G.Pulla Reddy Engineering College (Autonomous)
Kurnool, Andhra Pradesh

Accredited by NBA of AICTE and NAAC of UGC & Affiliated to JNTUA
Ananthapuramu, Andhra Pradesh, India

Report on TECHNOLOGICA 4.0 − One week hands-on short term training program on

"UAV Xplore: A Practical Drone Workshop"

Held during 4th–9th August, 2025

About the Workshop:

The Department of Electronics and Communication Engineering (ECE) and Computer Science and Engineering (AI & ML) in collaboration with the IEEE Sensors Council and IEEE IT Society, organized **TECHNOLEDGICA 4.0 – Phase 1**, hosted by the IEEE GPREC Student Branch. The program was conducted from **4th August 2025 to 8th August 2025** at **G. Pulla Reddy Engineering College, Kurnool**, with the inauguration held at Seminar Gallery-1 and the technical sessions carried out in the UAV Lab. A total of **50 students** (8 IEEE members and 42 non-IEEE members) along with **7 faculty members** participated in this intensive hands-on workshop.

The event was designed as a **one-week immersive training program** focusing on drone and UAV technologies. It aimed to bridge the gap between theoretical concepts and real-world applications while encouraging students to gain future-ready skills. By blending lectures, practical sessions, and live demonstrations, the program provided a holistic learning environment that empowered participants to innovate and apply engineering knowledge in meaningful ways.

The inaugural session set the tone for a week of innovation, technical brilliance, and collaboration. Esteemed faculty members inspired students to embrace drone technology with passion and responsibility. The UAV Lab, specifically equipped for drone experimentation, became the hub for the following sessions that blended classroom knowledge with hands-on engineering practice.

On **Day 1**, **Dr. Eswaramoorthy K.V., Assistant Professor at IIIT Kurnool**, introduced participants to the basics of drones, regulations, flying zones, and safe flying practices. Students gained a clear understanding of the components such as motors, propellers, ESCs, and power systems. The session emphasized that drone technology is not only about mechanics but also governed by ethics, laws, and precision.

Day 2 shifted from theory to practice with **Mr. Shiva Prakash** leading sessions on aerodynamics and hardware assembly. Students worked with real components—frames, wiring, control boards, and power units—while learning the principles of lift, thrust, and drag. The highlight of the day was assembling drones, which allowed participants to experience the excitement of building their own machines.

On **Day 3**, students explored flight planning, calibration, and mission layouts. Working in groups, they tested their drones for the first time in the lab. The buzz of propellers symbolized their progress from learners to innovators. The process of troubleshooting and fine-tuning flight operations offered a real engineering challenge, teaching resilience and teamwork.

Day 4 expanded the scope of learning to real-world applications of drone technology in areas such as agriculture, surveillance, rescue operations, traffic monitoring, and logistics. Each student was also given the opportunity to fly drones individually, executing basic maneuvers with confidence. This session reflected the transformation of students from beginners to drone pilots, sparking interest in careers related to aerospace and automation.

The workshop concluded on **Day 5** with a fully practical session where participants refined their drones, corrected earlier mistakes, experimented with stability, and explored advanced control modes. The lab became a space of creativity and exploration, where students demonstrated the knowledge and confidence gained throughout the week.

In conclusion, **TECHNOLEDGICA 4.0 – Phase 1** was more than just a workshop. It was a **transformative journey of innovation and applied learning**. Students not only acquired technical knowledge but also developed confidence, problem-solving skills, and teamwork spirit. The collaboration between departments, IEEE societies, and expert trainers made the program a memorable and successful initiative, setting a benchmark for practical technical education at GPREC.

FDP Poster

A One Week Hands on Short Term Training program
On
UAV Xplore: A practical Drone Workshop
(OFFLINE MODE)
04th -09th Aug, 2025

Organized by
Department of Electronics and Communication Engineering ,Emerging Technologies in Computer Science Association with IEEE GPREC STB-15721

G. Pulla Reddy Engineering College (Autonomous) Kurnool-518007 AndhraPradesh, India.

About the College

G. Pulla Reddy Engineering College is the brainchild of Late Sri G. Pulla Reddy, (popularly known as Sweets Pulla Reddy in A.P.) the renowned philanthropist and a great humanist. Established in 1984- 85, it is one of the earliest private engineering colleges in the state of united Andhra Pradesh. GPREC has been functioning as an autonomous institution since 2006. The College is being managed by G. Pulla Reddy Charities trust, Hyderabad. The trust was instituted by late Sri G. Pulla Reddy Garu in 1977 with the motto of rendering service to the society. The trust has established many educational institutions, hospitals, orphanages, respite homes and other social welfare organizations in various parts of united Andhra Pradesh. G. Narayanamma Institute of Technology & Science (GNITS) –Hyderabad, G. Pulla Reddy College of Pharmacy – Hyderabad, G. Pulla Reddy Dental College – Kurnool are some of the other institutions being managed by this trust.

