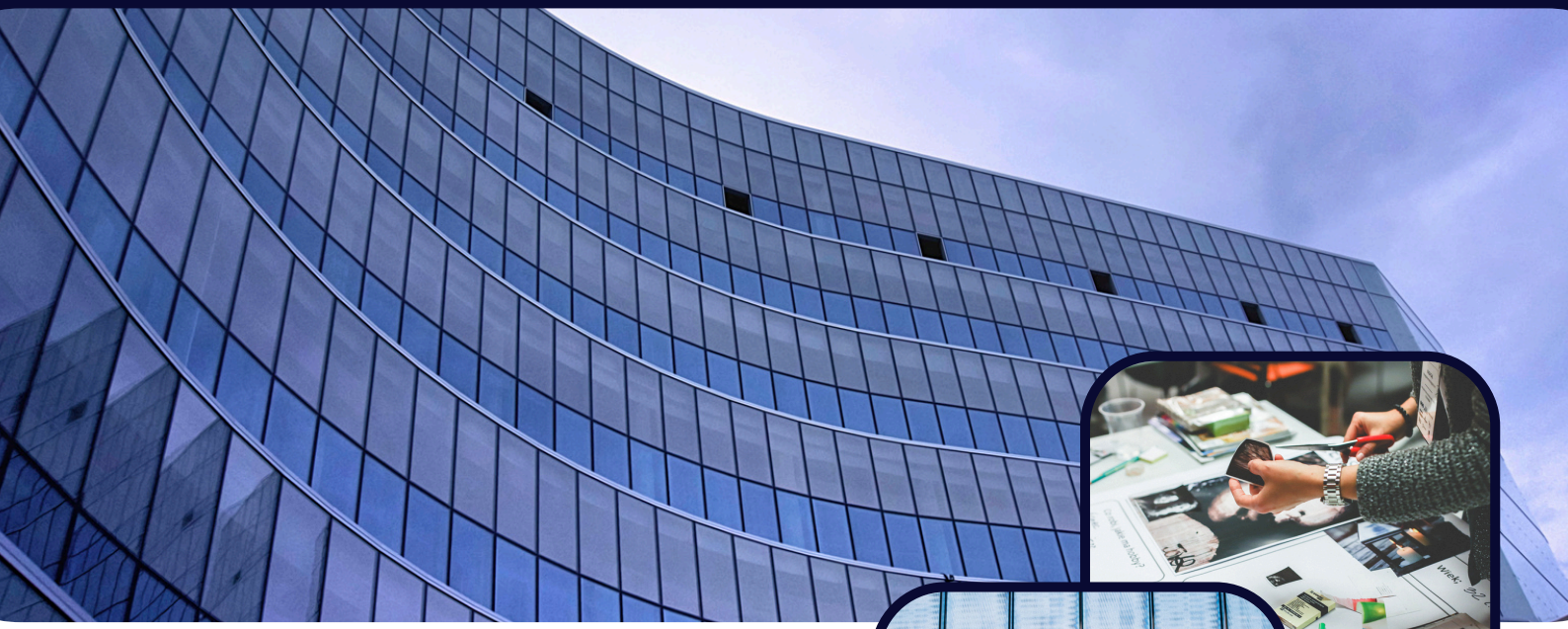
JAN-FEB 2025



BUILDERS TRENDS

HIGHLIGHTS

Faculty Corner

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- Drones in Construction

Department of Civil Engineering, Newsletter

GMR Institute of Technology
An Autonomous Institute Affiliated to JNTU-GV

GMRIT
Training Tomorrow's Engineers Today

THE VISION OF GMRIT

- To be among the most preferred institutions for engineering and technological education in the country.
- An institution that will bring out the best from its students, faculty, and staff – to learn, to achieve, to compete and to grow – among the very best.
- An institution where ethics, excellence and excitement will be the work religion, while research, innovation and impact, the work culture.

THE MISSION OF GMRIT

- To turnout disciplined and competent engineers with sound work and life ethics.
- To implement outcome-based education in an IT-enabled environment.
- To encourage all-round rigor and instill a spirit of enquiry and critical thinking among students, faculty, and staff.
- To develop teaching, research, and consulting environment in collaboration with industry and other institutions.

