Introduction to IMO Conventions and Codes

# International Maritime Organization (IMO)

Admiralty Law – Related terms: maritime jurisdiction, flag state
A body of law governing nautical issues and private maritime disputes. It covers contracts, torts, injuries, and collisions at sea. For example, a cargo claim arising from damage during transit is resolved under admiralty law. Challenges include varying national interpretations and the need for harmonization through IMO conventions.

Arctic Shipping – Related terms: Polar Code, ice class
Refers to navigation of vessels through Arctic waters, requiring compliance with specific safety and environmental standards. The IMO Polar Code establishes design, equipment, and operational requirements for ships operating in polar regions. Practical application includes using reinforced hulls for ice navigation. Challenges involve limited infrastructure, extreme weather, and jurisdictional complexities.

Ballast Water Management – Related terms: BWMS, invasive species
A system for treating ballast water to prevent the transfer of harmful aquatic organisms. The IMO BWM Convention mandates the use of approved Ballast Water Management Systems (BWMS) and sets discharge standards. Example: A tanker installing a filtration-ultraviolet system to meet the $10^{-6}$ organism limit. Challenges are high retrofit costs and verification of compliance.

Berthing – Related terms: port state control, dockage
The act of securing a vessel at a quay or terminal for loading, unloading, or maintenance. Effective berthing requires coordination with port authorities, adherence to safety protocols, and proper use of mooring lines. Practical considerations include tide levels and wind forces. Non-compliance can lead to accidents and fines.

Bridge Navigational Watch Alarm System (BNWAS) – Related terms: bridge watchkeeping, collision avoidance
A safety system that monitors bridge activity and alerts the crew if the officer on watch becomes incapacitated. The IMO SOLAS Chapter II-1 requires BNWAS installation on ships of 150 gross tonnage and above. Example: An alarm triggers after a preset interval of inactivity, prompting the crew to verify the officer's presence. Challenges include false alarms and integration with existing bridge equipment.

Chartering – Related terms: time charter, voyage charter
A contractual arrangement in which a shipowner leases a vessel to a charterer for a specified period or voyage. The charter party outlines obligations, freight rates, and liabilities. Example: A bulk carrier under a time charter operates for a mining company for twelve months. Legal challenges often arise from demurrage calculations and force majeure events.

Collision Regulations (COLREGs) – Related terms: Rule 5, stand-on vessel
International regulations governing vessel conduct to prevent collisions at sea. The SOLAS Convention incorporates COLREGs, which define responsibilities of vessels in various situations (e.G., Crossing,

overtaking). A practical scenario: A fishing vessel and a cargo ship approaching a head-on situation; the vessel on the starboard side must give way. Enforcement challenges include varying levels of crew training and monitoring.

Containership – Related terms: container ship, TEU
A cargo vessel designed to carry standardized containers. IMO regulations address stability, fire safety, and hazardous material stowage on containerships. Example: A 12,000 TEU vessel must comply with the International Convention for the Safety of Life at Sea (SOLAS) fire protection standards. Operational challenges involve port congestion and environmental emissions.

Conveyance of Goods – Related terms: bill of lading, cargo manifest
The process of transporting cargo from origin to destination, typically documented by a bill of lading. The IMO's Maritime Safety Committee (MSC) provides guidance on cargo securing and segregation. Practical application includes using twist-locks for containers. Issues may arise from incorrect labeling, leading to hazardous material incidents.

Deadweight Tonnage (DWT) – Related terms: gross tonnage, displacement
The total weight a ship can safely carry, including cargo, fuel, crew, and provisions. DWT is critical for load planning and compliance with draft limits. Example: A vessel with a DWT of 80,000 tonnes must not exceed its allotted draft in shallow ports. Challenges include accurate weight estimation and ballast management.

Designated Person(s) (DP) – Related terms: Safety Management System, ISM Code
An individual or team appointed by a shipowner to monitor the implementation of the Safety Management System (SMS) and ensure compliance with the International Safety Management (ISM) Code. The DP acts as a liaison with flag states and classification societies. Practical duties involve auditing vessel performance and reporting deficiencies. The main challenge is maintaining effective communication across multiple time zones.