About Department:

The Department of Electronics and Communication Engineering (ECE) focuses on core areas such as analog and digital electronics, communication systems, embedded systems, and VLSI design. It regularly conducts workshops, technical sessions, and training programs on emerging technologies like IoT, 5G, and signal processing, aiming to equip students with practical skills to meet industry demands.

The Department of Emerging Technologies in Computer Science offers programs in Computer Science and Business Systems (CSB), Data Science (CSD), and Artificial Intelligence and Machine Learning (CSM). The department organizes workshops, training sessions, and awareness programs to keep students updated on the latest advancements in computer science and to encourage innovative solutions to real-world problems.

About Drones :

Drones offer valuable learning opportunities for students across various subjects by enhancing STEM (Science, Technology, Engineering, and Mathematics) skills, promoting creativity, and fostering problem-solving abilities. In the classroom, drones can be used to teach core concepts in physics, geometry, and programming. They also encourage hands-on learning as students engage in designing, building, and experimenting with drone technology, making education more interactive and application-oriented.

Resource Persons:

1. **Dr. Eswaramoorthy KV**
   Assistant Professor(Grade-1), Department of Electronics and Communication Engineering IIITDM, Kurnool.
2. **Sri. Sadige Shivaprakash**
   Ignite Embedded system organization, Aeronautical engineer.
3. **Sri.Pathangi Eswanth ,M.Tech**
   Assistant Professor,
   Department of Civil Engineering,
   G. Pulla Reddy Engineering College(A), Kurnool.

Topics to be covered:

- What is Payload? Importance in drone performance.
- Types of Payloads: Cameras, Sensors, Sprayers, Delivery Modules.
- Effects of Payload on Flight Time and Stability.
- Calculating Total Take-off Weight (TTW).
- Thrust-to-Weight Ratio: Ideal values for safe flight.
- How to Choose Motors & Propellers Based on Payload.
- Battery Sizing for Different Payload Conditions.
- Introduction to eCalc or other online thrust calculators.
- Real Examples: Matching motors for mapping drones vs spraying drones.
- Tips to balance performance, efficiency, and flight time.
- Introduction to Mission Planner / QGround Control
- Hardware Setup and Firmware Installation
- Calibration: Accelerometer, Compass, ESC, Radio.
- Mission Planning: Waypoints, Auto Mode, RTL, Geofencing.

CHIEF PATRON:
Sri. P. Subba Reddy
Chairman, GPREC, Kurnool.

PATRON:
Dr. B. Sreenivasa Reddy,
Principal, GPREC, Kurnool.

CO-PATRONS:
1. Dr. K .Suresh Reddy
   Prof. & HOD of ECE, GPREC, Kurnool.
2. Dr. S. Nagaraja Rao
   Professor & Assoc. HoD of ECE dept. GPREC, Kurnool.
3. Dr. R .Praveen Sam
   Prof. & HOD of ECS, GPREC, Kurnool.
4. Dr. Y.Rama Mohan
   Assoc.Prof.&Assoc.HOD of ECS Dept.

ADVISORY COMMITTEE:
Dr. M. Madhusudhan Reddy
IEEE GPREC SB Counselor

CONVENERS:
1. Smt. W.Yasmeen,
   Asst . Professor, ECE Dept.
2. Dr. Abid Nayeemuddin,
   Assoc . Professor, ECS Dept .

CO-CONVENERS:
1. Smt. A Parvathi,
   Asst .Professor, ECE Dept .
2. Sri. M.Fayaz,
   Asst . Professor, ECS Dept .