DEPARTMENT VISION

- To be a preferred department of learning for students and teachers alike, with a commitment towards Academics & Research, serving the students in an atmosphere of innovation, critical thinking and making them Industry ready.

DEPARTMENT MISSION

M1: To provide adaptable education in a collaborative and innovative environment in skilling the graduates to solve real world problems in the field of Civil Engineering

M2: To prepare the students as critical thinking professionals with multidisciplinary research orientation and Innovation

M3: To instil ethical values and nurture the graduates who will be able to contribute to society.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO 1: Employ logical and analytical skills in solving complex real-world engineering problems in the areas of civil engineering.

PEO 2: Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.

PEO 3: Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

PROGRAM OUTCOMES (POS):

Engineering graduate will be able to:

PO 1: Apply the knowledge of basic sciences and fundamental engineering concepts in solving civil engineering problems (**Engineering knowledge**)

PO 2: Identify and define civil engineering problems and investigate to analyze and interpret data to arrive at substantial conclusions. (**Problem analysis**)

PO 3: Propose appropriate solutions for engineering problems complying with functional constraints such as economic, environmental, societal, ethical, safety and sustainability in accordance with Indian standard codes of practices. (**Design/development of solutions**)

PO 4: Perform investigations, design and conduct experiments, analyze and interpret the results to provide valid conclusions. (**Conduct investigations of complex problems**)

PO 5: Select/develop and apply appropriate techniques and IT tools to analyze, design and scheduling of activities with an understanding of the limitations and successfully implement and adopt to technological changes in civil engineering with intervention of IT industries (**Modern tool usage**)

PO 6: Give reasoning and assess societal, health, legal and cultural issues with competency in professional engineering practice. (**The engineer and society**)

PO 7: Demonstrate professional skills and contextual reasoning to assess environmental/societal issues for sustainable development. (**Environment and sustainability**)

PO 8: Demonstrate knowledge of professional and ethical practices. (**Ethics**)

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multi- disciplinary situations. (**Individual and team work**)

PO 10: Communicate effectively with respect to oral, written and graphical communication (**Communication**)

PO 11: Demonstrate and apply engineering & management principles in their own / team projects in multidisciplinary environment. (**Project management and finance**)

PO 12: Recognize the need for, and have the ability to engage in independent and lifelong learning. (**Life-long learning**)

PROGRAM SPECIFIC OUTCOMES (PSOS):

Engineering graduate will be able to:

PSO 1: Demonstrate the quality and suitability of construction materials (**Program Specific**)

PSO 2: Ability to apply the practical aspect of analysis, design and safe construction practices (**Program Specific**)

OVERVIEW

The Department of Civil Engineering was established in 2002. It offers students a solid grounding in better utilization of resources and greater standardization of construction processes required by the construction industry. Students are taught how to use and employ innovative design methods and techniques. Exposure to contemporary facets planning, construction design and project management are key aspects of the course. Annual intake of this Department is 120 students.

Faculty Corner

CONSULTANCY

Being facilitated with well-equipped equipment and laboratories the Department of Civil Engineering always contributes a major role in the consultancy works offered to the government and private organizations around the districts and so on. As a part of Consultancy an amount of *13600/-* rupees worth core related works were carried out by the faculty with respect to various specializations.

NATIONAL & INTERNATIONAL JOURNALS

- R.Gokulan et.al. Removal of lead metal ion using biowaste of pithophora cleveana wittrock and mimusops elengi, Energy Source part A: recovery. Utilization and Environmental Effects. Taylor & Francis Publications. *(Impact Factor: 2.4, SCIE and Scopus Indexed, SJR:Q2)*
- R.Gokulan et.al. Effective removal of remazol brillinat orange 3R using a biochar derived from Ulva reticulata. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, pp.1-14. Taylor & Francis Publications. *(Impact Factor: 2.4, SCIE and Scopus Indexed, SJR:Q2)*
- B.A.V. Ram Kumar et.al, Performance Evaluation of Roller Compacted Concrete Containing Ferrochrome Slag Aggregates and Red Mud. Iranian Journal of Science and Technology, Transactions of Civil Engineering, pp.1-19. *(Impact Factor: 1.7, SCIE and Scopus Indexed, SJR:Q2)*
- Siva Rama Krishna, U et.al 2025. Internet of things and digital twins for future smart cities: scientometric analysis. Intelligent Buildings International, pp.1-13. Taylor & Francis Publication. *(ESCI and Scopus Indexed, SJR:Q2)*

