

SDG 09

INDUSTRY, INNOVATION
AND INFRASTRUCTURE



LIST OF ACTIVITIES

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ACTIVITY 01:

ENGINEERING INNOVATION & SKILLS DEVELOPMENT PARTICIPATION

Organized By:
The Department of Civil Engineering



Students participated in ASME EFX 2025, a regional engineering festival that provided a platform for technical competitions, problem-solving challenges, and professional development. Engagement in activities such as a scavenger hunt and a physics-based escape room fostered analytical thinking, teamwork, and practical problem-solving skills, with notable achievement in securing a runner-up position. Project showcases and expert sessions enhanced exposure to emerging technologies, industry trends, and professional practices. The participation aligned with SDG 4, particularly Target 4.4, and SDG 9, especially Target 9.5, by strengthening technical skills, innovation, and research capacity. It contributed to building students' professional readiness and advancing their capabilities for future engineering solutions.

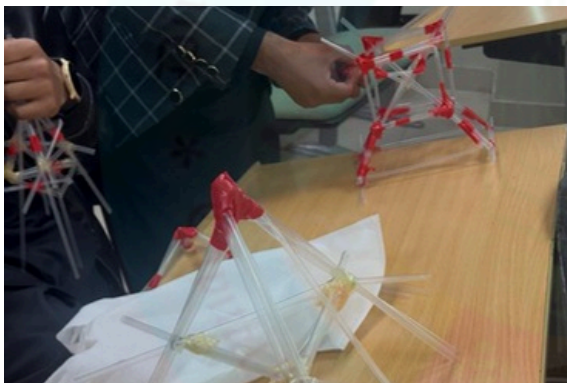


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ACTIVITY 02: EGG DROP COMPETITION

Organized By:
The Department of Civil Engineering



The Egg Drop Competition module is a hands-on STEM activity where students design and build protective structures to prevent an egg from breaking when dropped from a height, applying concepts of gravity, force, impact, and energy absorption. The competition promotes creativity, teamwork, critical thinking, and practical problem-solving as participants test and refine their designs using limited and often recyclable materials. This activity aligns with the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 9 (Industry, Innovation and Infrastructure), and SDG 12 (Responsible Consumption and Production). It supports sub-targets 4.7 (education for sustainable development), 9.5 (enhancing scientific research and innovation skills), and 12.5 (waste reduction through reuse of materials), fostering sustainable thinking and experiential learning.



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ACTIVITY 03:

INDUSTRIAL VISIT TO HAIDRI BEVERAGES PVT.LTD

Organized By:
The Department of Civil Engineering



An industrial visit to Haidri Beverages Pvt. Ltd. was arranged for Mechanical Engineering students (Batch 223) to bridge the gap between theoretical learning and practical industrial applications. Students observed the complete beverage production cycle, including water treatment, syrup preparation, bottling, and packaging processes, with particular focus on automated machinery, conveyors, compressors, boilers, and quality control systems. They also gained insight into preventive maintenance practices, safety protocols, and energy management in a high-volume manufacturing environment, strengthening their understanding of modern mechanical systems and industrial workflows. The visit aligns with SDG 9 (Industry, Innovation and Infrastructure, Targets 9.2 & 9.5) through exposure to advanced manufacturing technologies.



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ACTIVITY 04:

INDUSTRIAL VISIT TO HIKMAT PUMP PVT.LTD

Organized By:
The Department of Civil Engineering



An industrial visit to Hikmat Pump Pvt. Ltd. was organized for Mechanical Engineering students (Batch 223) to enhance their understanding of the design, manufacturing, and assembly processes of submersible pumps and to bridge the gap between theoretical knowledge and industrial practice. Students observed various stages of production, including machining, materials selection, quality control, and performance testing, which provided practical insight into modern manufacturing techniques and production management. Interaction with engineers and technical staff deepened their awareness of real-world engineering challenges, industrial standards, and professional practices. The visit supports SDG 4 (Quality Education, Target 4.4) by strengthening technical and vocational skills, SDG 9 (Industry, Innovation and Infrastructure, Targets 9.2 & 9.5) by promoting understanding of sustainable industrialization and technological advancement, and SDG 8 (Decent Work and Economic Growth, Target 8.2) by enhancing competencies relevant to productive employment in the manufacturing sector.



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ACTIVITY 05: WORKSHOP ON ARDUINO PROGRAMMING

Organized By:
The Department of Mechanical Engineering



The Al-Muhandis Society, a student-led technical body under the Department of Mechanical Engineering at CUST, organized a hands-on technical workshop, engaging students from the Mechanical Engineering, Electrical Engineering, BRIS, and Computer Science departments in an immersive learning experience focused on Arduino programming and the development of a line follower robot. The workshop provided participants with foundational knowledge of coding, programming logic, and embedded systems while enabling them to translate theoretical engineering concepts into practical applications through collaborative design and problem-solving activities. By fostering teamwork, creativity, innovation, and healthy competition, the activity strengthened students' technical competencies and experiential learning. This initiative aligns with the United Nations' United Nations Sustainable Development Goals, particularly SDG 9 (Industry, Innovation and Infrastructure), notably Target 9.5 which encourages enhancing scientific research and technological capabilities. Through such initiatives, the society contributes to building a skilled, innovation-driven student community capable of addressing real-world engineering challenges.



