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

GMRIT Training Tomorrow's Engineers Today

# STEPCONE 2025

## TECHNICAL PAPER PRESENTATION

# TECHNICAL PAPER PRESENTATION - 2025

The STEPCONE platform aims to showcase empirical research outcomes across diverse engineering domains, emphasizing the identification of research gaps and advancements in emerging areas of engineering and technology. The platform also encourages the examination of current scientific contributions relevant to engineering research. Research communication, encompassing both novel perspectives on traditional domains and cutting-edge technologies, is highly encouraged.

We invite full papers in the prescribed format from enthusiastic student researchers. Submissions are accepted either as a single-author contribution or as a collaborative effort with a maximum of two authors.

We look forward to receiving innovative research contributions that contribute to the dialogue on engineering advancements and further enrich the STEPCONE platform with valuable insights.

## 1. GUIDELINES FOR PAPER PRESENTATION & SUBMISSION

### A. Submission Guidelines:

1. **Abstract Length:** Please submit an abstract of 100-150 words, providing a concise overview of your research paper.
2. **Submission Deadline:** The deadline for abstract submission is **January 11, 2025.**
3. **Intimation of acceptance: on or before, January 20 2024**

**Full Paper Submission:**

3. **Selected Candidates:** Those whose abstracts are shortlisted will be notified to submit the full paper.
4. **Full Paper Length:** The full paper should be between 2000-5000 words. IEEE format (Citation and Reference) should be submitted in hard copy to the organizers and the soft copy should be submitted at **********

Paper should be typed in “Times New Roman” font size “12” and for heading font size of “14” in bold.

Paper contents should be arranged in the following order but can be modified if discipline/nature of work demands:

− Title

− Abstract

− Keywords

− Introduction

− Materials & Methods

− Result and Discussion

− Conclusion

− References

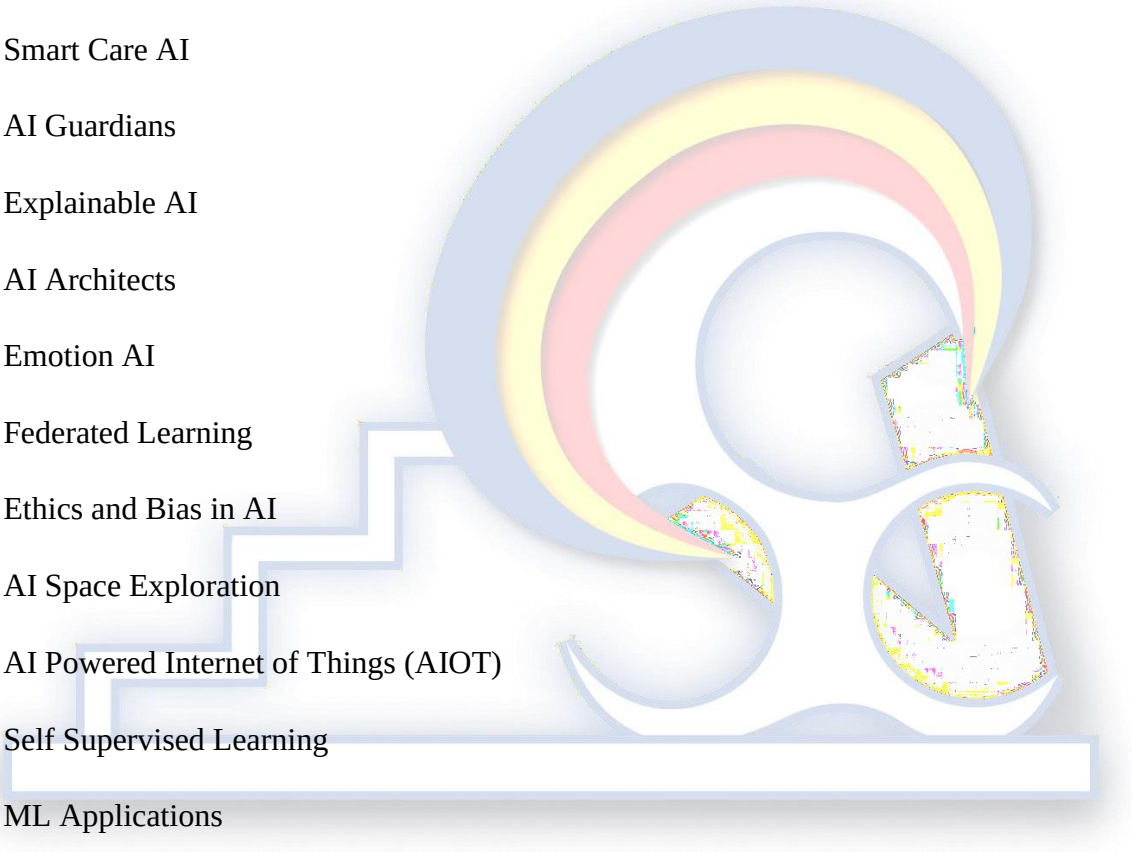
5. **Submission Deadline:** Full papers must be submitted by January 7, 2025**,** for consideration.
6. **Author Details:** Please include the following details in the order in your paper:
    - serial order for all authors
    - Current Year of Study
    - Branch
    - Institute Name and Address
    - E-Mail ID
    - Phone Number
7. **Corresponding Author:** One author should submit on behalf of the entire group and will be treated as the Corresponding Author.
8. **Presentation Duration:** Each participant should be prepared for a 10-minute presentation of their paper at the venue. (need to share the presentation with paper ID as file name before the 22nd JAN 2025)
9. **Schedule:** The presentation schedule will be communicated in the reply email after the abstract selection process.