Double-Hull – Related terms: oil tanker, environmental protection
A structural design featuring two layers of watertight hulls, primarily to reduce oil spill risk. IMO's MARPOL Annex I mandates double-hull construction for new oil tankers. Example: A 300,000-DWT tanker with a 2-meter separation between hulls. Retrofitting older single-hull vessels presents cost and engineering challenges.

Dry Dock – Related terms: shipyard, maintenance period
A facility where a vessel is placed out of water for inspection, repair, or overhaul. Dry-dock periods are scheduled in accordance with classification society requirements and the vessel's Planned Maintenance System (PMS). Practical considerations include alignment of dry-dock availability with charter commitments. Delays can lead to revenue loss and contractual penalties.

Emergency Shutdown (ESD) – Related terms: engine room, fire control
A system that allows rapid isolation of fuel, electricity, or other hazardous systems in an emergency. IMO SOLAS mandates ESD provisions on passenger ships to mitigate fire spread. Example: An engine room fire triggers an automatic shutdown of fuel pumps. Challenges involve ensuring crew familiarity with manual

override procedures.

Environmental Protection Area (EPA) – Related terms: Special Areas, MARPOL Annex VI
Geographic zones designated by IMO where stricter emission controls apply to protect marine ecosystems. Examples include the Baltic Sea and the Antarctic. Vessels operating in EPAs must comply with lower sulfur oxide (SOx) limits and nitrogen oxide (NOx) tiers. Operational challenges include fuel availability and cost differentials.

Flag State – Related terms: registry, port state control
The country under whose laws a vessel is registered and whose flag it flies. The flag state is responsible for ensuring compliance with IMO conventions. For instance, a ship registered in Liberia must adhere to SOLAS and MARPOL requirements as enforced by the Liberian Maritime Authority. Issues arise when flag states lack resources for effective oversight, leading to sub-standard ships.

Fire-fighting Appliances – Related terms: fixed fire suppression, portable extinguishers
Equipment installed on board to detect, contain, and extinguish fires. IMO SOLAS Chapter II-1 specifies mandatory installations such as $CO_2$ systems for engine rooms and water mist for accommodation spaces. Practical example: A cargo ship equipped with a sprinkler system in the crew mess. Maintenance challenges include regular testing and ensuring compatibility with various fire classes.

Freight Forwarder – Related terms: logistics provider, customs broker
An entity that arranges the transport of goods on behalf of shippers, coordinating with carriers, ports, and regulatory bodies. While not a party to the bill of lading, the forwarder must understand IMO regulations affecting cargo, such as hazardous material declarations. Challenges include liability exposure and compliance with evolving environmental standards.

General Average – Related terms: salvage, adjustment
A principle where all parties in a maritime venture share the loss resulting from a voluntary sacrifice of part of the cargo or ship to save the whole. For example, jettisoning cargo to prevent a vessel from sinking triggers a general average declaration. The adjustment process can be complex, involving adjusters, insurers, and legal counsel.

Global Maritime Distress and Safety System (GMDSS) – Related terms: VHF radio, satellite communication
An internationally standardized system for sending distress signals and safety communications. IMO SOLAS requires GMDSS equipment on vessels of 300 gross tonnage and above. Practical use includes sending a digital selective calling (DSC) alert during a collision. Implementation challenges involve equipment upgrades and crew training on new technologies.

Hazardous Materials (HAZMAT) – Related terms: IMDG Code, dangerous goods
Substances that pose risks to health, safety, or the environment during transport. The International Maritime Dangerous Goods (IMDG) Code classifies and prescribes handling procedures. Example: Transporting lithium-ion batteries requires segregation, temperature monitoring, and specific packaging.
Non-compliance can result in severe penalties and environmental incidents.

International Convention for the Safety of Life at Sea (SOLAS) – Related terms: Chapter II-1, ship safety

certificate
The primary IMO treaty establishing minimum safety standards for ships. SOLAS covers construction, fire protection, life-saving appliances, and navigation. A vessel must obtain a Safety Construction Certificate after classification society surveys. Challenges include keeping older ships up-to-date with newer amendments.

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) – Related terms: competency, maritime education
Sets global standards for training and certification of seafarers. The convention defines required competencies for various ranks and watch-standing duties. Practical application includes mandatory refresher courses for officers every five years. Implementation challenges involve aligning national training institutions with the latest standards.