- Vivek S et.al, Drought assessment in Coimbatore South region, Tamil Nadu, India, using remote sensing and meteorological data. Journal of Earth System Science, 134(1), p.40. Springer publications. *(Impact Factor: 1.6, SCIE and Scopus Indexed, SJR:Q2)*
- Vivek S et.al. Pioneering the next frontier in construction with high-strength concrete infused by nano materials. Matéria (Rio de Janeiro), 30, p.e20240730. Universidade Federal do Rio de Janeiro - UFRJ publications. *(SCIE and Scopus Indexed, SJR:Q4)*

NATIONAL & INTERNATIONAL JOURNALS

- Vijayakumar, A. et.al., An Experimental Study of Stone Matrix Asphalt with Different Fillers. In International Conference on Internet of Things and Connected Technologies (pp. 265-279). Scopus indexed, Singapore: Springer Nature Singapore.

BOOK CHAPTER

- A., Arun Solomon,et.al. Unveiling the Cinematic Odyssey: Netflix User Experiences, with a Spotlight on Generation Z in India. In Harnessing AI, Machine Learning, and IoT for Intelligent Business: Volume 1 (pp. 631-640). Cham: Springer Nature Switzerland. (Scopus indexed, (Book- Chapter). Online ISBN978-3-031-67890-5. DOI https://doi.org/10.1007/978-3-031-67890-5_57.

Student Corner

PARTICIPATIONS

- 59 students attended a technical event “HIT and TASK” on 22-01-2025, conducted by GMR Institute of Technology in association with the Indian Society for Technical Education (ISTE).
- 55 students attended a technical event “Fastest Finger First” on 08-01-2025, conducted by SECTOR Club, GMR Institute of Technology.
- 55 students attended a technical event “Visual Vigilance” on 05-02-2025, conducted by GMR Institute of Technology in association with the Indian Society for Technical Education (ISTE).
- 54 students attended a technical event “Chill & Cheer” on 29-01-2025, conducted by SECTOR Club, GMR Institute of Technology, Rajam, VZM.
- 186 students attended a 5 Days technical event “GREEN ALOK” from 10-02-2025 to 14-02-2025, jointly conducted by IGBC & Green Eco, GMR Institute of Technology, Rajam, VZM.

ACHIEVEMENTS

- Mr. M. Chandra Prakash (23345A0109), has won 1st Prize in the technical event "Fastest Finger First" on 08-01-2025 conducted by SECTOR Club, GMR Institute of Technology.

PLACEMENTS

- The department of Civil engineering ***congratulates*** the following placed students in M/S: GMR GROUP with CTC **5.5 LPA** each.

S.No.	JNTU No.	Name
1	21341A0174	NARAMA TARUN KUMAR
2	21341A0188	PYDI LALITHA SAI KIRAN
3	21341A01B0	VEGIREDDI VAHINI
4	22345A0113	ALLA VINAY

- The department of Civil engineering ***congratulates*** the following placed students in M/S ORGANO ECHO HABITAT PVT. LTD. with CTC **2.75 LPA** each.

S.No.	JNTU No.	Name
1	21341A0114	BONU PRAVEEN
2	21341A0125	DUNNA SHARMILA
3	21341A0137	GUNANA DEEPAK
4	21341A0152	KOLA PRANEET DEO
5	21341A0178	PANDRANKI BALARAJ

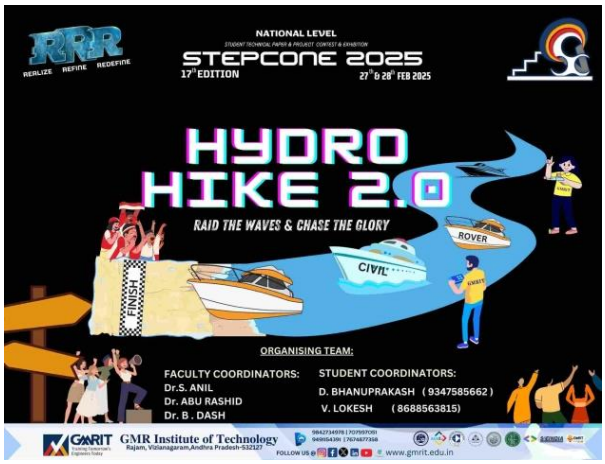
- The department of Civil engineering ***congratulates*** the following placed students in M/S LTI MIND TREE with CTC **4.5 LPA** each.