Organizing Committee Members:
All Faculty of ECE and ECS Department

Registration fee:
- For IEEE Members- 400/-
- For Non IEEE Members- 500/-
- For Factuly – 700/-
- Limited seats only
- Certificate will be given to all active participants whose attendance & Test score is more than 80%

Last date for registration: 03rd Aug, 2025

Registration Link: UAV Workshop

Scan for Registration:

If any queries contact:
1. Kasi Viswanath –IV year ECE – Ph.No +91 8106612583
2. K. Jagadeewara Reddy-IV year ECS – Ph.No-+91 7207801067

Department of ECE, ECS
&
IEEE GPREC Student Branch
IEEE Sensors Council, IEEE IT Society
presents

TECHNOLEDGICA 4.0

~ Phase -1 Where innovation takes flight

One week hands-on short term training program
on
UAV Xplore: A Practical Drone Workshop

📅 4th August 2025 to 9th August 2025
📍 UAV Lab, ECS Depatment, GPREC.

Registration fee:
IEEE Members: 400/-
Non-IEEE members: 500/-
Faculty: 700/-

Register here

Dr.Eswaramoorthy KV,
Asst. Professor of ECE Dept., IIITDM, Kurnool.

Sadige Shiva Prakash.
Ignite Embeded Systems Pvt. Ltd. Hyderabad.

Pathangi Eswanth,
Asst. Professor of CE Dept., GPREC,Kurnool.

Convenors:
Smt. W. Yasmeen, Asst. Professor, ECE.
Dr. Abid Nayeemuddin, Assoc. Professor, ECS.
Co-Convenors:
Smt. A. Parvathi, Asst. Professor, ECE.
Sri. Md. Fayaz, Asst. Professor, ECS.

Day Wise Schedule

Date &Time	Topic	Resource Person
Day-1 04-08-2025 **9:00AM to 4:00PM**	Session on "Introduction to Drones and Safety Rules"	**DR. ESWARAMOORTHY KV** Assistant Professor of ECE Dept., IIITDM, Kurnool.
Day-2 05-08-2025 **9:00AM to 4:00PM**	Drone Mechanics and Assembly	**SADIGE SHIVA PRAKASH** Ignite Embeded Systems Pvt. Ltd. Hyderabad.
Day-3 06-08-2025 **9:00AM to 4:00PM**	Taking Flight: Mission Planning and Testing	**SADIGE SHIVA PRAKASH** Ignite Embeded Systems Pvt. Ltd. Hyderabad.
Day-4 07-08-2025 **9:00AM to 4:00PM**	Drones in Action: Applications and Pilot Training	**SADIGE SHIVA PRAKASH** Ignite Embeded Systems Pvt. Ltd. Hyderabad.
Day-5 11-08-2025 **9:00AM to 4:00PM**	Advanced Flying and Final Practice	**PATHANGI ESWANTH** Assistant Professor of CE Dept., GPREC, Kurnool.

Speakers-Details:

Day-1

Topic: Session on "Introduction to Drones and Safety Rules"

Date: 4th August,2025

Time: 9:00AM to4:00PM

Speaker Name: **DR. ESWARAMOORTHY KV**

Bio:

Dr. Eswaramoorthy KV sir currently serving as an **Assistant Professor (Grade I)** in the Department of Electronics and Communication Engineering , **IIITDM Kurnool**.

Dr. Eswaramoorthy sir holds a Ph.D. in Instrumentation Engineering from the prestigious **Indian Institute of Science, Bangalore**, with his research focused on **electrochemical sensors**. He also holds a Master's degree in **Power Electronics** from **VIT Vellore**, and a Bachelor's in **Electrical and Electronics Engineering** from Bannari Amman Institute of Technology.

His areas of expertise span a wide range of fields, including **electrochemical biosensors**, **biomedical instrumentation**, **industrial automation**, **power electronics**, and the **Internet of Things** for domains like smart cities, agriculture, and drone technologies.

He has an impressive record of **research publications** in reputed SCI and Scopus-indexed journals, many of which are rated in the **Q1 and Q2 quartiles**. His research collaborations are extensive, with institutions ranging from **AIIMS, DRDO, CSIR**, and **Ford India** to international universities across **Saudi Arabia, Turkey, the USA, and Europe**.He is also instrumental in developing infrastructure at IIITDM Kurnool, notably establishing the **Sensing and Instrumentation Laboratory**, a hub for innovation in sensor design, data acquisition, and signal processing.

With his commitment to impactful research, hands-on learning, and real-world problem solving, Dr. Varadharaj sir continues to inspire the academic community and drive technological advancement.

