

MARITIME AUTONOMY WORKSHOP SERIES - INDIA 2026

ENABLING SAFE, SMART, AND COLLABORATIVE OCEANS

30.11 – 01.12. 2026
Indian Institute of Technology Kharagpur,
Kharagpur, West Bengal, India

WORKSHOP: CALL FOR PAPERS/PRESENTATIONS

WORKSHOP OBJECTIVES

This workshop is organized as part of the EXPLORER Project, funded by the Research Council of Norway, and promotes international collaboration among leading academic institutions, including Indian Institute of Technology Kharagpur (India), UiT The Arctic University of Norway (Norway), Norwegian University of Science and Technology (NTNU, Norway), Stellenbosch University (South Africa), and the Tokyo University of Marine Science and Technology (Japan). By bringing together expertise from these institutions, the workshop seeks to strengthen global research partnerships, encourage interdisciplinary innovation, and support the development of safe, sustainable, and intelligent maritime technologies for future ocean operations.

Key objectives include:

- Discuss the latest advances in maritime autonomy, robotics, artificial intelligence, and intelligent marine systems.
- Promote knowledge exchange through keynote lectures, technical presentations, and interactive discussions.
- Encourage networking opportunities for early-career researchers and graduate students with leading international experts.
- Identify future research directions and collaborative initiatives addressing the challenges of autonomous maritime operations, digitalization, and sustainable ocean technologies.

EXPLORER BACKGROUND

To prepare for a future where autonomous and crewed ships potentially operate side by side, the EXPLORER partnership brings together global expertise to learn how human and autonomous ships can safely communicate, work together, and operate through simulations and real-sea trials.

MISSION

Within EXPLORER, our objective is to explore the complexities of mixed autonomy at sea through multi-site simulations and collaborative learning.



With funding from
The Research Council of Norway



HOST INSTITUTION AND VENUE

Host Institute: Indian Institute of Technology Kharagpur (IIT Kharagpur)

The Indian Institute of Technology Kharagpur is one of India's leading institutions for engineering, science, and technology education and research. Its Department of Ocean Engineering and Naval Architecture has a long-standing tradition of education and research in ship hydrodynamics, marine structures, offshore engineering, coastal engineering, and ocean technologies. The department combines fundamental engineering with applied research to address challenges in the maritime sector, supported by specialized experimental facilities and computational research. It actively collaborates with industry, government organizations, and international research partners, contributing to advances in marine engineering, autonomous marine systems, and sustainable ocean technologies.

As the host of the Maritime Autonomy Workshop Series – India 2026, the department provides an ideal academic setting for discussions on autonomous maritime systems, bringing together researchers, students, industry professionals, and policymakers to exchange knowledge and foster collaboration in this rapidly evolving field.

PANEL 1

AUTONOMOUS NAVIGATION, GUIDANCE AND DECISION-MAKING AT SEA

How can autonomous ships make decisions that are safe, predictable, and understandable to human mariners?

PANEL 01 THEMES

- Maritime situational awareness through multi-sensor fusion
- Explainable and trustworthy AI for safety-critical decisions
- Human–autonomy interaction, supervision, and remote intervention
- Validation through simulation, digital twins, and real-sea trials
- Learning from near misses, edge cases, and unexpected encounters

PANEL 2

MARINE ROBOTICS AND UNMANNED SYSTEMS

How can heterogeneous robotic systems work reliably with one another and with human-operated vessels?

PANEL 02 THEMES

- Autonomous surface, underwater, and aerial marine platforms
- Cooperative robotics, multi-vehicle systems, and swarm operations
- Perception, localization, mapping, and navigation in challenging environments
- Transitioning robotic systems from laboratory prototypes to operational deployment

PANEL 3

SUSTAINABLE AND RESILIENT AUTONOMOUS MARITIME OPERATIONS

How can maritime autonomy improve environmental performance while remaining resilient to operational and societal risks?

PANEL 03 THEMES

- Autonomous operations as an enabler of low-emission shipping
- Environmental monitoring and ocean-data collection
- Resilience to severe weather, equipment failures, and degraded communications
- Lifecycle sustainability of autonomous maritime technologies

PANEL 4

SCHOOL OF MARITIME AUTONOMY

What knowledge, skills, standards, and collaborations will the next generation need to shape maritime autonomy responsibly?

PANEL 04 THEMES

- Interdisciplinary research across engineering, maritime practice, law, and human factors
- Responsible innovation, research ethics, and trustworthy AI
- Student research pitches and mentoring sessions with international experts
- Open datasets, benchmarking, and shared research infrastructure