International Maritime Organization (IMO) – Related terms: MSC, secretariat
The United Nations specialized agency responsible for regulating shipping. The IMO develops and maintains conventions such as SOLAS, MARPOL, and the Polar Code. It also facilitates technical cooperation and capacity building. Challenges include achieving consensus among diverse member states and ensuring effective enforcement.

International Maritime Dangerous Goods (IMDG) Code – Related terms: hazard classification, stowage plan
A comprehensive guide for the safe transport of dangerous goods by sea. The code outlines labeling, packaging, documentation, and segregation requirements. Example: A container carrying flammable liquids must be placed away from heat sources and ventilated. Updating the code biennially poses compliance and training challenges for shipping companies.

International Convention for the Prevention of Pollution from Ships (MARPOL) – Related terms: Annex I, oil spill response
The principal international treaty aimed at preventing marine pollution from operational or accidental discharges. MARPOL consists of six annexes covering oil, noxious liquid substances, harmful substances in packaged form, sewage, garbage, and air emissions. A practical scenario: A tanker must use oil-water separators to meet Annex I limits. Enforcement difficulties include monitoring compliance in high-traffic waters.

International Ship and Port Facility Security (ISPS) Code – Related terms: security level, ship security plan
A set of measures to enhance maritime security, introduced after the September 11 attacks. The ISPS Code requires ships and ports to develop security plans, appoint security officers, and undergo regular assessments. Example: A container ship must display a valid International Ship Security Certificate (ISSC). Challenges involve balancing security with operational efficiency and addressing cyber-threats.

International Convention on Load Lines (LL) – Related terms: freeboard, Plimsoll mark
Establishes minimum permissible freeboard, ensuring ships are not overloaded. The convention defines calculation methods based on ship dimensions, cargo type, and water density. A vessel must display load line marks indicating the maximum draft. Practical issues include accurate cargo weight estimation and ballast adjustments to maintain compliance.

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) – Related terms: certificate of competency, maritime training
Sets worldwide standards for training and certification of seafarers, ensuring competence in navigation, engineering, and safety. The convention mandates periodic refresher training and defines minimum sea-time requirements. Example: A chief engineer must hold a valid Certificate of Competency (CoC) and complete approved training modules. Implementation challenges involve aligning national curricula with evolving technology.

International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) – Related terms: chemical tanker, cargo containment
Specifies design and equipment requirements for ships transporting hazardous chemicals in bulk. The code mandates double-hull construction, corrosion-resistant materials, and specialized cargo pumps. Practical application: A chemical tanker must install inert gas systems to prevent explosive atmospheres. Compliance challenges include retrofitting older vessels and maintaining strict segregation standards.

International Code of Signals (ICS) – Related terms: flag signals, communication protocol
A standardized system of visual signals used for ship-to-ship and ship-to-shore communication. The code includes flags, pennants, and signal lamp sequences. Example: The flag “N” (November) indicates “No” or “Negative.” Effective use requires crew proficiency; misinterpretation can lead to navigational errors.

International Convention for the Control and Management of Ships’ Ballast Water and Sediments (BWM Convention) – Related terms: ballast treatment, environmental compliance
Aims to prevent the spread of invasive species through ballast water discharge. The convention requires ships to have a Ballast Water Management Plan and to use approved treatment systems. Example: A bulk carrier installs a membrane filtration system to meet the $10^{-6}$ organism limit. Implementation challenges include high retrofit costs and verifying system performance during inspections.

International Maritime Satellite Organization (INMARSAT) – Related terms: satellite communications, GMDSS
Provides satellite communication services for maritime safety and operational efficiency. INMARSAT supports GMDSS functions such as distress alerts, safety messaging, and routine communications. Practical use includes sending a satellite phone call from a vessel in remote waters. Challenges involve maintaining coverage in polar regions and managing subscription expenses.

International Ship Registry – Related terms: flag of convenience, vessel documentation
A national authority that records ships under its flag, issuing certificates of registration and ensuring compliance with IMO conventions. Registries may offer benefits such as tax incentives and flexible labor regulations. Example: A vessel registered in the Marshall Islands enjoys streamlined certification processes. Issues arise from concerns about regulatory oversight and safety standards.

