Autonomous and Remotely-Operated Ship Safety Meeting Kit



WHAT’S AT STAKE

Autonomous and remotely-operated ship safety refers to the measures and considerations taken to ensure the safe operation of ships that are controlled and operated remotely by human operators located onshore or in a control center. Unlike fully autonomous ships, which operate without direct human intervention, remotely-operated ships rely on human operators to control and monitor their operations from a remote location.

WHAT’S THE DANGER

DANGERS AND RISKS WITH AUTONOMOUS AND REMOTELY-OPERATED SHIPS

- There is always a risk of system failures or malfunctions, which can lead to accidents or loss of control. Technical glitches, software bugs, or hardware failures could compromise the ship’s safety and navigation.
- Autonomous and remotely-operated ships are connected to networks and rely on software and communication systems and are vulnerable to cybersecurity threats. Hackers could potentially gain unauthorized access, manipulate systems, or disrupt communication.
- Removing human operators from ships means relying solely on pre-programmed algorithms and artificial intelligence for decision-making. These systems are advanced and may not always account for all possible scenarios or have the same level of judgment and adaptability as human operators.
- Autonomous and remotely-operated ships operate in unpredictable and dynamic marine environments face challenges such as adverse weather conditions, rough seas, and navigational hazards.
- While autonomous systems are designed to detect and avoid collisions, there is always a possibility of errors in sensor data interpretation or unexpected vessel behavior, which could result in accidents.
- The regulatory and legal framework governing autonomous and remotely-operated ships is evolving. There may be gaps or inconsistencies in existing regulations that need to be addressed.

HOW TO PROTECT YOURSELF

KEY TOOLS AND TECHNOLOGIES UTILIZED IN AUTONOMOUS AND REMOTELY-OPERATED SHIP SAFETY

Sensors: Autonomous and remotely-operated ships are equipped with various sensors to collect data about the vessel, its surroundings, and environmental conditions.

Collision Avoidance Systems: Collision avoidance systems employ advanced algorithms to identify potential collision risks and provide warnings or take automated actions to avoid accidents.

Communication Systems: Autonomous and remotely-operated ships require robust communication systems. These systems ensure constant communication for monitoring, control, and situational awareness.

Navigation Systems: Precise and reliable navigation systems integrate data from sensors, GPS, and other sources to determine the ship's position, heading, speed, and course.

Remote Monitoring and Control Systems: Remote monitoring and control systems enable operators onshore to remotely monitor and control autonomous or remotely-operated ships.

Cybersecurity Solutions: As autonomous and remotely-operated ships rely on software, communication networks, and data exchange, cybersecurity solutions are critical to protect against cyber threats.

Simulation and Testing Tools: Simulation and testing tools create virtual environments to simulate various scenarios and test the ship's response to different conditions.

Data Analytics and Artificial Intelligence: Data analytics and artificial intelligence (AI) technologies are used to process and analyze the vast amount of data collected by autonomous and remotely-operated ships.

INDIVIDUAL PROTECTION IN THE OPERATION OF AUTONOMOUS AND REMOTELY-OPERATED SHIPS

Stay Informed: Stay updated on the latest developments, regulations, and safety measures related to autonomous and remotely-operated ships.

Choose Reputable Operators: If you plan to travel on an autonomous or remotely-operated ship, research and choose reputable ship operators with a strong track record of safety and compliance.

Understand Emergency Procedures: Familiarize yourself with the emergency procedures specific to the autonomous or remotely-operated ship you are traveling on.

Evaluate Cybersecurity Measures: When selecting a ship operator, ensure they have robust systems in place include encryption, authentication mechanisms, regular updates and patches.

Verify Redundancy Systems: Inquire about the redundancy systems in place on autonomous and remotely-operated ships. Ask how critical components such as navigation, propulsion, and communication are backed up to mitigate the risk of failures.

Follow Safety Guidelines: Follow all safety guidelines and instructions including wearing appropriate safety gear, adhering to safety barriers, and obeying safety protocols during embarkation, disembarkation, and onboard activities.

Maintain Awareness: While onboard an autonomous or remotely-operated ship, maintain situational awareness of your surroundings. Be observant of any unusual activities or

malfunctions and report them to the ship’s crew or operators.

Provide Feedback: If you encounter any safety concerns or observe potential hazards during your journey on an autonomous or remotely-operated ship, provide feedback to the ship operator or relevant authorities.

FINAL WORD

Remotely-operated ship safety involves robust communication, monitoring, control systems, cybersecurity, emergency response plans, operator training, and compliance with applicable regulations.