



UDA SUMMER SCHOOL

12 June to 15 July 2023

Underwater Domain Awareness (UDA) Summer School

Five Weeks Project Based Internship
12 June to 15 July 2023

Detailed Programme

The five weeks has been categorized into two main objectives -

- Knowledge Enhancement, Innovation, Peer Learning and Upskilling
- Encouraging Thinking Abilities through Project Based Research & Analysis.

The participants will get exposure to the relevant stakeholders including industries, research organizations, strategic think tanks, users and more as part of the internship programme to be able to understand the requirements and also facilitate their skilling to make them employable. Domain experts will interact with the participants and guide them in the course of their projects. Experts from academia, research institutes, relevant stakeholders and policy makers will engage the participants during the knowledge based theoretical components and applications.

The entire day will have six hours of academic programme comprising of contact lectures and interaction with experts and industry reps from Monday to Friday for active engagement with stakeholders to get an industrial overview. The Saturdays will be dedicated to non-academic programme including team building activities and other enriching exposures. The five weeks programme will be entirely conducted at Pune (including one week field trip to the Konkan Coast) and will be sub divided as under:

Week-1 Introduction Lecture Series

The first week will comprise of orientation of India's oceanic aspirations - the current social, technological, legal, economic, sustainable (environment) and national security challenges and immediate prospects and opportunities - through a series of inter and multi disciplinary lectures related to Underwater Domain Awareness to the students. The lecturing subject-matter-experts will provide reference literature to the students.

They will also be exposed to fundamental topics on analytics like Statistics, Machine Learning, Coastal Engineering, Signal Processing, and additional relevant courses to refresh them of the fundamental theory and analytic tools. Resource persons from the academia ,research institutes and policymakers of repute will take active and engaging class room lectures and hands-on sessions. The participants start getting mature with their project ideas and also get sound knowledge on basic subjects required to build-on their professional growth.



Week-2 Exposure to Cutting-Edge Innovations and Industry Requirements

This week will be focused on the more advanced topics like Robotics & Underwater autonomous Robotics, Artificial Intelligence, Deep Learning, Statistical Signal Processing, Big Data Analytics and more with hands-on sessions on Parallel Computing and High Performance Computing. The participants start applying their mind on multiple project ideas and innovative concepts based on extensive literature review and their mind mapping on the project formulation.

The industry representatives and R&D experts will engage with participants from varied fields to acquaint them with industry demands and enhance their employability. This interaction will enhance participants' employability skills. Additionally, they will present their project ideas to a panel of experts and the program coordinator, which will help them to formalize their projects and improve their problem-solving skills. They will have the opportunity to enhance their communication skills and technical presentation abilities through formal sessions and one-on-one interactions with experts. They will also work on simulations and analysis to refine their project ideas. The participants will receive ongoing guidance from academic advisers and experts to help formalize their project ideas.



Week-3 Exposure to Maritime Skills

The participants shall gain an opportunity of hands-on experience in maritime skills, which will enhance their employability in the maritime sector. These skills include conducting acoustic, archaeological, noise, and vibration surveys on marine platforms, diving, performing underwater surveys, participating in port activities, shipyard activities, and more. A combination of laboratory demonstrations and field visits will provide exposure to the nuances of maritime skills, helping participants make well-informed decisions about their future career paths. Industry professionals will provide a comprehensive overview of both theory and practical applications.



Week-4 Field Visit to Multiple Marine Industries/Institutes in Konkan coast

The participants will get a one week exposure to the rich maritime scientific and industrial base. Institutional exposure to the Industry, Research Labs, Academia, Users, Security Agencies, Port, Shipyard and more will be included in this phase. Career opportunities in these organizations and qualification requirements will also be discussed.



Week-5 Documentation and Presentation

The final week will convert the learning into application part via the documents preparation and conducting presentations. The participants will be encouraged to document their efforts in the form of a small article or project paper. The participants will submit a 1500 words article (UDA Digest) and a 5000 words report articulating their work and achievements.



Learning Modules

The entire five weeks of the programme have also been categorized in multiple learning modules. There are two broad categorization of the entire five weeks in terms of learning module.

First is based on learning objectives and the second is based on target group of the participants. Based on learning objectives the three categories are as follows:

Knowledge Enhancement - During week 1 and week 2, participants will cover both basic and advanced topics, including fundamental tools to enhance their knowledge. These topics have a wide scope to introduce participants to critical technology areas across multiple sectors and keep them up to date with the latest advancements. Hands-on sessions will also be provided to help participants become familiar with critical tools for simulation and analysis, allowing for better understanding and application of the topics learned.



Up-skilling

During weeks 2 and 3, participants will undergo upskilling and mapping of their knowledge base to meet industry requirements. This upskilling aims to make them more employable in line with industry demands. The participants will also be informed about various career opportunities and the skills required for each, enabling them to make well-informed decisions and adequately prepare themselves.



Field Exposure

The practical field exposure provided to the participants will enable them to apply their theoretical knowledge to real-world situations. They will have the opportunity to engage with industry representatives, academic experts, communities, users, policy makers and others at work sites to gain an appreciation for the impact of new ideas and digital transformation. The governance mechanism involved in this process has complex dynamics, and firsthand exposure to comprehensive ground realities will be a highly enriching experience for their professional growth and advancement.

Encourage Innovative Thinking

Over the course of five weeks, participants will have the opportunity to collaborate on projects that involve multiple stakeholders, encouraging them to apply their knowledge to real-world problems relevant to the industry. These projects will focus on research and analysis, and participants will receive guidance and support to carry them out. Field trials will also be conducted, and the results will be shared with the participants' institutes upon completion.



Convener



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