International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND Convention) – Related terms: liability, compensation
Provides a mechanism for compensating victims of oil spills when the polluter’s liability is insufficient. Signatory states must establish a fund to which shipowners contribute based on tonnage. Practical scenario: A tanker spill in a coastal area triggers claims against the FUND for cleanup costs. Challenges include

ensuring adequate fund size and timely claim processing.

International Convention for the Safety of Fishing Vessels (SFV) – Related terms: fishing gear, vessel stability
Sets safety standards for fishing vessels, covering construction, equipment, and operating procedures. The convention addresses hazards specific to fishing activities such as gear entanglement and deck safety. Example: A trawler must have a functional emergency shut-down valve to stop the main engine. Enforcement difficulties stem from the large number of small-scale operators and limited inspection resources.

International Convention on Civil Liability for Oil Pollution Damage (CLC Convention) – Related terms: liability limits, compensation claims
Establishes a liability regime for oil spill damage caused by tankers. Shipowners are strictly liable up to a defined limit, with the possibility of additional compensation from the FUND. Practical application: A spill off a coastline triggers a claim against the tanker owner for cleanup and environmental restoration. Challenges include cross-border legal coordination and timely fund disbursement.

International Convention on Maritime Search and Rescue (SAR Convention) – Related terms: rescue coordination centre, distress alerts
Creates a global framework for coordinating maritime search and rescue operations. Signatory states must establish rescue coordination centres (RCCs) and provide assistance to vessels in distress. Example: A passenger ferry sends a distress signal; the nearest RCC dispatches SAR assets. Operational challenges include resource allocation in remote regions and communication interoperability.

International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) – Related terms: dumping permits, environmental impact
Regulates the disposal of waste at sea, prohibiting dumping of hazardous substances and controlling permissible materials. Vessels must obtain permits and submit waste management plans. Practical scenario: A ship seeking to dispose of sludge must follow approved procedures and record the discharge. Enforcement issues include monitoring illegal dumping and ensuring accurate reporting.

International Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) – Related terms: piracy, terrorism
Criminalizes acts such as hijacking, sabotage, and terrorism targeting ships. The convention obliges signatory states to prosecute offenders and cooperate in investigations. Example: A vessel attacked by armed assailants triggers legal action under the SUA framework. Challenges involve gathering evidence and providing jurisdictional cooperation across borders.

International Convention on the Safety of Life at Sea (SOLAS) Chapter II-2 – Related terms: fire protection, structural fire protection
Addresses fire safety measures for non-passenger vessels, including fire detection, alarm, and suppression systems. Requirements cover fire zones, escape routes, and material fire resistance. Practical example: A cargo ship installs a $CO_2$ system in the engine room to meet Chapter II-2 standards. Compliance difficulties include retrofitting older vessels and ensuring crew competency in fire response.

International Convention on the Establishment of an International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) – Related terms: ballast water treatment, environmental standards
Mandates that ships manage ballast water to prevent the spread of invasive species. The convention requires a Ballast Water Management Plan, approved treatment systems, and records of ballast operations. Example: A container ship records ballast intake and discharge using the IMO-approved e-logbook. Implementation challenges include verifying system performance during port state control inspections.

International Convention on the Safety of Fishing Vessels (SFV) – Related terms: gear safety, vessel stability
Establishes safety standards for fishing vessels, focusing on construction, equipment, and operational procedures to reduce accidents. Requirements include lifesaving appliances, fire protection, and stability assessments. Practical example: A pelagic fishing vessel must carry personal flotation devices for each crew member. Enforcement obstacles involve the high number of small-scale vessels and limited inspection capacity.

International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND Convention) – Related terms: compensation mechanism, oil spill liability
Provides a supplementary compensation fund for oil pollution victims when the liable party's insurance is insufficient. Signatory states must establish national funds and contribute based on vessel tonnage. Example: A massive oil spill exceeds the shipowner's liability limit, prompting claims against the FUND. Challenges include ensuring adequate fund contributions and rapid claim settlement.

International Convention on the Safety of Life at Sea (SOLAS) Chapter III – Related terms: life-saving appliances, lifeboats
Specifies requirements for lifesaving equipment, including lifeboats, life rafts, and personal survival craft. Vessels must conduct regular drills and maintain equipment in good condition. Practical scenario: A passenger ship conducts a full-scale abandon-ship drill every six months. Compliance issues often arise from aging equipment and insufficient crew training.