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ACTIVITY 06: SCIENCE FAIR

Organized By:
The Department of Mechanical Engineering



A Science Fair was conducted as a comprehensive academic event to promote scientific inquiry, creativity, and innovation through exhibitions, competitions, and interactive activities. Students presented research projects, working models, and experiments addressing real-world challenges in technology, sustainability, and environmental solutions. The event encouraged collaboration, critical thinking, and practical application of knowledge, fostering a culture of innovation and problem-solving. It aligned with SDG 9, particularly Target 9.5, by strengthening scientific research, technological capabilities, and innovation among students. The initiative supported the development of technical skills and creative thinking essential for modern industrial advancement. It contributed to preparing students for future roles in research-driven and innovation-focused sectors.



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ACTIVITY 07: PROJECT EXHIBITION COMPETITION

Organized By:
The Department of Mechanical Engineering



The Project Exhibition Module is designed to provide students with a platform to display innovative ideas, research findings, and practical solutions to real-world problems through working models, presentations, and demonstrations. This module encourages creativity, critical thinking, collaboration, and problem-solving skills while promoting interdisciplinary learning. By focusing on themes such as sustainability, technology, health, and community development, the exhibition aligns with the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 9 (Industry, Innovation and Infrastructure), and SDG 13 (Climate Action). It also supports relevant sub-SDG targets such as 4.7 (education for sustainable development), 9.5 (enhancing research and innovation), and 13.3 (climate change awareness), fostering responsible global citizenship and sustainable progress.



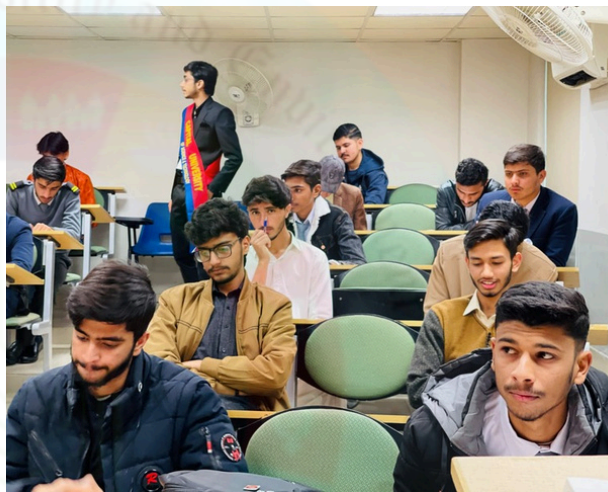
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ACTIVITY 08:

INNOVATION & TECHNICAL KNOWLEDGE QUIZ COMPETITION

Organized By:
The Department of Mechanical Engineering



A structured quiz competition was conducted to enhance students' technical knowledge, analytical thinking, and rapid decision-making through diverse rounds covering science, technology, and innovation-focused themes. The activity promoted teamwork, problem-solving, and the practical application of engineering concepts in a competitive environment. By integrating topics related to emerging technologies, industrial development, and sustainable solutions, the competition encouraged students to think critically about real-world challenges. The initiative aligned with SDG 9, particularly Target 9.5, by strengthening research, innovation, and technological capabilities among students. It supported the development of a strong foundation in technical competence and creative thinking essential for modern industries. The activity contributed to fostering innovation-driven mindsets and preparing students for future roles in advancing sustainable industrial and technological development.



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ACTIVITY 09: HYDROPOWER INDUSTRIAL VISIT & TECHNICAL EXPOSURE

Organized By:
The Department of Mechanical Engineering



An industrial visit to the Tarbela Dam Hydel Power Project was conducted to enhance practical understanding of large-scale hydroelectric power generation and bridge the gap between theory and real-world application. Students observed key components including turbines, generators, intake gates, power tunnels, and tailrace systems, gaining insights into mechanical design, fluid mechanics, and system operations. The visit highlighted the role of engineers in renewable energy production and national infrastructure development. It aligned with SDG 9, particularly Targets 9.1 and 9.5, by promoting exposure to sustainable infrastructure and strengthening technical and innovation capabilities. The initiative contributed to developing industry-relevant skills and a deeper understanding of modern engineering systems.



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ACTIVITY 10: WATER ROCKET COMPETITION

Organized By:
The Department of Mechanical Engineering



The Water Rocket Competition was a well-organized educational event that provided students with the opportunity to apply scientific and engineering principles in a practical setting. Participants designed and launched rockets powered by pressurized water, demonstrating their understanding of physics concepts such as force, pressure, aerodynamics, and stability. The competition fostered critical thinking, collaboration, and innovation as teams worked systematically to optimize their rocket designs for maximum height and accuracy. This initiative aligns with SDG 9: Industry, Innovation, and Infrastructure, specifically Target 9.5, by encouraging scientific research and strengthening technological capabilities among students. Overall, the competition contributed meaningfully to the promotion of STEM education and sustainable innovation.

