



IRCLASS
Indian Register of Shipping

POWERED
BY PASSION.
DRIVEN
BY VALUES.



www.irclass.org

Founded in 1975, **Indian Register of Shipping (IRS)** is an independent organisation dedicated to Maritime Safety and Environmental Protection.

Recognised as a full member of the **International Association of Classification Societies (IACS)**, IRS is supported by a team of highly qualified engineers, surveyors and technical specialists, combining expertise and integrity to serve the shipping, defence, energy and infrastructure sectors.

With authorisation from over **50 Flag States** and a strong presence in key international maritime hubs, IRS continues to deliver trusted Classification, Certification, and Research services that support **Safer, Greener**, and more **Sustainable** global trade.

Our Verticals & Service Portfolio



Marine Classification Services

Enhancing Maritime Safety and Compliance

At the heart of IRS is its **Marine Classification** vertical, which provides technical rules, design appraisal, and continuous inspection to ensure ships and offshore structures are safe, efficient, and compliant.

Key Services

Specification Services for New Builds	Technical support to State Tourism Departments (Tripura, Assam, Karnataka, etc.), BIS, Inland & Fishing Vessel Standards, and State Coastal Security Police
Design review and risk-based plan appraisal	Statutory Certification (SOLAS, MARPOL, Load Line, MLC, Indian Navy Port Facility Security Assessment)
Rule Development	Inventory of Hazardous Materials (IHM) certification
Surveys during construction and throughout the operational life of vessels	Energy efficiency compliance (EEXI, CII, SEEMP II, EU MRV, IMO DCS)

IRS's commitment to **safer and cleaner shipping** is reflected in its close collaboration with international maritime bodies and Flag States to drive compliance through modern, reliable services.



Defence Services

Empowering Indigenous Defence Capabilities

IRS plays a strategic role in India's push for self-reliance under the **Atmanirbhar Bharat** initiative, supporting Indian defence forces and shipbuilders with classification and technical assistance.

Key Services

Classification and Certification of Indian Navy and Coast Guard ships	Support for indigenous equipment development and validation	Approval and inspection of machinery and materials from Indian and overseas vendors
Class rules for Indian Navy Combatant and Non-Combatant Vessels and Indian Coast Guard vessels	Technical studies (strength, fatigue, vibration, noise, radar, magnetic, IR signatures)	Certification of Advanced Systems – Cyber Security, AI-Based Systems

IRS contributes to **mission-critical projects** and advanced naval platform development.

Coastal and Inland Waterways

Strengthening India's Domestic Marine Infrastructure

IRS has been instrumental in **revitalizing India's coastal and inland waterway systems**, enabling safer, more efficient vessel operations and transport networks.

Key Services

Classification and Certification of ships (Passenger vessels, Solar Electric Ferries, RO-RO ferries, Tankers, Dredgers, Tugboats and Patrol vessels)

Plan approval and inspection of ship components

Technical support to state governments (e.g., Uttar Pradesh, Maharashtra, Assam) for regulatory development and fleet modernization

Certification under River-Sea Vessel regulations (DGS Order 18 of 2013)

Certification under Coastal Vessels Act

Vessel acquisition support and statutory compliance services

IRS actively contributes to national programmes such as **Gati Shakti**, **Sagarmala**, and **Make in India**, facilitating seamless connectivity between rivers, coasts, and the open seas.

Advanced Engineering Support for Marine & Port Sectors

MTS delivers specialized technical services to identify and mitigate risks associated with vessel performance, port operations, and marine assets.

Key Services

Condition Assessment Programme (CAP) for tankers and gas carriers	Predictive condition monitoring and thermographic analysis
Noise and vibration analysis (IMO MSC.337 compliance)	Navigational risk assessments and port safety audits
Fatigue life assessment and machinery diagnostics	Disaster Management Plans (DMPs), STS operation audits, HAZOP studies

MTS ensures operational readiness and safety for vessels and port facilities, supporting efficient and informed decision-making.