We encourage you to participate actively in this event and look forward to receiving your abstracts. Should you have any queries, feel free to reach out to us at [studentcouncil.offical@gmail.com].

## 2. TECHNICAL PAPER PRESENTATION THEMES

### 2.1. Computer Science and Engineering, Information Technology, Artificial intelligence and machine learning, Artificial intelligence and Data Science.

1. The GenAI-LLM Nexus
2. Smart Care AI
3. AI Guardians
4. Explainable AI
5. AI Architects
6. Emotion AI
7. Federated Learning
8. Ethics and Bias in AI
9. AI Space Exploration
10. AI Powered Internet of Things (AIOT)
11. Self Supervised Learning
12. ML Applications
13. Data Science for Emerging Research
14. Hardware Models Using IOT
15. Data Analytics using IOT
16. AI for Engineering applications



## 2.2 Civil Engineering

1. Integration of AI and ML in Civil Engineering
2. 3D Printing in Building Construction
3. Big Data Analytics for Predictive Maintenance in Civil Engineering
4. IoT in Civil Engineering
5. Virtual Reality in Construction Planning
6. Sustainable Materials for Green Building Construction
7. Autonomous Vehicles and their Impact on Urban Infrastructure
8. Advanced Technologies to Enhance the Structural Resilience Against Earthquakes
9. Sustainable Structural Maintenance and Rehabilitation
10. Intelligent Transport Systems
11. Use of Nanomaterials in Civil Engineering
12. Soil Stabilization using sustainable materials
13. Sustainable Water Management Systems
14. Applications of Remote Sensing and GIS in Civil Engineering

## 2.3 Electronics and Communication Engineering

1. 5G and Beyond: The Future of Wireless Communication

2. Quantum Computing and its Applications in Communication

3. Underwater Wireless Communication: Challenges and Solutions

4. Li-Fi Technology: The Future of Data Transmission

5. Low-Power VLSI Design for IoT Devices

6. MEMS and Nano-electronics in Healthcare Applications

7. Deep Learning for Image and Video Processing

8. Speech Recognition Systems: Advances and Applications

9.Green Communication Networks: Challenges and Solutions

10. Solar-Powered Communication Systems for Remote Areas

11. Cryptography in Secure Communication Systems

12. Cyber Security in Embedded Systems

## 2.4 Electrical and Electronics Engineering

1. Renewable Energy Integration into Power Grids
2. Artificial Intelligence Applications in Power Systems
3. Emerging Trends in Smart Grids and Energy Management
4. Advanced Control Techniques for Power Electronics Converters
5. Cybersecurity in Smart Grid Systems: Challenges and Countermeasures
6. Power Quality Issues and Solutions in Electrical power Systems
7. Advanced Power Electronics for Renewable Energy Systems
8. Power System Stability and Control: Challenges and Solutions
9. Electric Vehicle-to-Grid Integration: Concepts and Challenges
10. Advanced Control Techniques for Microgrids and Islanded Systems
11. Fault Diagnosis and Fault-Tolerant Control in Power Systems
12. Energy Efficient motors
13. Control systems and its applications
14. IOT based home appliances

## 2.4 Mechanical Engineering

1. Green Technologies for a Sustainable Future
2. Digitalization and Industry 4.0
3. Additive Manufacturing through 3D Printing
4. Sustainable Business Practices in Modern Corporations
5. Digital Twins and Virtual Simulations
6. Mechanical Engineering Applications of AI & ML
7. Biomechanics: Improving Healthcare and Quality of Life
8. Nanotechnology and Smart Materials
9. Automation and Smart Systems
10. Sustainable Engineering Practices

17. Smart, Efficient & Sustainable HVAC Systems

13. Electric Vehicles – The future of automobiles

**Topics related to contemporary engineering fields are also considered**