# Center of Excellence
## Drone Technology

BERRY AVIONICS
Unmanned. Unbound. Unparalleled

## ABOUT WORLD TRADE CENTER PUNE:

World Trade Center Pune (WTC Pune), an affiliate of World Trade Centers Association (WTCA) spread over 330 cities cities in 130 countries. WTC Pune is a definitive address for international businesses in India. With an unparalleled network reach, we are a global facilitator that offer businesses a strategic mix of opportunities to grow. Our objective is to serve as a major catalyst for local trade and business development at a global level. We achieve this by cultivating a pipeline of trade-ready firms in India and also maximize Foreign Direct Investment opportunities by providing companies, exploring opportunities in the region, with a multitude of value-added services to help them make strategic and better informed decisions.

## ABOUT WORLD TRADE CENTER PUNE ACADEMY:

The Education Arm of World Trade Center Pune is established with the aim to provide high quality education of international standards throughout life. We at WTC PUNE focus to provide breakthrough opportunities to passionate students in emerging industries. We present students and professionals with educational opportunities to expand their expertise and skills related to trade and commerce. We also conduct seminars, interactive sessions, workshops and certification courses in order to bridge the gap between knowledge and skills.

## ABOUT BERRY AVIONICS:

Berry Avionics is a Pune-based drone manufacturing and training company that specializes in developing mapping drones for various industries, including oil and gas, construction, mining, and utilities. Our mapping drones are designed to help industries reduce costs and save time by providing accurate, efficient, and safe data collection and analysis.

In addition to our drone manufacturing expertise, we are also passionate about STEM education and offer training programs for students interested in robotics and drones. Our STEM training programs are designed to inspire the next generation of engineers and technologists and equip them with the skills and knowledge they need to succeed in the 21st century.

WORLD TRADE CENTER PUNE

BERRY AVIONICS

# Concept of a Center of Excellence in drone technology

The aim of a CoE in drone technology is to foster innovation and advancement in the field of drones by bringing together experts, researchers, and students to collaborate on cutting-edge research and development projects.

The CoE would provide a platform for industry-academia partnerships, enabling the university to work closely with drone manufacturers and users to identify challenges and opportunities in the industry and develop solutions that address real-world needs.

**Research & Development**

**Training & Education**

**Testing & Certification**

**Industry Collabration**

## Research and Development

A CoE would be responsible for conducting research and development in drone technology. This would involve identifying and studying emerging trends in drone technology, exploring new applications for drones, and developing new drone technologies and solutions.

## Training and Education

A CoE would provide training and education programs for students, researchers, and professionals interested in drone technology. This would include courses on drone design, development, operation, and maintenance, as well as specialized training programs for industry professionals.

## Testing and Certification

A CoE would also be responsible for testing and certifying drones and related technologies. This would ensure that drones meet safety and quality standards and are suitable for use in a variety of applications.

## Industry Collaboration

A CoE would collaborate with industry partners to identify and address challenges in the drone industry. This would involve working closely with drone manufacturers, users, and other stakeholders to develop solutions that address real-world needs and opportunities.

Overall, a CoE in drone technology would play a crucial role in driving innovation and growth in the drone industry. By bringing together experts, researchers, and industry partners, the CoE would create a vibrant ecosystem of innovation and collaboration that would help advance drone technology and its applications in a variety of industries

# Research Plan for CoE in Drone Technology

Objectives that the CoE will focus on
Examples of research questions:

- What are the best practices for drone design and development?
- What are the emerging trends in drone technology and how can they be applied to various industries?
- How can drones be used to improve safety and efficiency in various industries?
- How can drones be used for environmental monitoring and conservation efforts?
- How can drones be used to enhance disaster response and recovery efforts?