Marine Technical Services (MTS)



Research & Development

Driving Innovation in Maritime Engineering

The R&D vertical acts as a **knowledge engine** within IRS, advancing design, safety, and sustainability across the industry. Research outputs contribute directly to rule development, industry best practices, and technical advisory.



Key Areas of Research

Formal Safety Assessment (FSA), Goal-Based Standards (GBS), Failure Analysis	Hydrodynamic analysis, Seakeeping, Manoeuvrability, CFD studies	Structural analysis – Strength, vibration, fatigue analysis, ultimate strength and residual strength
Alternative fuels (LNG, hydrogen, ammonia) and alternative technologies (ALS, WISP, etc) feasibility studies	Risk and reliability studies – Accident investigation, HAZID/HAZOP, QRA, emergency management	Noise assessment – On-board noise and Underwater radiated noise from ships
Naval vessel assessments – signature studies (magnetic, RCS), air wake studies, UNDEX	Application of Artificial Intelligence (AI) and Machine Learning (ML) in the Marine Sector	Drift trajectory prediction for disabled ships TRL Assessment of new technologies Residual service life assessment

Shaping the Future of Maritime Professionals

IRS Academy offers **customized training** to maritime professionals, shipyards, port authorities, and corporate clients through both in-person and online programmes in more than **75 countries**.

Core Training Areas

Ship Operations,
Dry-Docking,
Superintendence,
Class & Statutory
Surveys

Ship design, QA/QC
in Shipbuilding,
Welding and NDT

Port safety, PFSO,
IMDG Cargo
Handling, Port
Facility Security/
Internal Audits

Ship Recycling, MLC
2006, BWM
Convention, SEEMP,
EEXI, SIRE 2.0,
Rightship

Maritime Law,
Cyber Risk, Marine
Insurance, Flag
State Roles

ISM, ISPS, MLC.
STCW Awareness &
Auditor
programmes

Commercial
Shipping, Ship Sale
& Purchase,
Charterparties,
Ship Management,
Global Dispute
Resolution

Alternative fuels
– Hydrogen Fuel Cell,
Methanol &
many more

With decades of domain expertise, the Academy builds **industry-ready capabilities** and supports organisational upskilling and regulatory alignment.

Decarbonisation

IRS is committed and aligned to the IMO's vision on decarbonisation, supporting stakeholders across the maritime value chain in meeting compliance and transitioning to sustainable Green Shipping operations. With decades of technical expertise and active involvement in policy, projects, and research, IRS is helping shape the future of green shipping.

Key Commitments & Initiatives

Active participation in IMO, IACS, Government Committees and Joint Industry Working Groups to frame technical requirements and implement them on Indian ships

Accredited verifier for EU MRV- ETS

Verification for IMO DCS, CII and SEEMP, as a Recognised Organisation to several Flag Administrations

Contribution to drafting the Inland Vessels Bill 2021, associated rules, and technical specifications for IWAI vessels

Approval of EEDI, EEXI technical files and verification of EPL / SHAPOLI

Support for government-led initiatives on sustainable inland waterways and coastal transport

Development of guidelines for alternative fuels and advanced technologies

Supporting the Ecosystem

IRS recognises that successful decarbonisation depends not only on technology but also on the human element. It supports training and skill development to prepare the Indian seafaring community for the adoption of alternate fuels. IRS advocates the creation of knowledge hubs, incubation centres, and testing facilities to promote innovation and accelerate the adoption of alternative fuels and technologies in the maritime sector.

Alternative Fuels Projects & Experience



50 Pax Hydrogen Fuel Cell Ferry (CSL) - fully indigenised design, supported by IRS guidelines on fuel cell installations.

100 Pax Ferry (GRSE) -

Powered by hydrogen fuel cell with battery integration, guided by IRS technical frameworks.



150 Pax Ferry (GRSE) - Aluminium hull, battery-powered vessel with FRP superstructure, aligned with IRS guidelines for battery-powered vessels.

Ongoing initiatives for **Green Tug development and Autonomous Surface Vessels**, reinforcing commitment to clean technologies.

