



NEW HORIZON COLLEGE OF ENGINEERING

New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

DEPARTMENT OF MECHANICAL ENGINEERING and SKILL DEVELOPMENT CENTRE, NHCE

Presents

DRONE TECHNOLOGY AWARENESS WORKSHOP

EVENT NAME: DRONE TECHNOLOGY AWARENESS WORKSHOP

DATE: 10.08.2026 - 14.08.2026

TIME: 10:00 AM - 04:00 PM

VENUE: Tejas Seminar Hall

FACULTY COORDINATOR: Dr. Ananth Pai, Assistant Professor, NHCE

CONVENORS: Dr. D.V. Sreekanth [HoD-ME], Dr. R.J. Anandhi [Vice Principal - Academics] and Dr. Manjunatha [Principal]

INDUSTRY RESOURCE PARTNER: NeoSky India Pvt. Ltd, Bengaluru

TARGET AUDIENCE: Faculty of ME, ECE and EEE departments



**NEW HORIZON
COLLEGE OF ENGINEERING**
DEPARTMENT OF MECHANICAL ENGINEERING
& SKILL DEVELOPMENT CENTRE

DRONE TECHNOLOGY AWARENESS WORKSHOP

— Explore. Learn. Fly Responsibly. —



Date: 10.08.2026 to 14.08.2026
Venue: Tejas Seminar Hall
Timings: 10:00 AM - 04:00 PM
Audience: Faculty of ME, ECE and EEE departments

FACULTY COORDINATOR Dr. Ananth Pai Assistant Professor, NHCE	CONVENOR Dr. D.V. Sreekanth HoD - ME	INDUSTRY RESOURCE PARTNER  NEOSKY.
Dr. Manjunatha Principal	Dr. R. J. Anandhi Vice Principal (Academics)	

Learn the Technology. Understand the Rules. Fly Responsibly.

DAY-WISE PROGRAMME SCHEDULE



DAY 1	Introduction to Drone Technology and Regulatory Framework Morning Session (10:00 AM - 12:30 PM) - Evolution of Drone Technology - Introduction to UAVs/RPAS - Drone Classifications and Configurations - Applications of Drone Technology Afternoon Session (01:30 PM - 04:00 PM) - Drone Rules, 2021 - Digital Sky Platform - Drone Airspace Map - No Permission No Take-Off (NPNT) - Responsibilities of a Remote Pilot - Drone Safety and Ethical Operations
DAY 2	Principles of Flight and Drone Systems Morning Session (10:00 AM - 12:30 PM) - Basics of Aerodynamics - Four Forces of Flight - Flight Dynamics - Roll, Pitch and Yaw - Stability and Control Afternoon Session (01:30 PM - 04:00 PM) - Drone Architecture - Airframe Design - BLDC Motors - Propellers - Electronic Speed Controllers (ESC) - Flight Controller Fundamentals
DAY 3	Navigation, Communication and Power Systems Morning Session (10:00 AM - 12:30 PM) - Global Navigation Satellite System (GNSS) - GPS Fundamentals - IMU and Compass - Navigation Principles Afternoon Session (01:30 PM - 04:00 PM) - Radio Transmitter & Receiver - Telemetry Systems - Li-Po Batteries - Battery Management - Flight Endurance - Safety Practices
DAY 4	Aviation Meteorology and Flight Planning Morning Session (10:00 AM - 12:30 PM) - Introduction to Aviation Meteorology - Wind and Weather - Visibility - Cloud Classification - METAR Interpretation Afternoon Session (01:30 PM - 04:00 PM) - Flight Planning - Site Survey - Risk Assessment - Pre-flight Checklist - Emergency Procedures - Standard Operating Practices
DAY 5	Practical Demonstration Morning Session (10:00 AM - 12:30 PM) - Drone Component Identification - Understanding a DIY Drone Kit - Drone Assembly - Calibration Procedure - Mission Planning Afternoon Session (01:30 PM - 04:00 PM) - Interactive Question & Answer Session - Feedback

For any queries, contact  Dr. Ananth Pai, Assistant Professor, NHCE |  ananth.p.me_nhce@newhorizonindia.edu |  +91 8431875747

EVENT REPORT

Objectives

The five-day Drone Technology Awareness Workshop was organized to build foundational and practical competency in unmanned aerial systems among faculty of the ME, ECE and EEE departments. The programme covered drone fundamentals and India's regulatory framework, the physics and architecture of flight systems, navigation/communication/power subsystems, aviation meteorology and flight planning, and as a hands-on drone assembly and flight operation. It was designed to mirror the structure of a DGCA remote pilot training curriculum, equipping participants to understand, teach, and guide student projects in drone technology, while strengthening industry-academia collaboration through NeoSky India as the industry resource partner for the event as well as the establishment of the Drone Technology Centre at NHCE.