International Convention on the Safety of Life at Sea (SOLAS) Chapter IV – Related terms: radiocommunication, radio equipment
Covers requirements for radio communications, navigation equipment, and distress signaling. Vessels must be equipped with VHF, MF/HF, and satellite communications as appropriate. Example: A cargo ship must maintain a functional VHF radio for port communication. Challenges include maintaining equipment upgrades and ensuring crew proficiency in operating advanced systems.

International Convention on the Safety of Life at Sea (SOLAS) Chapter V – Related terms: navigation safety, bridge equipment
Focuses on navigation safety, mandating standards for charts, compasses, radar, and electronic navigation systems. Vessels must conduct regular bridge equipment checks and maintain up-to-date nautical publications. Practical application: A vessel uses an Electronic Chart Display and Information System (ECDIS) for route planning. Implementation challenges involve integrating new technology and training bridge officers.

International Convention on the Safety of Life at Sea (SOLAS) Chapter VI – Related terms: vessel stability, damage control
Addresses ship stability, subdivision, and damage control measures. Vessels must perform stability calculations and possess watertight subdivision to limit flooding. Example: A vessel must have a damage stability assessment to demonstrate survivability after compartment flooding. Challenges include updating stability data after modifications and ensuring crew competence in damage control.

International Convention on the Safety of Life at Sea (SOLAS) Chapter VII – Related terms: maritime safety management, ISM Code
Establishes the framework for the International Safety Management (ISM) Code, requiring shipowners to develop Safety Management Systems (SMS). The SMS includes policies, procedures, and audits to ensure safe operation and pollution prevention. Practical example: A shipping company conducts internal audits to verify compliance with the ISM Code. Common challenges involve maintaining documentation and achieving consistent implementation across a fleet.

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Part III – Related terms: bridge watchkeeping, navigation training
Specifies competency requirements for bridge officers, including radar operation, collision avoidance, and passage planning. Seafarers must complete approved training modules and demonstrate proficiency. Example: A chief mate attends a radar training course to meet STCW Part III standards. Implementation challenges include updating curricula to reflect technological advances and ensuring training accessibility for crew from diverse backgrounds.

International Maritime Organization (IMO) Maritime Safety Committee (MSC) – Related terms: policy development, technical documents
The MSC is the IMO's principal body for safety matters, responsible for adopting amendments to conventions and issuing guidelines. It reviews proposals, conducts risk assessments, and coordinates with member states. Practical example: The MSC adopts a new amendment to the SOLAS fire safety chapter. Challenges involve reaching consensus among many stakeholders and translating technical decisions into enforceable regulations.

International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) – Related terms: environmental standards, pollution control
The MEPC oversees the development and implementation of environmental conventions such as MARPOL. It evaluates proposals for emission reductions, ballast water management, and waste disposal. Example: The MEPC adopts stricter sulfur limits for marine fuels. Implementation challenges include balancing economic impacts on shipping operators with environmental objectives.

International Ship Security Certificate (ISSC) – Related terms: ISPS Code, security audit
A document certifying that a vessel complies with the ISPS Code security requirements. Issued after a successful audit by a recognized organization. Practical use: A cargo ship presents its ISSC to port authorities to gain entry. Challenges include maintaining the certificate through periodic renewals and addressing emerging security threats.

International Ship and Port Facility Security (ISPS) Code – Related terms: security level, ship security plan
A set of measures to enhance maritime security, requiring ships and ports to develop security plans, appoint security officers, and undergo regular assessments. The code defines three security levels (I, II, III). Example: A vessel operating in a high-risk area adopts security level III measures, including increased watchstanding and restricted access. Implementation difficulties involve integrating security protocols without hindering cargo operations.

International Standard Maritime Documentation (ISMD) – Related terms: certificate of registry, tonnage measurement
Standardized documentation required for vessels to demonstrate compliance with IMO conventions. Includes certificates such as the Safety Construction Certificate, Load Line Certificate, and Pollution Prevention Certificate. Practical example: A ship's ISMD packet is inspected during a port state control visit. Challenges include keeping documentation up-to-date and ensuring proper translation for multinational crews.