Type Approval of Batteries

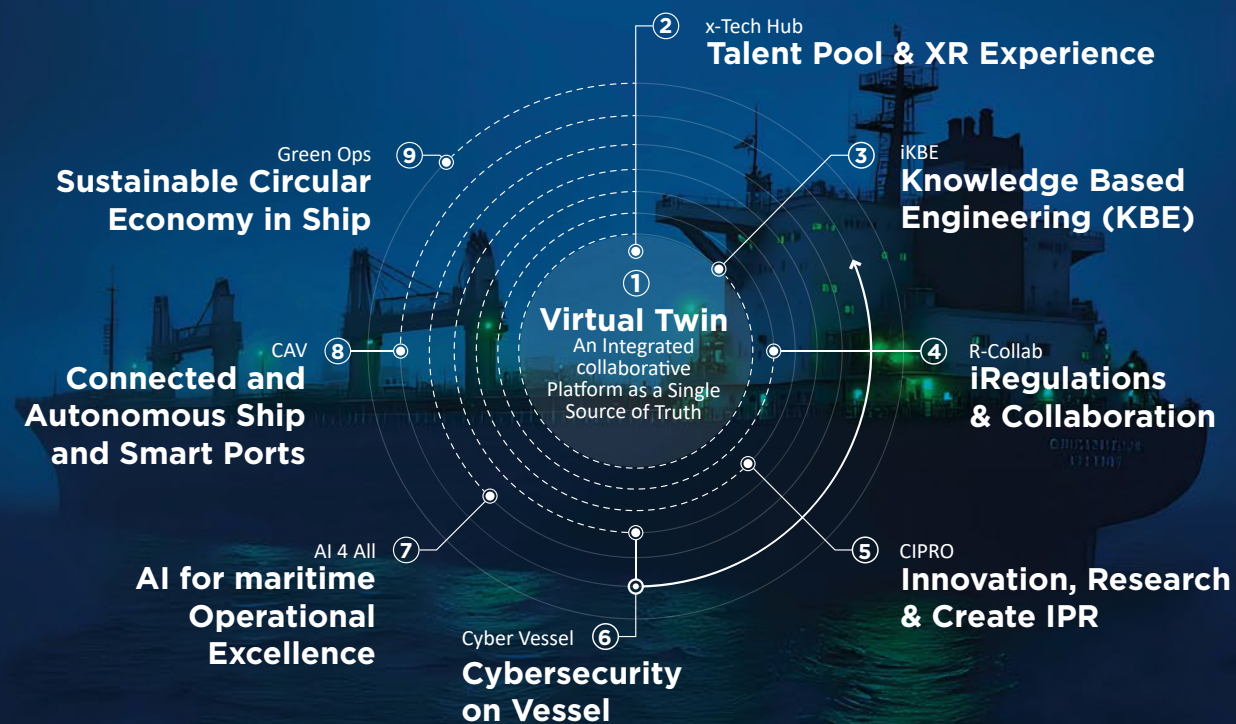
Member of **NEMO – Nuclear Energy Maritime Organisation** for collaborative efforts on addressing critical challenges in the use of nuclear energy as an alternative fuel for decarbonisation of shipping.

55+ HKC Certified Yards (Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships) Certified yards in UAE, Saudi Arabia, Bahrain, Bangladesh among others.

Seavolution

— A Digital Transformation Journey

The 9-Pillar Framework at IRS: Accelerating Maritime Digital Transformation



Core Value Streams Driving the Digital Transformation Journey through Virtual Twin

Indian Register of Shipping (IRS) is advancing maritime safety, compliance, and sustainability through digital innovation. In a rapidly evolving regulatory and technology landscape, IRS is leading the shift toward 3D-based classification by leveraging cutting-edge technologies to deliver smarter, faster, and more efficient services.

Our vision is to build a connected maritime ecosystem that integrates and collaborates with shipyards, owners, operators, regulators, and industry partners—enabling data-driven decisions and a more resilient industry.