S.No.	JNTU No.	Name
1	21341A0130	GATTI INDHU
2	21341A0139	GURAVANA LAVANYA

ORGANIZED EVENTS

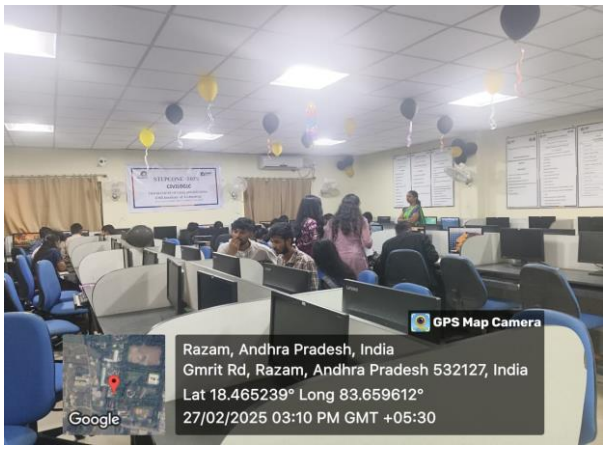
STEPCONE 2025

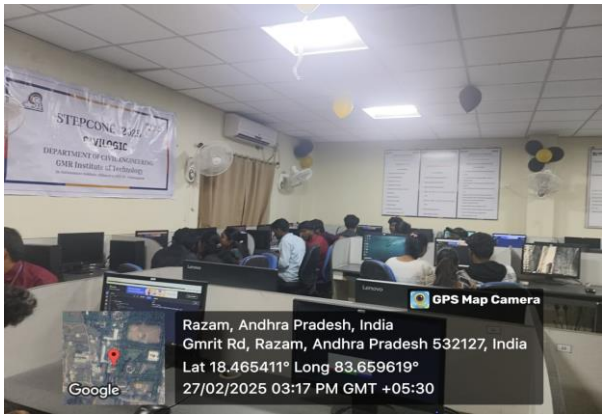
The following events were organized from the Department of Civil Engineering for the National Level Student Technical Paper & Project Contest and Exhibition, **STEPCONE 2025** held on campus from February 27, 2025, to February 28, 2025.



It is the event where Hovercraft should face civil challenges. Participants have to make their hovercrafts. And that hovercraft must meet the challenges created in the field. Total **18 teams** were participated tin this event

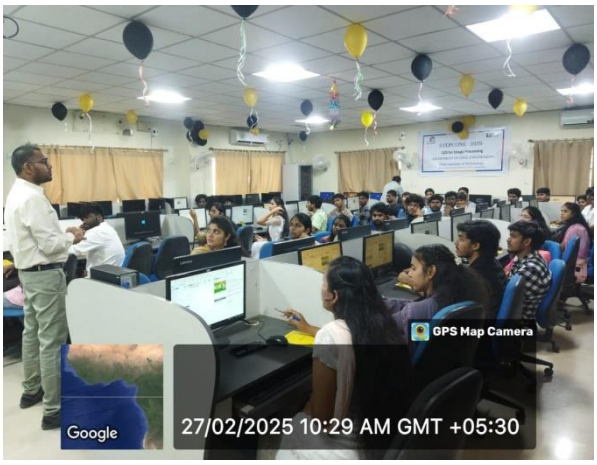
It is a full night event. Three rounds were there is this event. The participant needs to develop building plan and building models using AUTOCAD and REVIT. Total **32 teams** were participated in this event.