DAY 1 - Introduction to Drone Technology and Regulatory Framework

Date: 10.08.2026 | **Resource Person:** Dr. Ananth Pai (NHCE)

Inaugural Session:

The programme began with a formal welcome and the singing of the National Song, followed by the ceremonial lighting of the lamp. In his inaugural address, Dr. Manjunatha, Principal, NHCE, emphasized the growing importance of drone technology in India and its expanding role across agriculture, infrastructure, defence, disaster management and logistics and spoke of the transformative impact of Artificial Intelligence across engineering disciplines, urging faculty to stay abreast of these converging technologies to prepare students for an evolving industry landscape. He then formally declared the workshop open.

This was followed by an address from the Dr. D.V. Sreekanth HoD, Department of Mechanical Engineering, who spoke about the upcoming establishment of a Drone Technology Centre at NHCE under the Department of Mechanical Engineering this semester, along with a Robotics Lab planned for the following semester. He outlined the structure and content of the five-day programme and highlighted the value it would offer both students and faculty hands-on exposure to UAV systems, a foundation for research and project work in drone technology, and a stepping stone toward the department's broader robotics lab establishment initiatives.

Morning Session (10:00 AM - 12:30 PM):

The technical session opened with the foundational vocabulary of the field UAV, UAS, RPA and RPAS and traced the evolution of drone technology from WWI-era target drones through radio-controlled aircraft, GPS integration, and the modern consumer/AI-enabled drone boom. Participants were taken through the three main design categories (multirotor, fixed-wing, hybrid/VTOL) with their respective advantages, limitations and typical uses, followed by the DGCA weight-based classification (Nano, Micro, Small, Medium, Large) and sub-categories by mode of operation. The session closed with an overview of drone applications across

agriculture, survey and mapping, delivery, surveillance, environmental monitoring, and disaster management.

Afternoon Session (1:30 PM - 4:00 PM):

The focus shifted to the Drone Rules, 2021 who makes and enforces them (Ministry of Civil Aviation, DGCA, Digital Sky Platform, Air Force/airport authorities, state governments), the Remote Pilot Certificate (RPC) requirements and exemptions, penalties for violations, and age/competency requirements. Participants were introduced to the Digital Sky Platform and the No Permission No Take-Off (NPNT) principle, and the session concluded with the classification of Indian airspace into green, yellow and red zones and the operating rules for each. Participants were shown different flying zones in Bengaluru on the Digital Sky platform to understand the restrictions in different parts of Bengaluru.

Learning Outcomes: Participants were able to distinguish UAV/UAS/RPA/RPAS terminology, classify drones by design and weight, identify appropriate applications for their department, and explain the regulatory and licensing framework governing drone operations in India.

DAY 2 - Principles of Flight and Drone Systems

Date: 11.08.2026 | **Resource Persons:** Dr. Ananth Pai (NHCE)

Morning Session (10:00 AM – 12:30 PM):

The session covered the physics governing all flight the four forces (thrust, lift, drag, weight) and the condition for steady level flight. Bernoulli's Principle and Angle of Attack were explained as the mechanism behind lift generation, including how excessive AoA causes a stall. Participants then studied the three axes of control — roll, pitch and yaw — for both multirotor and fixed-wing configurations, and closed with Newton's three laws of motion as applied to hover, ascent/descent, and directional movement.

Afternoon Session (1:30 PM – 4:00 PM):

The session moved to drone architecture: frame and rotor configurations (tricopter, quadcopter, hexacopter, octocopter, coaxial multirotor) and frame materials; BLDC motors and propeller design, including KV rating and torque trade-offs; the Electronic Speed Controller (ESC) and its role converting DC battery power to the 3-phase AC that drives each motor; and Flight Controller fundamentals, covering the gyroscope, accelerometer, magnetometer and barometer that feed it. The full control workflow: transmitter → receiver → flight controller → ESC → motors was mapped out, followed by a comparison of manual (Acro, Stabilize) versus assisted (Altitude Hold, Position Hold, RTH, Waypoint) flight modes in Mission Planner.

Learning Outcomes: Participants were able to explain the four forces of flight and the aerodynamic basis of lift and stall, describe the function of each major drone subsystem (frame, motor, ESC, flight controller), and distinguish manual from assisted flight modes.