We are advancing greener maritime operations by pioneering alternative fuels, accelerating decarbonisation, and leveraging digitalisation to minimize lifecycle carbon impact.

Our Digital Transformation journey advances in partnership with Dassault Systèmes, co-innovating next-generation technologies to shape the future.

Key Initiatives:

Virtual Twin Enabling 2D/3D-based classification and lifecycle assessment through a seamless digital thread, ensuring continuity and a single source of truth	Plan Approval Enabling integrated, collaborative, rule-based review and streamlined plan approval	Thickness Measurement Integrating survey thickness data with the Virtual Twin to enable lifecycle assessment and diminished thickness analysis	Structure FEM Enabling Direct Strength Analysis (DSA) and structural simulations through the Virtual Twin to ensure rule-compliant structural validation
Legacy Integration Our collaborative platform seamlessly integrates IRS rule systems, hydrodynamics, CFD, fatigue analysis, and allied engineering tools into a unified Virtual Twin ecosystem	Performance Intelligence Enabling AI-driven predictive maintenance, performance intelligence, health diagnostics, and emission compliance across the machinery lifecycle	Data Analytics Driving performance dashboards, failure prediction and risk-based decision support through analytics	Knowledge Management Capturing rule intelligence, domain knowledge and digital documentation

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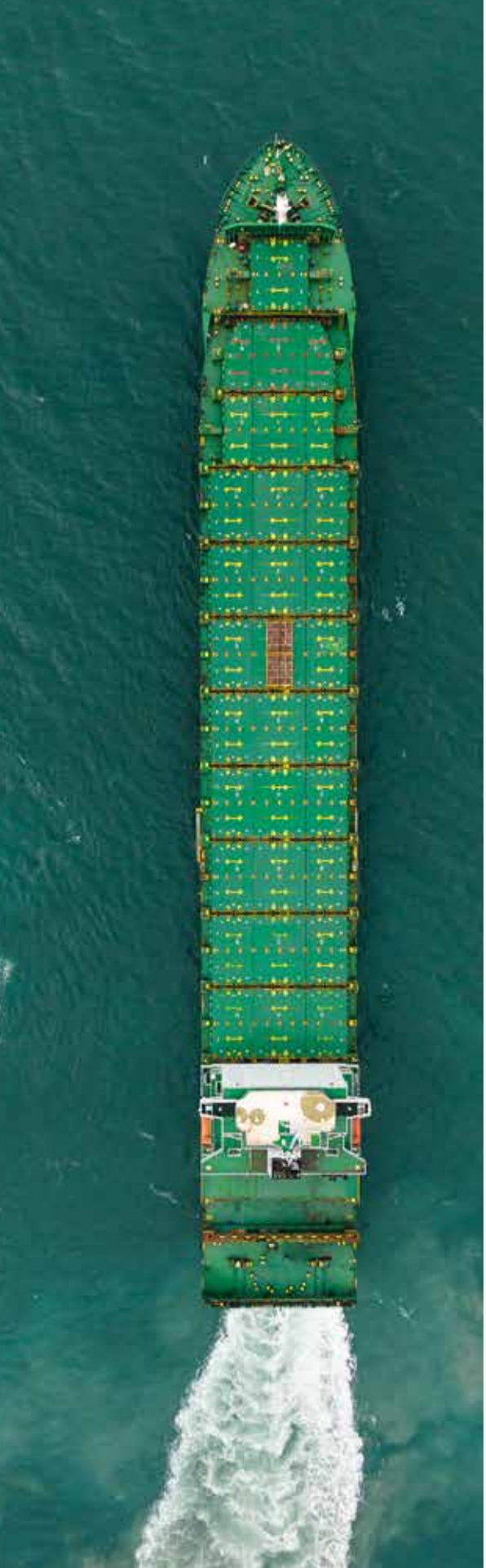
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Guiding Values



Safer

Advancing maritime safety through expertise and innovation



Smarter

Leveraging research, digital tools, and analytics



Greener

Promoting sustainability across shipping and infrastructure



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