



Department of Mechanical Engineering

Report Summary

Workshop : Three Day on-campus skill development programs (Hands-on Workshop)
Name : on “Industrial drone making and piloting.”
Association : MITS-ISTE Student chapter
with
Date : 19-21, January 2023
Department : Mechanical Engineering
Venue : Seminar Hall-B
Convenor & : Dr. M. Lakshmana Rao
Coordinator : Dr. Manish Sharma
No. of : 58
Participant

Day-1 (19.01.2023)

10.30-11.30 AM

The session started at 10.30 AM. Dr. Manish Sharma, Assistant Professor, ME (Coordinator), initiated the inaugural session and welcomed the dignitaries and the participants to the Three Day on-campus skill development programs (Hands-on Workshop) on “Industrial drone making and piloting.” He discussed the objectives of the workshop, the workshop schedule, and the main content of the workshop for these three days. Dr. M. Lakshmana Rao, convenor, addressed the importance of the drone in the present context and discussed how the drone is beneficial in different applications. Dr. Eswar Sunkara, Chief Scientific Officer, MITS, has given an insight into drone research and how MITS can contribute to this field. He also stressed the future job opportunities in the field of drone technology. Dr. C. Yuvaraj, Principal sir, addressed the positive and negative usage of drone technology and focused on the positive usage. Dr. Shanmukhasundaram V. R, an organizing committee member, introduced the resource person to the audience. The Chief Guest & Resource Person for the Skill Development Program was Mr. Gopi Raja, Founder & CEO of Fopple Drone Tech Pvt. Ltd., Vijayawada, INDIA. The resource dignitary addressed the importance of drones and how you can be passionate about drones and start-ups.

11.30-12.00 PM High Tea Break

12.00-1.00 PM (1st session)

The first session is commenced and taken by the resource person (Mr. Gopi Raja). In this session, drones and their types, working, and main components are discussed. Also, the resource person addressed the rules and regulations imposed by the DGCA, one of the GOI departments. According to this, before flying the drone, one has to be ensured about the green and red zones of the flight. This information is available on the DGCA website.

1.00PM-2.00PM Lunch Break



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2.00-5.00 PM (2nd session)

In this session, the design of the drone is discussed, and the main focus was on the selection of the design of the drone based on the particular application. The drone design is classified basically into three types. 1) Ok 2) Good 3) Excellent. According to this, if one selects the ok type of design, then drone weight and payload weight would be 70% and 30%, respectively. In the good type of design, the drone and payload weight will be 50% and 50%, respectively. However, both weights would be 70% and 30% in the excellent design, respectively. Once the total weight is obtained, depending on the drone type, the number of batteries and their capacity are decided. Similarly, thrust requirements can be selected.

Day 2(20.01.2023)

10.00-1.00 PM (1st session)

This session started with the recapitulation of the drone design, and some related queries were discussed. In this session, the participants learned the selection of the various parts based on the specification. The resource person also discussed how to read and judge the specifications and where to find good-quality parts. Additionally, different simulation software used in drone analysis were discussed.

1.00-2.00PM Lunch Break

2.00-5.00PM (2nd session)

In this session, a demo is given on how to assemble and disassemble the various parts of the drone. Afterward, the participants were divided into six groups. The drone components were given to each group, asking them to assemble them. Each participant actively showed interest in this task, and with the help of the supporting staff, drones were assembled. The battery connection got ready to make them ready to fly.

Day 3 (21.01.2023)

10.00-1.00 PM (1st session)

This session was dedicated to piloting the drone. The participants learned that, like the design, piloting the drone is a very important skill. In this session, the resource person taught the pitch forward, pitch back, roll right, roll left, and throttling of the drone. The participant got practiced these operations several times, as without the experience and practice, the drone might hit any solid object. Once the participants got confidence, their assembled drones were tested in the open area. In this competition, out of six, five drones completed their flight successfully. One hit to the wall due to a loose connection is the learning that all parts must be tightened before flying the drone.

1.00-2.00PM Lunch Break

2.00-3.30PM (2nd session)

In this session, a demonstration of an agriculture spray drone was given. This drone was brought by the resource person. The demonstration was held in the wallyball ground of the college. The water was filled with spray liquid, and the drone sprinkled the water on the trees and crowd. It almost covered 300m in height and 500 m distance around the ground. With this demonstration, the participant learned the working and piloting of the agriculture spray drone.



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3.30-5.00PM (3rd Session)

Valedictory Function

It started at 3.30 PM with the vote of the thank by Dr. Manish Sharma. He told the outcome of this program to the dignitaries on the dais and off the dais. Then, the HoD sir discussed the glimpse of three days and the importance of the drone. The CSO, sir, and Dr. Tulsiram Naidu, Associate dean, compared the drone application with past and present use. Principal sir motivated the participants to complete their projects and internship based on the drone application and get selected for the drone-based industry. In the end, an MOU was signed with the Fopple Drone Tech Pvt. Ltd to use the facilities available with the company and project and internship opportunities. The dignitaries felicitated the resource person and his supporting staff.

Outcome of the Skill Development Program



Assembling the components of the drone



Flying of drone

Workshop Photos

<p>Organising Committee members</p> <p>Dr. Shanmugasundaram V. S. Dr. Rajeswarthi J. Dr. Muthu Lakshminarayanan</p>	<p>Chief Patron Dr. M. Vijaya Bhaskar Choudary Secretary & Conspicuous</p>	<p>Institute Sponsored</p>
	<p>Patron Dr. K. Venkatesh Babu</p>	<p>Chief coordinator Dr. C. Yuvraj</p>
	<p>Chair Dr. S. Sankar Chief Scientific Officer</p>	<p>In Association With MITS- ISTE Chapter</p> <p>Department of Mechanics of Engineering</p> <p>MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE (UGC-AUTONOMOUS INSTITUTION)</p> <p>www.mits.ac.in</p>
	<p>Convener Dr. M. Lakshminarayana Rao Professor & Head</p>	
	<p>Co-ordinators</p> <ul style="list-style-type: none"> Dr. Mahesh Choudhary Dr. K. V. Rajagopal Dr. S. Pothu Raju Dr. Anantha Kumar S. Dr. Suresh Kumar 	
	<p>Address for Communication Dr. Manish Sharma @manishsharma@mits.ac.in</p>	





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