DAY 3 - Practical Demonstration: Drone Assembly and Flight

Date: 12.08.2026 | **Resource Persons:** Prof. Rajesh A. (NHCE), Prof. Hanamant Y. (NHCE) and NeoSky India

This was the hands-on capstone of the programme, conducted in place of a lecture session. Participants worked in groups to identify drone components. Faculty members gained hands-on exposure to UAV assembly, avionics, sensor calibration and flight operations using the in-house aluminium-frame Model Remotely Piloted Aircraft System (RPAS). They worked directly with BLDC motors, CW/CCW propellers, ESCs, the flight controller, GPS, compass, accelerometer, gyroscope, radio receiver and Li-Po battery, followed by Mission Planner-based calibration, mission planning and pre-flight checks culminating in the successful flight of the assembled Model RPAS at the NHCE basketball court. The hands-on experience also strengthened faculty's technical expertise and operational readiness for the Drone Technology Centre.

Learning Outcomes: Participants gained direct, hands-on familiarity with UAV avionics, sensor calibration and Mission Planner-based flight operation translating the theoretical grounding from Days 1 and 2 into practical piloting competency and readiness for the Drone Technology Centre establishment.

DAY 4 - Navigation, Communication and Power Systems

Date: 13.08.2026 | **Resource Persons:** Prof. Raghu Tilak Reddy M

Morning Session (10:00 AM – 12:30 PM):

The session introduced GNSS as the umbrella term for satellite positioning constellations GPS, GLONASS, Galileo and India's own IRNSS/NavIC and explained how a GPS fix is calculated from a minimum of four satellites. Participants then studied the IMU (gyroscope and accelerometer), compass/magnetometer, and barometer as the sensors that keep a drone stable when GPS is degraded, and closed with a summary of navigation tools and failsafe protocols (RTH, hover, auto-land) triggered on signal loss.

Afternoon Session (1:30 PM – 4:00 PM):

The session covered the radio transmitter/receiver link (2.4 GHz control, 5.8 GHz FPV video), followed by RT (radiotelephony), the phonetic alphabet and standard aviation communication technique (clarity, brevity, standard words, readback) used with ATC. The session concluded with telemetry systems and the Ground Control Station, covering uplink/downlink data flow and common GCS software (Mission Planner, DJI Ground Station Pro, QGroundControl), and battery/power management fundamentals for sustained flight endurance.

Learning Outcomes: Participants were able to explain how GNSS and onboard sensors together maintain positioning and stability, describe the separation of control/telemetry/video frequency bands, and use standard radiotelephony technique for pilot-ATC communication.

DAY 5 - Aviation Meteorology and Flight Planning

Date: 14.08.2026 | **Resource Persons:** Dr. Srinath M K (NHCE)

Morning Session (10:00 AM – 12:30 PM):

The session distinguished weather, season and climate, and mapped the five layers of the atmosphere, noting that drone flight occurs almost entirely within the lower troposphere. Participants studied the elements of weather and VMC minima for uncontrolled airspace, a detailed breakdown of how each weather condition (wind, rain, humidity, fog, temperature extremes, hail, dust, icing) affects specific drone components, cloud classification by altitude, and the specific hazard posed by Cumulonimbus clouds.

Afternoon Session (1:30 PM – 4:00 PM):

The session covered METAR interpretation with worked examples, DGCA METAR/visibility/wind guidelines for drone operations, TAF forecasts and weather-planning tools/apps, the five-part pre-flight planning checklist (mission planning, weather assessment, drone/equipment check, pilot/crew readiness, safety and contingency), and emergency procedures for low battery, lost link, fly-away, airspace intrusion, bad weather, and payload/motor failure.

The workshop concluded with a recap of the week's learning across regulatory, technical, and practical drone competencies, and closing remarks acknowledging NEOSKY's partnership in delivering the programme.