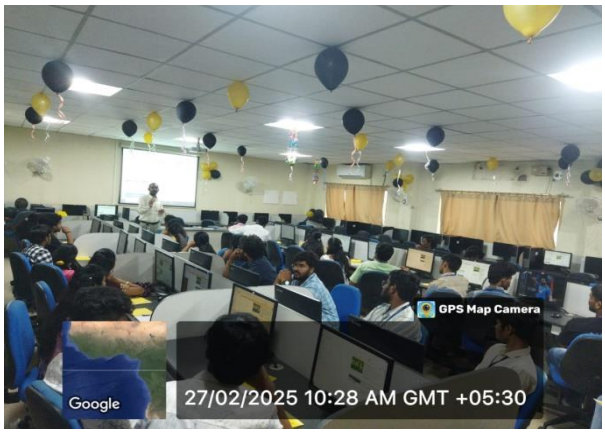




It is a unique challenge event that tests the logical and problem-solving abilities of civil engineering students using Python programming. A total of **20 teams** were participated in this event.

It is a non-technical event. Lip Sync Battle, Cup Stack Relay, Relay Pictionary, Hands and Feet Hopscotch, and Aim the Ball were the events organized. A total of **40 students** participated in this event.





GIS for Image Processing was a 3-hour workshop in which participants learned theoretical concepts related to QGIS. During—the hands-on session, students performed image preprocessing and land-use/land-cover classification etc. A total of **88 participants** attended this workshop.

It's a non-technical event which consists of 4 rounds. Round 1 is a treasure hunt Round 2 is a building block. Based on these 2 rounds few teams were eliminated. Round 3 & 4 were conducted for selected 10 teams with fun activities like balloon burst and flip the bottle. A total of **30 teams** participated.

TECHNICAL NOTE

Offshore Structures

Offshore structures are specialized engineering constructions designed to operate in marine environments for various industrial, commercial, and research purposes. They are primarily used in oil and gas extraction, renewable energy production, marine research, and even as habitation or defense structures. These structures must withstand harsh oceanic conditions, including strong winds, powerful waves, corrosive saltwater, and potential seismic activity. Offshore platforms, drilling rigs, floating production storage and offloading (FPSO) units, wind farms, and undersea pipelines are common types of offshore structures. Depending on the water depth and operational requirements, they can be fixed, floating, or compliant structures, with each design tailored to optimize stability, durability, and efficiency.

The design and construction of offshore structures involve complex engineering principles, considering hydrodynamic forces, structural integrity, and environmental impact. Fixed structures, such as jacket platforms, are anchored to the seabed and used in shallow to moderate depths, while floating structures like semi-submersibles and tension-leg platforms operate in deeper waters. Recent advancements in offshore technology have led to the development of floating wind turbines and autonomous ocean monitoring stations, expanding their applications beyond traditional energy extraction. Additionally, offshore structures must comply with strict safety and environmental regulations to minimize ecological disruption and ensure sustainable operations. With the growing demand for renewable energy and marine resource exploration, offshore structures continue to evolve, integrating smart technology, automation, and eco-friendly materials to enhance efficiency and sustainability.

By
KUPPILI PRAMEELA
(23345A0101)

Drones in Construction

Drones, also known as Unmanned Aerial Vehicles (UAVs), are transforming the construction industry by improving efficiency, safety, and cost-effectiveness. These aerial devices are used for site surveying, mapping, and progress monitoring, significantly reducing the time and labor required for traditional methods. Equipped with high-resolution cameras, LiDAR sensors, and thermal imaging, drones can capture real-time data and generate 3D maps for precise planning and decision-making. Construction companies leverage drone technology to conduct pre-construction site analysis, measure earthwork volumes, and monitor material usage, ensuring that projects stay on schedule and within budget.

Beyond data collection, drones enhance worksite safety by inspecting hazardous or hard-to-reach areas, minimizing risks for workers. They assist in structural inspections, identifying cracks, leaks, or weaknesses in buildings and bridges without requiring manual labor in dangerous conditions. Drones also enable remote project management, allowing stakeholders to oversee construction progress from anywhere through aerial visuals and analytics. As AI-powered drones continue to evolve, their role in automation, predictive maintenance, and integration with Building Information Modeling (BIM) will further revolutionize construction practices, making them smarter, faster, and more sustainable.

By

KONCHADA BHARATH KUMAR

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