Day-2, 3, 4

Topic:

- o Drone Mechanics and Assembly

- o Taking Flight: Mission Planning and Testing

- o Drones in Action: Applications and Pilot Training

Date: 5thAugust,2025 – 7th August, 2025

Time: 9:00 AM to4:00PM

Speaker Name: **SADIGE SHIVA PRAKASH**

Bio: **Mr. Sadige Shiva Prakash,** is Founder and Chief Executive Officer (CEO) at Ignite

Embedded Systems Pvt. Ltd, Hyderabad. He is having 10+ years of industrial experience in the

field of Unmanned Aerial Vehicle (UAV).

Day-5

Topic: Advanced Flying and Final Practice

Date:8thAugust,2025

Time: 9:00AM to4:00PM

Speaker Name: **PATHANGI ESWANTH**

Bio:

Mr. Pathangi Eswanth is an **Assistant Professor** in the **Department of Civil Engineering** at **G. Pulla Reddy Engineering College, Kurnool, Andhra Pradesh**. He has been serving the institution since **2017**, contributing to the academic and professional development of students in the field of **Civil Engineering**.

With a strong academic background and an **M.E. qualification**, Mr. Eswanth brings both theoretical knowledge and practical insights into his teaching. His expertise lies in various domains of Civil Engineering, and he is committed to nurturing future engineers with the skills and knowledge required to meet industry standards.
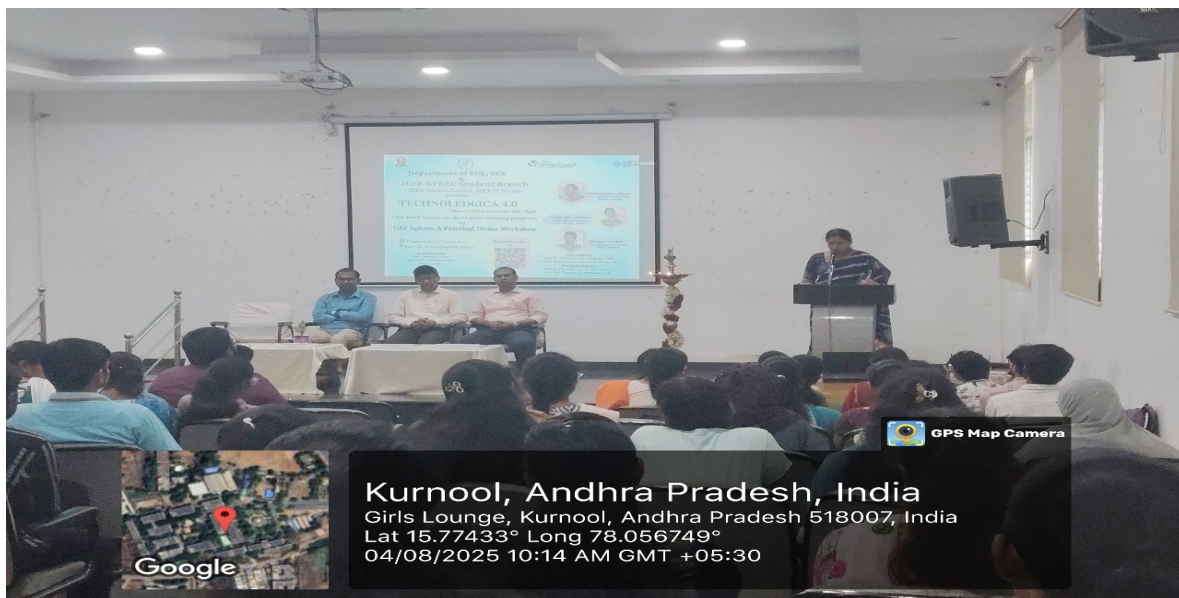
Dedicated to the growth of his students, he continues to engage in teaching, mentoring, and guiding them toward innovative practices in Civil Engineering.

DAY-1REPORT:

Date**: 04thAugust, 2025**

   Technoledgica 4.0 – Phase 1 began on 4th August 2025 with an introductory session by **Dr. Eswaramoorthy K.V., Assistant Professor at IIIT Kurnool**. Students were introduced to the fundamentals of drones, including motors, propellers, ESCs, and power systems. The session also highlighted regulations, safe flying practices, and legal flying zones, giving participants a strong conceptual foundation to connect classroom knowledge with real-world UAV applications.

Snap Shots during the session:

DAY-2REPORT:

Date: 05thAugust,2025

The second day, conducted by **Mr. Shiva Prakash**, shifted focus to the mechanics and assembly of drones. Students were taught the principles of aerodynamics, including lift, drag, and thrust, which form the basis of flight. The session moved from theory into practice, as students explored drone hardware such as frames, wiring, power units, and control boards. They participated in a hands-on assembling session, beginning to construct their own drones. This combination of science and craftsmanship sparked curiosity and inspired creativity among the participants.