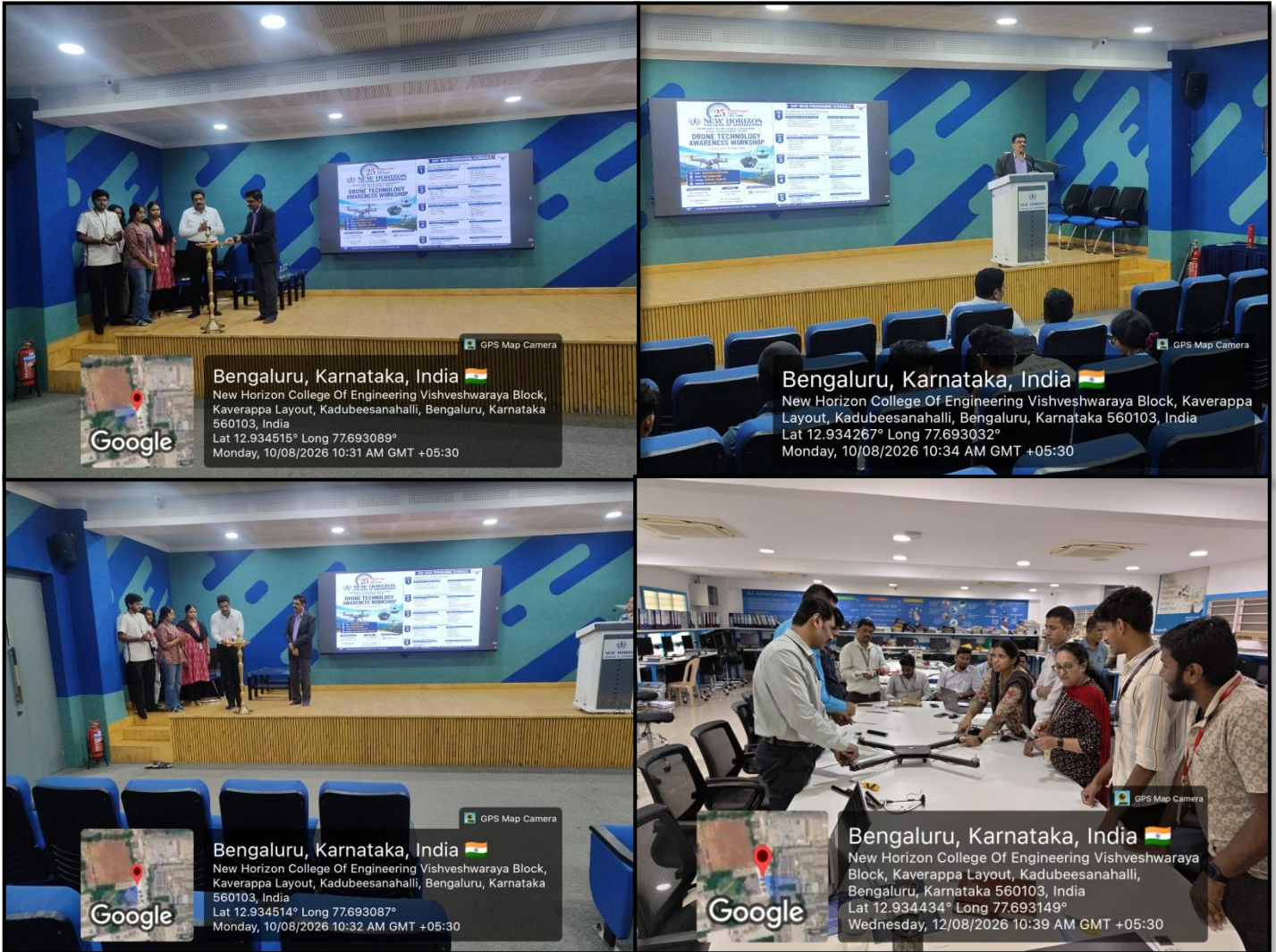
Learning Outcomes: Participants were able to interpret METAR/TAF reports, apply VMC minima and DGCA weather guidelines to go/no-go decisions, execute a structured pre-flight checklist, and respond correctly to in-flight emergencies.

Conclusions

- The five-day Drone Technology Awareness Workshop successfully built both theoretical and practical competency in unmanned aerial systems among faculty of the ME, ECE and EEE departments at NHCE.
- Participants gained a working understanding of drone classification, India's regulatory framework (Drone Rules 2021, Digital Sky, NPNT, RPC), and the applications of UAV technology across sectors.
- The physics and architecture sessions equipped faculty to explain the aerodynamic principles, motor/ESC/flight-controller systems, and control logic underlying modern drones.
- The hands-on Day 3 session involved assembling, calibrating and flying the in-house Model RPAS and translated classroom concepts into direct operational experience and strengthened faculty readiness for the upcoming Drone Technology Centre.
- The navigation, communication, power, meteorology and flight-planning sessions gave participants the tools to assess flight-readiness, interpret weather reports, and respond to in-flight emergencies in line with DGCA practice.
- The programme reinforced industry-academia collaboration through NEOSKY's involvement as resource partner across all five days.