International Ship Registration (ISR) – Related terms: flag state, registry office
The process by which a vessel is entered into a national register, granting it a flag and legal identity. Registration confers the right to fly the flag and obliges the ship to comply with the flag state's regulations. Example: A shipowner registers a vessel in Cyprus to benefit from favorable tax regimes. Issues arise from concerns about "flags of convenience" and the adequacy of oversight.

International Ship Pollution Prevention (ISPP) – Related terms: MARPOL, environmental compliance
A collective term for measures aimed at preventing marine pollution from ships, encompassing oil, chemicals, sewage, garbage, and air emissions. Implementation involves installing treatment systems, adopting best practices, and conducting regular inspections. Practical scenario: A vessel installs an advanced wastewater treatment plant to meet Annex V requirements. Challenges include high capital costs and ensuring crew adherence to operational procedures.

International Ship Safety Management (ISSM) – Related terms: SMS, ISM Code
Refers to the systematic approach required by the IMO ISM Code for safe operation and pollution prevention. The Safety Management System (SMS) includes policies, procedures, and audits. Example: A shipping company establishes a company-wide SMS manual and conducts internal audits. Common challenges involve maintaining consistency across subsidiaries and adapting to regulatory updates.

International Ship Security Plan (ISSP) – Related terms: ISPS Code, security assessment
A documented plan outlining measures to protect a vessel from security threats, required under the ISPS Code. The plan includes threat assessments, access control procedures, and emergency response actions. Practical use: A vessel's ISSP details procedures for handling a suspicious package found on board. Implementation difficulties include keeping the plan current with evolving threat landscapes.

International Ship Survey (ISS) – Related terms: class society, port state control
An examination conducted by a recognized organization to verify compliance with IMO conventions and national regulations. Surveys cover structural integrity, safety equipment, and environmental systems. Example: A vessel undergoes a renewal survey every five years to retain its classification. Challenges include

scheduling surveys without disrupting commercial operations.

International Shipyard (IS) – Related terms: shipbuilding, yard classification
A facility authorized to construct or repair ships in accordance with IMO standards. Shipyards must comply with safety, environmental, and quality management requirements. Practical example: A shipyard installs a ballast water treatment system during a newbuild. Implementation challenges involve meeting delivery timelines while adhering to stringent regulatory specifications.

International Standard for Small Craft (ISS) – Related terms: recreational vessels, coastal navigation
Guidelines for the design, construction, and equipment of small craft operating in coastal waters. The standards address stability, buoyancy, and safety equipment. Example: A 12-meter fishing boat must carry life jackets for each occupant. Enforcement can be limited due to the large number of privately owned vessels.

International Standard for Maritime Training (ISMT) – Related terms: STCW, seafarer certification
A framework establishing uniform training curricula for maritime professionals, aligning with STCW requirements. It includes theoretical and practical modules covering navigation, engineering, and safety. Practical application: A maritime academy adopts the ISMT syllabus for its cadet program. Challenges involve updating content to reflect emerging technologies such as autonomous systems.

International Standard for Ship Recycling (ISSR) – Related terms: Hong Kong Convention, green ship recycling
A set of criteria aimed at ensuring environmentally sound recycling of ships at the end of their service life. The Hong Kong Convention establishes standards for hazardous material inventory, worker safety, and waste management. Example: A decommissioned bulk carrier undergoes dismantling in a certified yard, following the ISSR guidelines. Implementation obstacles include limited availability of compliant recycling facilities and high costs.

International Standard for Ship Fuel (ISSF) – Related terms: IMO 2020, sulfur cap
Defines fuel quality specifications to meet emission control areas and global sulfur limits. The IMO 2020 regulation requires marine fuels to contain no more than 0.5 % Sulfur. Practical example: A vessel switches to low-sulfur fuel when entering a designated Emission Control Area (ECA). Challenges involve fuel availability, price volatility, and ensuring fuel compliance through testing.

International Standard for Ship Energy Efficiency (ISSEE) – Related terms: Energy Efficiency Design Index (EEDI), Ship Energy Efficiency Management Plan (SEEMP)
A set of performance metrics and management procedures aimed at reducing greenhouse gas emissions from ships. The EEDI sets design-phase efficiency targets, while the SEEMP outlines operational measures. Example: A new container ship must achieve an EEDI improvement of 30 % over the reference line. Implementation challenges include integrating energy-saving technologies and monitoring compliance.