Snap Shots during the session:

DAY-3REPORT:

Date:**06thAugust,2025**

On the third day, **Mr. Shiva Prakash** guided students into flight planning and testing. The session covered mission layouts, pre-flight checks, and calibration of sensors, giving students a deeper understanding of operational procedures. Working in teams, participants mapped flight paths and prepared their drones for test flights. The lab was filled with excitement as drones hovered for the first time, responding to programmed inputs. Troubleshooting and iteration became part of the process, marking the transformation of ideas into airborne reality.

Snap Shots during the session:

Kurnool, Andhra Pradesh, India
Q3g4+h9m, Kurnool, Andhra Pradesh 518007, India
Lat 15.774696° Long 78.0554°
06/08/2025 03:38 PM GMT +05:30

Kurnool, Andhra Pradesh, India
Narayanamma Girls Hostel, Ongole – Kurnool Main Rd,
Kurnool, Andhra Pradesh 518007, India
Lat 15.774622° Long 78.055191°
06/08/2025 11:44 AM GMT +05:30

DAY-4REPORT:

Date:07thAugust,2025

   The fourth day expanded into real-world applications of UAV technology. Mr. Shiva Prakash explained the role of drones in agriculture, surveillance, rescue operations, logistics, and traffic management, showing how UAVs are shaping industries. Students were then given individual flying sessions, where they controlled their drones and practiced basic maneuvers. The hands-on experience boosted their confidence as they transitioned from learners to drone pilots, with visible pride in their progress and achievements.

Snap Shots during the session:

Kurnool, Andhra Pradesh, India
Q3g4+7jq G Pulla Reddy Engineering College Playground, Kurnool, Andhra Pradesh
518007, India
Lat 15.775717° Long 78.057503°
07/08/2025 11:07 AM GMT +05:30

Kurnool, Andhra Pradesh, India
Q3g4+7jq G Pulla Reddy Engineering College Playground, Kurnool, Andhra Pradesh
518007, India
Lat 15.775719° Long 78.057434°
07/08/2025 11:03 AM GMT +05:30

DAY-5 REPORT:

Date:**11thAugust,2025**

The fifth and final day was led by Mr. Pathangi Eswanth, Assistant Professor at G. Pulla Reddy Engineering College. It was a high-energy, practice-oriented session where students refined their drone models, corrected errors from earlier trials, and worked on flight stability. Advanced control modes were introduced, and students were encouraged to experiment independently while strictly following safety protocols. The buzzing of drones filled the UAV Lab, symbolizing innovation, collaboration, and creativity. The week concluded with a sense of accomplishment, as Technoledgica 4.0 – Phase 1 successfully bridged theory and practice, preparing students with future-ready skills in UAV technology

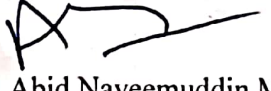**Snap Shots during the session:**

IEEE Sensors Council

Certificate of Participation

This is to certify that Mr./Ms./Dr. _____ has sucessfully completed One Week Hands-on Short Term Training Program(STTP) on "Unmanned Aerial Vehicle (UAV-Xplore)" Organized by Department of ECE and Department of ECS in collaboration with IEEE Sensors Council and IEEE IT Society held as a part of TECHNOLEDGICA 4.0 during 04ᵗʰ August, to 09ᵗʰ August, 2025.

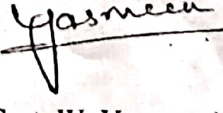| Dr. M. Madhusudhan Reddy	Dr. R. Praveen Sam	Dr. K. Suresh Reddy	Dr. K. Devaki Devi	Dr. B. Sreenivasa Reddy
Branch Counselor	HoD ECS,	HoD ECE,	Dean,	Principal,
IEEE GPRECSB	GPREC	GPREC	Student Affairs	GPREC

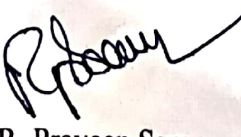**Signature of the Co Conveners:**

(Smt. A. Parvathi)

(Sri. Md. Fayaz)

Signature of the Conveners:

(Dr. Abid Nayeemuddin M)

(Smt. W. Yasmeen)

Dr. R. Praveen Sam
(HoD-CSM Dept.)

Dr. K. Suresh Reddy
(HoD-ECE Dept.)