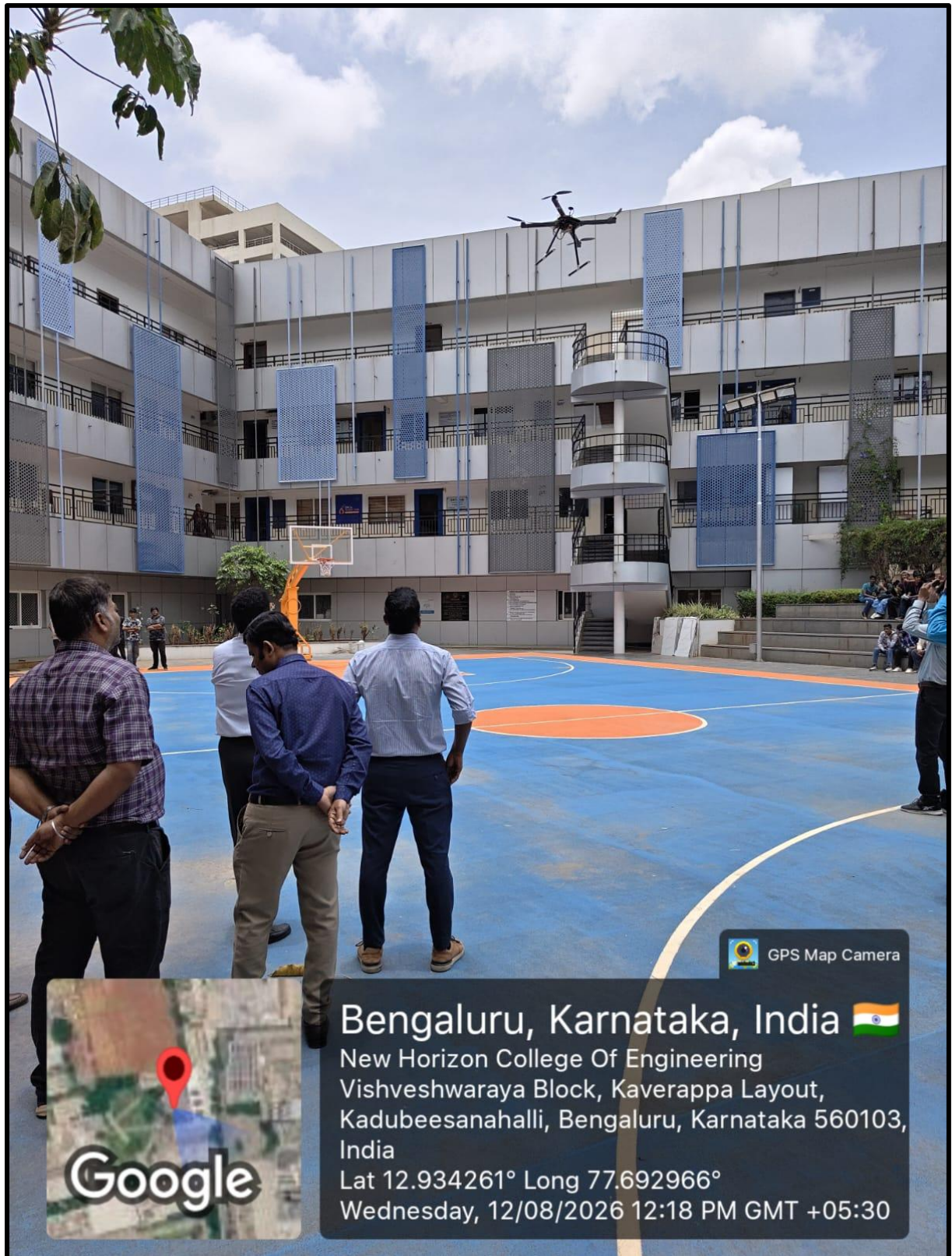
- The workshop laid the groundwork for the department's broader roadmap - the Drone Technology Centre (this semester) and is expected to feed directly into student project work, research initiatives, and future skill-development programmes at NHCE.

