

By automating the construction process, 3DCP reduces the need for heavy manual labor, enhancing safety by limiting worker exposure to hazardous sites.

Standardization: There is a lack of established building codes and regulations for 3D-printed structures.Initial Investment: The cost of robotic systems is high, making it more viable for large-scale projects rather than small, individual builds.

3D concrete printing is no longer science fiction—it is a tangible, transformative technology. As research improves reinforcement strategies and material sustainability, 3DCP is poised to revolutionize the construction sector, offering solutions to global housing shortages and creating safer, more resilient infrastructure. For the next generation of civil engineers, mastering these digital fabrication tools will be essential.

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HOD'S MESSAGE

AS THE DEPARTMENT HEAD, I ENVISION OUR COLLEAGUES AND STUDENTSWALKING HAND IN HAND, COLLECTIVELY CONSTRUCTING INNOVATIVE IDEASFOR A MORE DEVELOPED NATION.

LET'S CONTINUE THIS MOMENTUM AND STRIVE FOR EXCELLENCE IN ALL OURENDEAVOURS.