## Methodologies and techniques that will be used to address the research questions and objectives

Examples of research methodologies and techniques:

- Experimental research: Conducting controlled experiments to test the performance and capabilities of drones in various scenarios and conditions
- Case studies: Analyzing case studies of successful drone applications in various industries to identify best practices and lessons learned
- Field studies: Conducting field studies of drones in various environments and industries to identify real-world challenges and opportunities
- Surveys and interviews: Collecting data from stakeholders in various industries to understand their needs and requirements for drone applications
- Data analysis: Analyzing large datasets generated by drones and other sensors to identify patterns and trends

# Infrastructure and facilities required to establish the CoE

Infrastructure and facilities that will be required to establish the CoE

**Drone Testing and Development Lab:** The lab will be equipped with specialized equipment for testing and developing drones, such as a wind tunnel, thermal chamber, and vibration testing equipment.

**Control Room:** The control room will be equipped with advanced technology for monitoring and controlling drones during flight tests, such as high-resolution monitors, real-time data analysis software, and communication systems.

**Simulation Lab:** The simulation lab will be equipped with advanced software for simulating various scenarios and conditions for drone applications, such as emergency response, disaster management, and surveillance.

**Workshop:** The workshop will be equipped with specialized tools and equipment for drone maintenance and repair, such as 3D printers, soldering stations, and hand tools.

**Training Rooms:** The training rooms will be equipped with audiovisual equipment and software for conducting drone training programs, such as classroom lectures, hands-on exercises, and flight simulations.

**Drone Fleet:** The CoE will require a fleet of drones for testing, development, and training activities. The fleet will include various types of drones for different applications, such as fixed-wing drones, multirotor drones, and hybrid drones.

**Safety Equipment:** The CoE will require various safety equipment for drone testing and development, such as safety nets, fire extinguishers, and first-aid kits.

# Human Resource

The above facilities and infrastructure, the CoE will also require a team of highly skilled and experienced professionals, such as researchers, engineers, technicians, and trainers, to support its activities. The team will be responsible for conducting research, developing new technologies, testing and evaluating drones, conducting training programs, and providing technical support and consultancy services to various industries.

# Impact and benefits of establishing CoE in drone technology

**Industry:** The CoE can help industries, such as oil and gas, construction, mining, and utilities, to adopt drone technology for various applications, such as mapping, surveying, inspection, and monitoring. This can lead to increased efficiency, accuracy, and safety in their operations, as well as cost savings and reduced environmental impact.

**Education:** The CoE can provide a platform for training and education in drone technology for students, researchers, and professionals. This can help to bridge the skills gap in the drone industry and prepare the workforce for the future job market. It can also promote interdisciplinary research and collaboration between different fields, such as engineering, computer science, and environmental studies.

**Innovation:** The CoE can foster innovation in drone technology by providing a supportive environment for research and development. It can enable the development of new technologies, such as advanced sensors, software, and communication systems, that can enhance the capabilities and performance of drones. It can also promote the integration of drones with other technologies, such as artificial intelligence, robotics, and Internet of Things (IoT), that can expand the potential applications of drones.

**Society:** The CoE can have positive impacts on society by promoting sustainable and responsible use of drone technology. It can support research on social and environmental implications of drone technology, such as privacy, security, and ethical issues. It can also facilitate public outreach and education on the benefits and risks of drone technology, and encourage dialogue and collaboration between different stakeholders.

Establishing a CoE in drone technology can have far-reaching impacts and benefits that can contribute to the growth and development of the drone industry, as well as the society as a whole.

## Notable Projects

IIIT Delhi: We have partnered with IIIT Delhi's Innovation & Incubation Center (IIITD-IC) to set up a state-of-the-art drone lab. With a grant of Rs. 96.29 lakhs from DSIIDC, IIITD-IC will incubate 12-15 start-ups in the drone sector in the next 12 months. Our company's expertise in the drone industry will play a key role in helping to establish the right ecosystem for these start-ups. As a leader in the industry, we are proud to collaborate with IIITD-IC in this new initiative, and we look forward to contributing to the growth of the drone sector in India.

INDRAPRASTHA INSTITUTE of INFORMATION TECHNOLOGY DELHI

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# CONTACT

**Suseela Krishnan**
suseela@wtc-pune.org
+91 98508 68555

**Sukhda Vaishampayan**
sukhda@wtc-pune.org
+91 98900 88564