GLIMPSES OF THE EVENT









Drone Technology Awareness Workshop Feedback Form

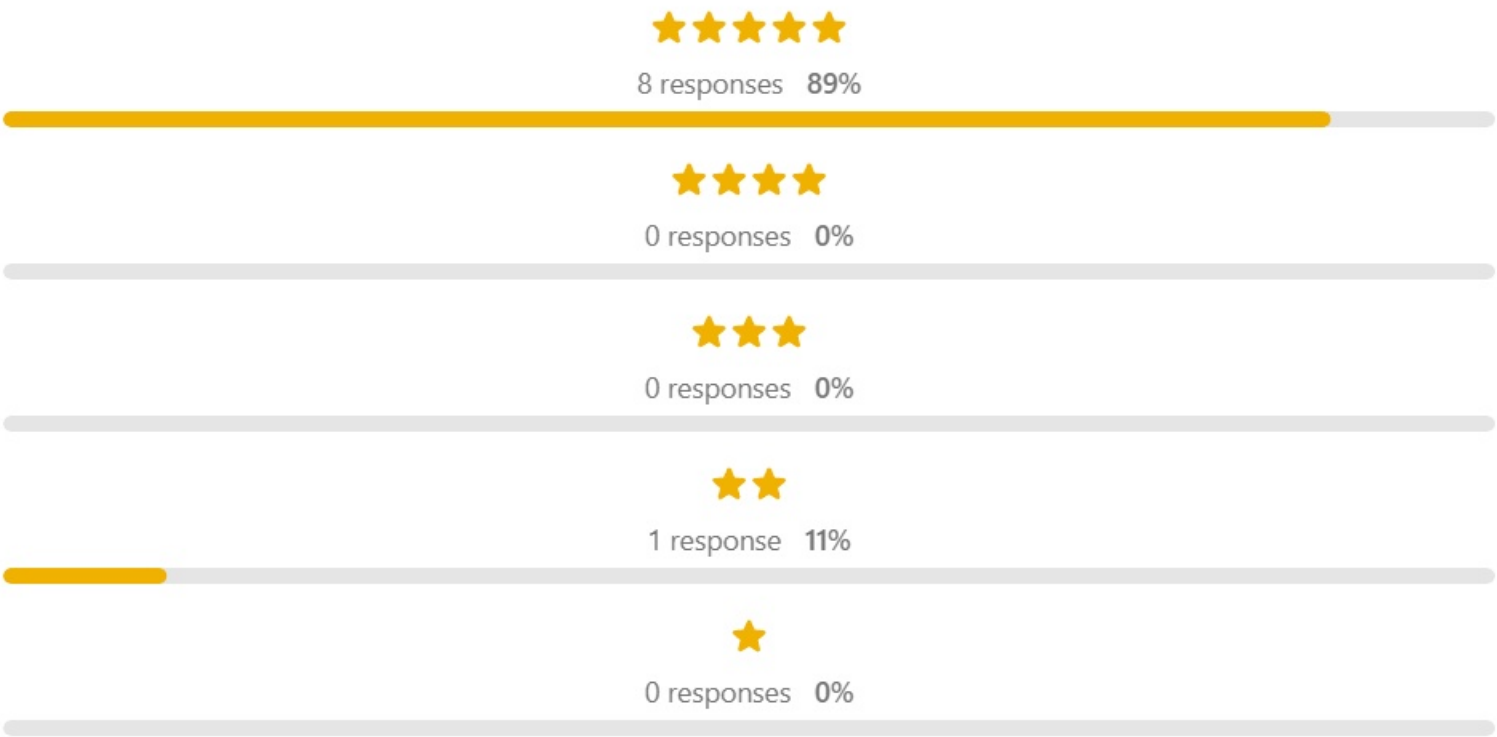
9 people responded

Powered by Youform

☆ How would you rate the workshop overall?

Average: 4.7

9 out of 9 people answered this question





Please rate the following aspects of the workshop:

9 out of 9 people answered this question

	1	2	3	4	5
Content clarity	11% (1 response)	0% (0 responses)	0% (0 responses)	22% (2 responses)	67% (6 responses)
Instructor facilitation	11% (1 response)	0% (0 responses)	0% (0 responses)	11% (1 response)	78% (7 responses)
Hands-on activities	11% (1 response)	0% (0 responses)	0% (0 responses)	11% (1 response)	78% (7 responses)
Pace	11% (1 response)	0% (0 responses)	0% (0 responses)	22% (2 responses)	67% (6 responses)
Venue/technical setup	11% (1 response)	0% (0 responses)	0% (0 responses)	22% (2 responses)	67% (6 responses)



Would you recommend this workshop to others?

9 out of 9 people answered this question

Yes

9 responses • 100%

No

0 responses • 0%

Not sure

0 responses • 0%

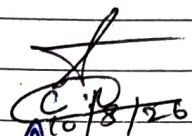
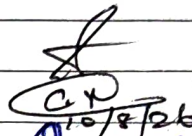
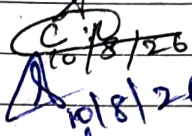
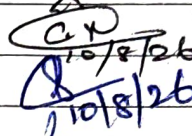
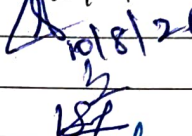
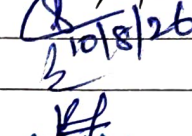
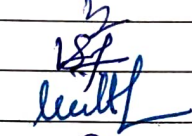
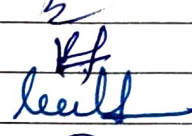
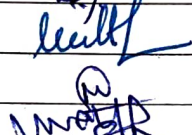
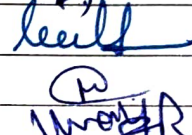
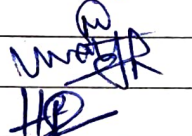
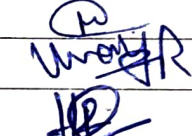
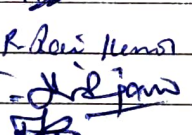
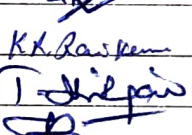
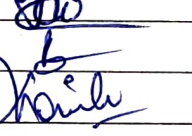
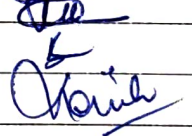
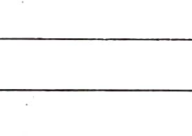
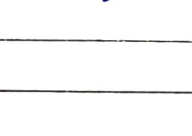
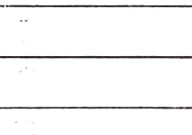
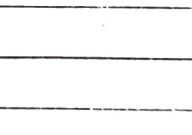
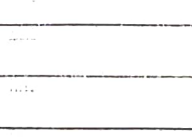
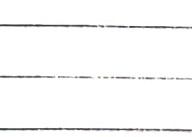
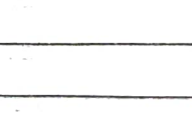