International Standard for Ship Navigation (ISSN) – Related terms: ECDIS, navigation safety
Establishes baseline equipment and procedural requirements for safe navigation, including electronic chart systems, radar, and automatic identification systems (AIS). Vessels must maintain up-to-date navigation

charts and conduct regular equipment tests. Practical scenario: A vessel uses AIS to broadcast its position and avoid collision risks. Challenges involve ensuring data integrity and addressing cyber-security concerns.

International Standard for Ship Waste Management (ISSWM) – Related terms: garbage management plan, Annex V
Provides guidelines for the handling, storage, and disposal of ship-generated waste, aligning with MARPOL Annex V. Requirements include waste segregation, treatment, and record-keeping. Example: A cruise ship employs a compacting system for plastic waste and stores it for shore-based disposal. Implementation obstacles include crew training, equipment maintenance, and compliance monitoring.

International Standard for Ship Safety Equipment (ISSSE) – Related terms: life-saving appliances, fire detection
Defines minimum specifications for safety equipment such as lifeboats, life jackets, fire extinguishers, and emergency lighting. Vessels must conduct regular inspections and drills. Practical example: A vessel's crew performs a weekly lifeboat launch drill to verify readiness. Challenges involve maintaining equipment in harsh marine environments and ensuring crew proficiency.

International Standard for Ship Pollution Control (ISSPC) – Related terms: MARPOL Annexes, environmental compliance
Sets performance criteria for pollution control systems, including oil-water separators, sewage treatment plants, and exhaust gas cleaning (scrubbers). Vessels must retain documentation of system performance and undergo periodic testing. Example: A tanker installs an oily water separator to meet Annex I discharge limits. Implementation difficulties arise from system integration and ongoing maintenance costs.

International Standard for Ship Structural Integrity (ISSSI) – Related terms: load line, structural surveys
Outlines design, construction, and inspection standards to ensure the structural soundness of ships throughout their service life. It includes requirements for hull plating, welding quality, and corrosion control. Practical scenario: A vessel undergoes a hull inspection during its intermediate survey to verify compliance. Challenges include detecting hidden defects and addressing fatigue in aging fleets.

International Standard for Ship Crew Welfare (ISSW) – Related terms: crew accommodation, living standards
Establishes minimum standards for crew living conditions, including berth space, ventilation, sanitation, and recreational facilities. The standards aim to improve morale and reduce fatigue. Example: A vessel provides a gym and internet access to meet welfare benchmarks. Implementation challenges involve retrofitting older ships and balancing space allocation between cargo and crew facilities.

International Standard for Ship Cybersecurity (ISS Cyber) – Related terms: cyber risk assessment, maritime cyber-security framework
A set of guidelines for protecting maritime assets against cyber threats, covering network segmentation, access controls, and incident response. The IMO encourages adoption of the "Maritime Cyber-Security Framework" as best practice. Practical example: A shipping company implements firewalls and regular vulnerability scans on its fleet's bridge systems. Challenges include keeping pace with evolving threats and training crew on cyber-hygiene.

International Standard for Ship Fuel Oil Quality (ISSFOQ) – Related terms: fuel testing, specification compliance
Defines testing procedures and quality parameters for marine fuel oils to ensure compliance with sulfur and emission standards. It includes parameters such as viscosity, flash point, and sulfur content. Example: A bunker supplier provides a Certificate of Analysis (CoA) confirming the fuel meets the 0.5 % Sulfur limit. Implementation issues involve reliable sampling and verification in remote ports.

International Standard for Ship Emission Monitoring (ISSEM) – Related terms: NOx Tier, continuous emission monitoring system (CEMS)
Specifies methods for measuring and reporting ship emissions, including nitrogen oxides (NOx), sulfur oxides (SOx), and carbon dioxide ($CO_2$). Vessels may be required to install CEMS to provide real-time data. Practical scenario: A vessel's CEMS logs NOx emissions to demonstrate compliance with Tier III standards in emission control areas. Challenges include sensor calibration, data integrity, and regulatory acceptance of monitoring results.