NEW HORIZON COLLEGE OF ENGINEERING

Department of Mechanical Engineering
Drone Technology Awareness Workshop

Timings: 10:00AM to 04:00PM

Date: 10-08-2026

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1	DY-SHINAPPA	ME		
2	C. RAMESH	ME		
3	Dr. Sridhar	ME		
4	Hanumanth	ME		
5	Venkat Rao	ME		
6	Ganesh K	ME		
7	Mohan Kumar	ME		
8	Vinay K	ECE		
9	Dr. Hemant Raje	ME		
10	RAJ KUMAR K	ME		
11	Purirajan T	ECE		
12	Kenchappa B	ME		
13	Smitha B-S	ME		
14	Dr. Manke Supta	ECE		
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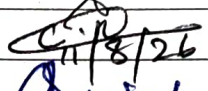
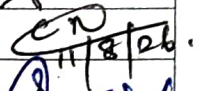
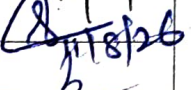
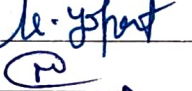
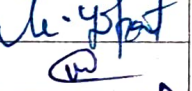
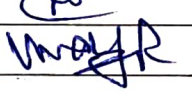
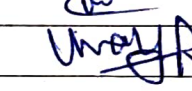
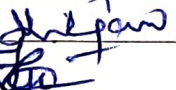
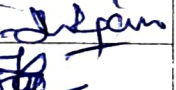
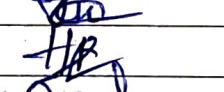
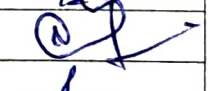
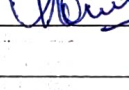
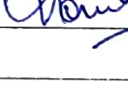
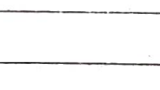
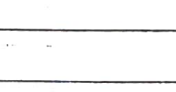
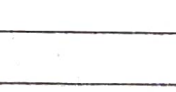
NEW HORIZON COLLEGE OF ENGINEERING

Department of Mechanical Engineering

Drone Technology Awareness Workshop

Timings: 10:00AM to 04:00PM

Date: 11-08-2026

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1	Dr. SHIVAPRAKASH	ME		
2	C. RAMESWART	ME		
3	Mr. Suresh A	ME		
4	Manamala	ME		
5	Venkat Rao. R	ME		
6	Ganthu R	ME		
7	Dr. K. GOPAL	ME		
8	Mohand Kumar	ME		
9	Vinay R	ECE		
10	RAVI KUMAR KR	ME		
11	Purirajan. T	ECE		
12	Kenchappa B.	ME		
13	Dr. Hemant Raju	ME		
14	Dr. Veeresh. G	ME		
15	Smitha B S	ME		
16	Dr. Manika Gupta	ECE		
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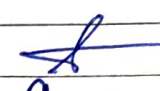
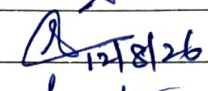
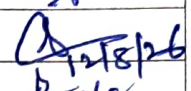
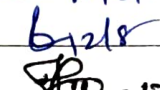
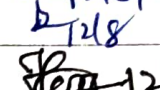
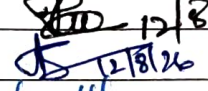
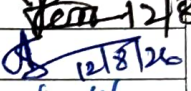
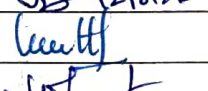
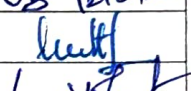
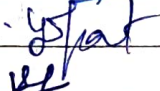
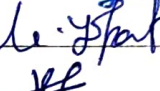
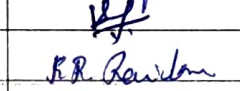
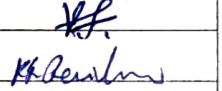
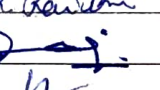
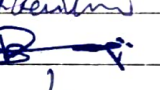
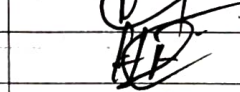
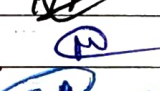
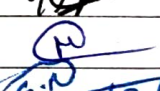
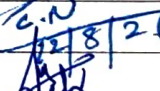
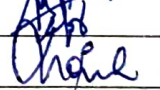
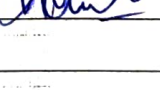
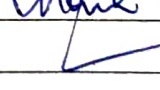
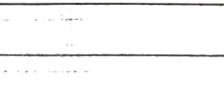
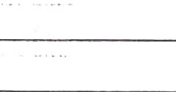
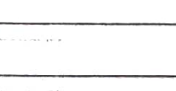
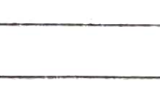
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NEW HORIZON COLLEGE OF ENGINEERING

Department of Mechanical Engineering
Drone Technology Awareness Workshop

Timings: 10:00AM to 04:00PM

Date: 12-08-2026

SL. NO	FACULTY NAME	BRANCH	SIGNATURE	
1	Dr. SHIVAPPA RAO	ME		
2	Dr. Sudeepa S.A	ME		
3	Smitha B.S	ME		
4	Kienchappa B.	ME		
5	PAJESH.A	ME		
6	Gowtham Raj P	ME		
7	Dr. K. Gopae	ME		
8	Venkatesha.RN	ME		
9	K.R. Ravi Kumar	ME		
10	Kantha Raj V	ME		
11	Manamasthi Y	ME		
12	Dr. Veeresha G	ME		
13	Dr. Haranath Raju	ME		
14	Mohankumar C	ME		
15	C. RAMESWARI	ME		
16	Dr. D.V. Sreekanth	ME		
17	Dr. Manika Gupta	ECE		
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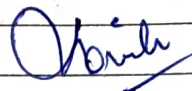
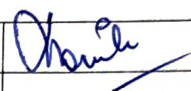
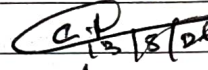
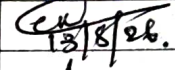
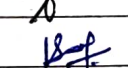
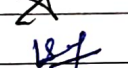
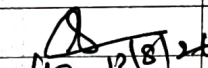
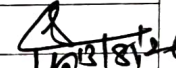
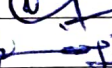
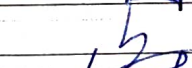
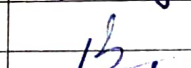
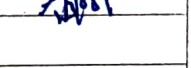
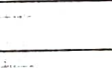
NEW HORIZON COLLEGE OF ENGINEERING

Department of Mechanical Engineering

Drone Technology Awareness Workshop

Timings: 10:00AM to 04:00PM

Date: 13-08-2026

SL. NO	FACULTY NAME	BRANCH	SIGNATURE	
1	Dr. Manke Gupta	ECE		
2	RAVI KUMAR K.R.	ME	K. R. Ravi Kumar	K. R. Ravi Kumar
3	Kenchappa B.	ME		
4	Gowtham Raju	ME		
5	C. RAMESWAR	ME		
6	Smitha B-S	ME		
7	Dr. SHIVAPRABHAS	ME		
8	Venkatesh . RN	ME		
9	Ravi Kumar K.R	ME		
10	Kenchappa B	ME		
11	Dr. Sudaeshan A	ME		
12	Dr. Hemant Raju	ME		
13	Dr. Veeresh C	ME		
14	Kanthe Raju	ME		
15	Manam	ME		
16	Dr. K. Gopal	ME		
17	Dr. D.V. Sreekanth	ME		
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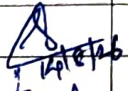
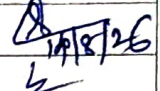
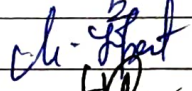
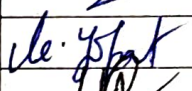
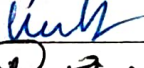
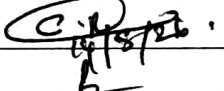
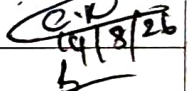
NEW HORIZON COLLEGE OF ENGINEERING

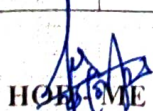
Department of Mechanical Engineering

Drone Technology Awareness Workshop

Timings: 10:00AM to 04:00PM

Date: 14-08-2026

SL. NO	FACULTY NAME	BRANCH	SIGNATURE	
1	Mohan Kumar GR	ME		
2	Mr. Sridharan P.R	ME		
3	Manamant.	ME		
4	Dr. K. Koppa	ME		
5	Dr. Hemanth Raju	ME		
6	Venkatesha. RV	ME		
7	Yanthu Raja	ME		
8	C. RAMESWAR	ME		
9	Smitha. B.S	ME		
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